

# ΕΦΗΜΕΡΙΣ ΤΗΣ ΚΥΒΕΡΝΗΣΕΩΣ ΤΗΣ ΕΛΛΗΝΙΚΗΣ ΔΗΜΟΚΡΑΤΙΑΣ

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ΝΟΜΟΣ ΥΠ' ΑΡΙΘ. 1741

*Κύρωση Ευρωπαϊκής Συμφωνίας για τη Διεθνή Οδική  
Μεταφορά Επικινδύνων Εμπορευμάτων (ADR) που  
υπογράφηκε στη Γενεύη την 30ή Σεπτεμβρίου 1957.*

Ο ΠΡΟΕΔΡΟΣ  
ΤΗΣ ΕΛΛΗΝΙΚΗΣ ΔΗΜΟΚΡΑΤΙΑΣ

Εκδίδομε τον ακόλουθο νόμο που ψήφισε η Βουλή:

Άρθρο πρώτο

1. Κυρώνεται και έχει την ισχύ που ορίζει το άρθρο 28 παρ. 1 του Συντάγματος η (με τη φροντίδα των Ηνωμένων Εθνών) Ευρωπαϊκή Συμφωνία, που υπογράφηκε στη Γενεύη την 30ή Σεπτεμβρίου 1957 «για τη Διεθνή Οδική Μεταφορά Επικινδύνων Εμπορευμάτων (ADR)» και που αποτελείται από τους τόμους I (Συμφωνία, Πρωτόκολλο Υπογραφής και Παράρτημα Α), II (Προσθήκες Παραρτήματος Α') και III (Παράρτημα Β').

2. Το κείμενο της Συμφωνίας που αναφέρεται στην προηγούμενη παράγραφο σε πρωτότυπο στην αγγλική γλώσσα και σε μετάφραση στην ελληνική έχει ως εξής:

ECONOMIC COMMISSION FOR EUROPE  
INLAND TRANSPORT COMMITTEE

## European Agreement

concerning the international carriage  
of dangerous goods by road (ADR)  
and protocol of signature

done at Geneva on 30 September 1957

## VOLUME 1

(Agreement, Protocol of signature and Annex A)

## FOREWORD

The text below comprises, in addition to the Agreement itself and the Protocol of signature, the annexes in the form in which they entered into force on 29 July 1968 as well as the amendments there to up to 1 October 1978.

EUROPEAN AGREEMENT CONCERNING THE  
INTERNATIONAL CARRIAGE OF DANGEROUS  
GOODS BY ROAD (ADR)

THE CONTRACTING PARTIES,  
DESIRING to increase the safety of international transport by road, HAVE AGREED as follows:

## Article 1.

For the purpose of this Agreement,

(a) the term «vehicle» shall mean motor vehicles, articulated vehicles, trailers and semi-trailers, as defined in article 4 of the Convention on Road Traffic of 19 September 1949, other than vehicles belonging to or under the orders of the armed forces of a Contracting Party;

(b) the term «dangerous goods» shall mean those substances and articles the international carriage by road of which is prohibited by, or authorized only on certain conditions by, Annexes A and B;

(c) the term «international transport» shall mean any transport operation performed on the territory of at least two Contracting Parties by vehicles defined in (a) above.

## Article 2.

1. Subject to the provisions of article 4, paragraph 3, dangerous goods barred from carriage by Annex A shall not be accepted for international transport.

2. International transport of other dangerous goods shall be authorized subject to compliance with:

(a) the conditions laid down in Annex A for the goods in question, in particular as regards their packaging and labelling, and

(b) the conditions laid down in Annex B, in particular as regards the construction, equipment and operation of the vehicle carrying the goods in question, subject to the provisions of article 4, paragraph 2.

## Article 3.

The Annexes to this Agreement shall form an integral part thereof.

## Article 4.

1. Each Contracting Party shall retain the right to regulate or prohibit, for reasons other than safety during carriage, the entry of dangerous goods into its territory.

2. Vehicles in service on the territory of a Contracting Party at the time of entry into force of this Agreement or brought into service on such territory within two months after its entry into force shall be allowed, for a period of

three years from such entry into force, to perform the international transport of dangerous goods even if their construction and equipment do not entirely conform to the requirements laid down in Annex B for the transport operation in question. Under special clauses of Annex B, however, this period may be reduced.

3. The Contracting parties shall retain the right to arrange, by special bilateral or multilateral agreements, that certain of the dangerous goods which under this Agreement are barred from from all international transport may, subject to certain conditions, be accepted for international transport on their territories, or that dangerous goods which under this Agreement are acceptable for international transport only on specified conditions may be accepted for international transport on their territories under conditions less stringent than those laid down in the Annexes to this Agreement. The special bilateral or multilateral agreements referred to in this paragraph shall be communicated to the Secretary - General of the United Nations, who shall communicate them to the Contracting Parties which are not signatories to the said agreements.

## Articles 5.

The transport operations to which this Agreement applies shall remain subject to national or international regulations applicable in general to road traffic, international road transport and international trade.

## Article 6.

1. Countries members of the Economic Commission for Europe and countries admitted to the Commission in a consultative capacity under paragraph 8 of the Commission's terms of reference may become Contracting Parties to this Agreement

(a) by signing it;

(b) by ratifying it after signing it subject to ratification;

(c) by acceding to it.

2. Such countries as may participate in certain activities of the Economic Commission for Europe in accordance with paragraph 11 of the Commission's terms of reference may become Contracting Parties to this Agreement by acceding to it after its entry into force.

3. The Agreement shall be open for signature until 15 December 1957. Thereafter, it shall be open for accession.

4. Ratification or accession shall be effected by the depositing of an instrument with the Secretary - General of the United Nations.

## Article 7.

1. This Agreement shall enter into force one month after the date on which the number of countries mentioned in article 6, paragraph 1, which have signed it without reservation of ratification or have deposited their instruments of ratification or accession has reached a total of five. However, the Annexes thereto shall not apply until six months after the entry into force of the Agreement itself.

2. For any country ratifying or acceding to this Agreement after five of the countries referred to in article 6, paragraph 1, have signed it without reservation of ratification or have deposited their instruments of ratification or accession, this Agreement shall enter into force one month after the said country has deposited its instrument of ratification or accession and the Annexes thereto shall apply for the said country either on the same date, if they are already in force by that date, or, if they are not in force by that date, on the date on which they apply under the provisions of paragraph 1 of this article.

## Article 8.

1. Any Contracting Party may denounce this Agreement by so notifying the Secretary - General of the United Nations.

2. Denunciation shall take effect twelve months after the date of receipt by the Secretary - General of the notification of denunciation.

## Article 9.

1. This Agreement shall cease to have effect if, after its entry into force, the number of Contracting Parties is less than five during twelve consecutive months.

2. In the event of the conclusion of a worldwide agreement for the regulation of the transport of dangerous goods, any provision of this Agreement which is contrary to any provision of the said worldwide agreement shall, from the date on which the latter enters into force, automatically cease to apply to relations between the Parties to this Agreement which become parties to the worldwide agreement, and shall automatically be replaced by the relevant provision of the said worldwide agreement.

## Article 10.

1. Any country may, at the time of signing this Agreement without reservation of ratification or of depositing its instrument of ratification or accession or at any time thereafter, declare by notification addressed to the Secretary - General of the United Nations that this Agreement shall extend to all or any of the territories for the international relations of which it is responsible. The Agreement and the annexes thereto shall extend to the territory or territories named in the notification one month after it is received by the Secretary - General.

2. Any country which has made a declaration under paragraph 1 of this article extending this Agreement to any territory for whose international relations it is responsible may denounce the Agreement separately in respect of the said territory in accordance with the provisions of article 8.

## Article 11.

1. Any dispute between two or more Contracting Parties concerning the interpretation or application of this Agreement shall so far as possible be settled by negotiation between them.

2. Any dispute which is not settled by negotiation shall be submitted to arbitration if any one of the Contracting Parties in dispute so requests and shall be referred accordingly to one or more arbitrators selected by agreement between the Parties in dispute. If within three months from the date of the request for arbitration the Parties in dispute are unable to agree on the selection of an arbitrator or arbitrators, any of those Parties may request the Secretary - General of the United Nations to nominate a single arbitrator to whom the dispute shall be referred for decision.

3. The decision of the arbitrator or arbitrators appointed under paragraph 2 of this article shall be binding on the Contracting Parties in dispute.

## Article 12.

Each Contracting Party may, at the time of signing, ratifying, or acceding to, this Agreement, declare that it does not consider itself bound by article 11. Other Contracting Parties shall not be bound by article 11 in respect of any Contracting Party which has entered such a reservation.

2. Any Contracting Party having entered a reservation as provided for in paragraph 1 of this article may at any time withdraw such reservation by notifying the Secretary - General of the United Nations.

## Article 13.

1. After this Agreement has been in force for three years, any Contracting Party may, by notification to the Secretary - General of the United Nations, request that a conference be convened for the purpose of reviewing the text of the Agreement. The Secretary - General shall notify all Contracting Parties of the request and a review conference shall be convened by the Secretary - General if, within a period of four months following the date of notification by the Secretary - General, not less than one-fourth of the Contracting Parties notify him of their concurrence with the request.

2. If a conference is convened in accordance with paragraph 1 of this article, the Secretary - General shall notify all the Contracting Parties and invite them to submit within a period of three months such proposals as they may wish the Conference to consider. The Secretary - General shall circulate to all Contracting Parties the provisional agenda for the conference, together with the texts of such proposals at least three months before the date on which the conference is to meet.

3. The Secretary - General shall invite to any conference convened in accordance with this article all countries referred to in article 6, paragraph 1, and countries which have become Contracting Parties under article 6, paragraph 2.

## Article 14.

1. Independently of the revision procedure provided for in article 13, any Contracting Party may propose one or more amendments to the Annexes to this Agreement. To that end it shall transmit the text thereof to the Secretary - General of the United Nations. The Secretary - General may also propose amendments to the Annexes to this Agreement for the purpose of ensuring concordance between those Annexes and other international agreements concerning the carriage of dangerous goods.

2. The Secretary - General shall transmit any proposal made under paragraph 1 of this article to all Contracting Parties and inform thereof the other countries referred to in article 6, paragraph 1.

3. Any proposed amendment to the Annexes shall be deemed to be accepted unless, within three months from the date on which the Secretary - General circulates it, at least one-third of the Contracting Parties, or five of them if one-third exceeds that figure, have given the Secretary - General written notification of their objection to the proposed amendment. If the amendment is deemed to be accepted, it shall enter into force for all the Contracting Parties, either on the expiry of a further period of three months or, in cases where similar amendments have been or are likely to be made to the other international agreements referred to in paragraph 1 of this article, on the expiry of a period the duration of which shall be determined by the Secretary - General in such a way as to allow, wherever possible, the simultaneous entry into force of the amendment and those that have been or are likely to be made to such other agreements; such period shall not, however, be of less than one month's duration.

4. The Secretary - General shall, as soon as possible, notify all Contracting Parties and all the countries referred to in article 6, paragraph 1, of any objection which may be received from the Contracting Parties to a proposed amendment.

5. If the proposed amendment to the Annexes is not deemed to be accepted, but if at least one Contracting Party other than the Contracting Party which proposed the amendment has given the Secretary - General written notification of its agreement to the proposal, a meeting of all the Contracting Parties and all the countries referred

to in article 6, paragraph 1, shall be convened by the Secretary - General within three months after the expiry of the period of three months within which, under paragraph 3 of this article, notification must be given of objection to the amendment. The Secretary - General may also invite to such meeting representatives of:

(a) intergovernmental organizations which are concerned with transport matters;

(b) international non-governmental organizations whose activities are directly related to the transport of dangerous goods in the territories of the Contracting Parties.

6. Any amendment adopted by more than half the total - number of Contracting Parties at a meeting convened in accordance with paragraph 5 of this article shall enter into force for all Contracting Parties in accordance with the procedure agreed at such meeting by the majority of the Contracting Parties attending it.

#### Article 15.

In addition to the notifications provided for in articles 13 and 14, the Secretary- General of the United Nations shall notify the countries referred to in article 6, paragraph 1, and the countries which have become Contracting Parties under article 6, paragraph 2, of

(a) signatures, ratifications and accessions in accordance with article 6;

(b) the dates on which this Agreement and the Annexes thereto enter into force in accordance with article 7;

(c) denunciations in accordance with article 8;

(d) the termination of the Agreement in accordance with article 9;

(e) notifications and denunciations received in accordance with article 10;

(f) declarations and notifications received in accordance with article 12, paragraphs 1 and 2;

(g) the acceptance and date of entry into force of amendments in accordance with article 14, paragraphs 3 and 6.

#### Article 16.

1. The Protocol of Signature of this Agreement shall have the same force, effect and duration as the Agreement itself, of which it shall be considered to be an integral part.

2. No reservation to this Agreement, other than those entered in the Protocol of Signature and those made in accordance with article 12, shall be permitted.

#### Article 17.

After 15 December 1957, the original of this Agreement shall be deposited with the Secretary - General of the United Nations, who shall transmit certified true copies thereof to each of the countries referred to in article 6, paragraph 1.

IN WITNESS WHEREOF the undersigned, being duly authorized thereto, have signed this Agreement.

DONE at Geneva, this thirtieth day of September one thousand nine hundred and fifty - seven, in a single copy, in the English and French languages for the text of the Agreement proper, and in the French language for the Annexes, each text being equally authentic for the Agreement proper.

The Secretary - General of the United Nations is requested to prepare an authoritative translation of the Annexes in the English language and attach it to the certified true copies referred to in article 17.

### PROTOCOL OF SIGNATURE

#### TO THE EUROPEAN AGREEMENT ON THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR)

On proceeding to sign the European Agreement on the International Carriage of Dangerous Goods by Road (ADR) the undersigned, duly authorized,

CONSIDERING that the conditions governing the carriage of dangerous goods by sea to or from the United Kingdom differ basically from those set forth in Annex A to ADR and that it is impossible to modify them so as to conform to the latter in the near future;

HAVING REGARD to the undertaking given by the United Kingdom to submit as an amendment to the said Annex A a special appendix containing special provisions for road - sea carriage of dangerous goods between the Continent and the United Kingdom;

HAVE AGREED that, until the entry into force of such special appendix, dangerous goods carried under ADR to or from the United Kingdom shall comply with the provisions of Annex A to ADR and also with the United Kingdom conditions for the carriage of dangerous goods by sea;

TAKE NOTE OF a declaration by the representative of France to the effect that the Government of the French Republic reserves the right, notwithstanding the provisions of article 4, paragraph 2, to refuse to allow vehicles in service on the territory of another Contracting Party, whatever the date on which they were put into service, to be used for the carriage of dangerous goods on French territory unless such vehicles comply either with the conditions laid down for such carriage in Annex B or with the conditions laid down for the carriage of the goods in question in the French regulations governing the carriage of dangerous goods by road;

RECOMMEND that, before submission in accordance with article 14, paragraph 1, or article 13, paragraph 2, proposed amendments to this Agreement or its Annexes shall as far as possible first be discussed at meetings of experts of the Contracting Parties and, if necessary, of the other countries mentioned in article 6, paragraph 1, of the Agreement and of the international organizations mentioned in article 14, paragraph 5, of the Agreement.

#### EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR)

##### ANNEX A

#### PROVISIONS CONCERNING DANGEROUS SUBSTANCES AND ARTICLES

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2001  
(contd)

2002

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## Part I

## DEFINITIONS AND GENERAL PROVISIONS

## 1) For the purposes of this Annex:

- the term «competent authority» means the authority designated as such in each country and in each specific case by the Government;
- the term «fragile package» means a package containing a fragile receptacle (i.e. a receptacle made of glass, porcelain, stoneware or similar materials) which is not enclosed in a packaging with complete sides protecting it effectively against shock [see also marginal 2001 (5)];
- the term «gas» means a gas or vapour;
- the term «dangerous substances», when used alone, means the substances and articles designated as being substances and articles of ADR;
- the term «carriage in bulk» means the carriage of a solid substance without packaging;
- the term «RID» means the International Regulations

concerning the Carriage of Dangerous Goods by Rail [Annex 1 to the International Convention concerning the Carriage of Goods by Rail (CIM)].

(2) For the purposes of this Annex, tanks (see definitions in Annex B) are not placed on the same footing as receptacles, the term «receptacle» being used in a restrictive sense. Provisions concerning receptacles are applicable to fixed tanks, batteries of receptacles, demountable tanks and tank - containers only if this is expressly stipulated.

(3) The term «full load» means any load originating from one sender for which the use of a vehicle or of a large container is exclusively reserved and all operations for the loading and unloading of which are carried out in conformity with the instructions of the sender or of the consignee.

(1) Unless expressly stated otherwise, the sign «%» in this Annex represents:

(a) in the case of mixtures of solids or of liquids, and also in the case of solutions and of solids wetted by a liquid: a percentage by weight based on the total weight of the mixture, the solution or the wetted solid;

(b) in the case of gaseous mixtures: a percentage by volume based on the total volume of the gaseous mixture.

## Definitions and general provisions

(2) All weights mentioned for packages in this Annex are, unless otherwise specified, gross weights. The weight of containers or tanks used for the carriage of goods is not included in the gross weight.

(3) Pressures of all kinds relating to receptacles (such as test pressure, internal pressure, safety - valve opening pressure) are always indicated in kg/cm<sup>2</sup> gauge pressure (pressure in excess of atmospheric pressure); however, the vapour pressure of substances is always expressed in kg/cm<sup>2</sup> absolute pressure.

(4) Where this Annex specifies a degree of filling for receptacles or tanks, that degree of filling is always referred to a temperature of the substances of 15°C unless some other temperature is indicated.

(5) Fragile receptacles secured, either singly or in groups, by cushioning materials in a strong receptacle are not regarded as fragile receptacles on condition that the strong receptacle is leakproof and so designed that in the event of breakage or leakage of the fragile receptacles their contents cannot escape from the strong receptacle and that the mechanical strength of the latter is not impaired by corrosion during carriage.

## GENERAL PROVISIONS

(1) This Annex specifies the dangerous goods to be excluded from international carriage by road and the dangerous goods to be accepted for such carriage under certain conditions. It groups the dangerous goods in restrictive and non - restrictive Classes. Of the dangerous goods covered by the headings of the restrictive Classes (Classes 1a, 1b, 1c, 2, 4.2, 4.3, 5.2, 6.2 and 7), those which are listed in the clauses concerning these Classes (marginals 2101, 2131, 2171, 2201, 2431, 2471, 2551, 2651 and 2701) are to be accepted for carriage only under the conditions specified in these clauses, and others are to be excluded from carriage. Some of the dangerous goods covered by the headings of the non - restrictive Classes (Classes 3, 4.1, 5.1., 6.1, and 8) are, by notes inserted in the clauses concerning the various Classes, excluded from carriage; of the other goods covered the various Classes, excluded from carriage; of the other goods covered by the headings of the non - restrictive Classes, those which are mentioned or defined in the clauses concerning these Classes (marginals 2301, 2401, 2501, 2601 and 2801) are to be accepted for carriage only under the conditions specified in these clauses, and those which are not mentioned or defined therein are not deemed to be dangerous goods for the purposes of this Agreement and are to be accepted for carriage without any special conditions.

1-1999  
2000

	Definitions and general provisions	
(2) The	Classes of this Annex are as follows:	2002
Class 1a	Explosive substances and articles	Restrictive
Class 1b	Articles filled with explosive substances	"
Class 1c	Igniters, fireworks and similar goods	"
Class 2	Gases: compressed, liquefied or dissolved under pressure	"
Class 3	Inflammable liquids	Non-restrictive
Class 4.1.	Inflammable solids	Non-restrictive
Class 4.2.	Substances liable to spontaneous combustion	Restrictive
Class 4.3	Substances which give off inflammable gases on contact with water	Restrictive
Class 5.1	Oxidizing substances	Non-restrictive
Class 5.2	Organic peroxides	Restrictive
Class 6.1.	Toxic substances	Non-restrictive
Class 6.2	Repugnant substances and substances liable to cause infection	Restrictive
Class 7	Radioactive substances	Restrictive
Class 8	Corrosive substances	Non-restrictive

(3) Any carriage of goods governed by this Annex shall be the subject of a transport document. The sender shall communicate in writing to the carrier the particulars to be included in the transport document as laid down for each class in part II of this Annex in sections 2.B. The document may be that already required by other regulations in force. Any goods the carriage of which is so governed shall be described in the transport document in conformity with the indications in section B of the special provisions for each Class. The particulars to be entered in the transport document shall be drafted in an official language of the forwarding country, and also, if that language is not English, or French, or German, in English, French or German, unless international road transport tariffs, if any, or agreements concluded between the countries concerned in the transport operation, provide otherwise. The transport document shall be accompanied, if appropriate, by instructions to be implemented in the event of an accident (see Annex B, marginal 10185). The transport document shall accompany the dangerous substances carried.

(4) If by reason of the size of the load a consignment cannot be loaded in its entirety on a single transport unit, at least as many separate documents, or copies of the single document, shall be made out as transport units loaded. Furthermore, in all cases, separate transport documents shall be made out for consignments or parts of consignments which may not be loaded together on the same vehicle by reason of the prohibitions set forth in Annex B.

(5) Outer packagings additional to those specified in this Annex may be used providing that they do not contravene the spirit of the provisions of this Annex relating to outer packagings. If such additional packagings are used, the prescribed marking and labels shall be applied to them.

(6) If the mixed packing of several dangerous substances with one another or with other goods is allowed by the provisions of section A. of the provisions applicable to the various Classes, the inner packagings containing different dangerous substances shall be carefully and effectively separated from one another in the collective packagings if dangerous reactions, such as the production of dangerous heat, combustion, the formation of mixtures

sensitive to friction or shock, and the release of inflammable or toxic gases, are liable to occur as a result of damage to or destruction of the inner packagings, In particular, if fragile receptacles are used, and especially if the said receptacles contain liquids, the danger of the formation of dangerous mixtures shall be avoided and to this end all appropriate measures shall be taken, such as the use of suitable cushioning materials in sufficient quantity, securing of the receptacles in a second strong packaging, and subdivision of the collective packaging into several compartments.

(7) If mixed packing is used, the provisions of this Annex concerning the particulars in the transport document shall apply in respect of each of the different kinds of dangerous substance contained in the collective package, and the collective package shall bear all the inscriptions and all the danger labels prescribed in this Annex for the dangerous substances the collective package contains.

(8) If solutions of substances listed in this Annex are not expressly mentioned in the list of the Class to which the dissolved substances belong, they shall nevertheless be considered as substances of ADR if their concentration is such that they retain the danger inherent in the substances themselves; their packaging shall in such event conform to the requirements of section A of the special provisions applicable to the Class to which the said substances belong, it being understood that packagings which would be unsuitable for the carriage of liquids may not be used.

(9) Mixtures of substances of ADR with other substances shall be considered as substances of ADR if they retain the danger inherent in the substance which is a substance of ADR.

(10) The sender, either in the transport document or in a separate declaration, shall certify that the substance presented may be carried by road in conformity with the provisions of ADR, that its condition, treatment and, as appropriate its packaging and labelling comply with the provisions of ADR. Furthermore, if several dangerous goods are packed together in a collective package or in a single container, the sender is required to declare that this mixed packing is not prohibited.

(11) A substance whose specific radioactivity does not exceed 0.002 microcurie per gramme and which is covered by a collective heading of any Class shall be excluded from carriage if, in addition, it is covered by the heading of a restrictive Class in which it is not listed.

(12) A substance whose specific radioactivity does not exceed 0.002 microcurie per gramme and which is not listed by name in a Class, but is covered by two or more collective headings of different Classes, shall be subject to the conditions of carriage laid down:

(a) in the restrictive Class, if one of the Classes concerned is a restrictive Class;

(b) in the Class corresponding to the predominant danger exhibited by the substance during carriage, if none of the Classes concerned is a restrictive Class.

(1) This Annex contains for each Class other than Class 7:

(a) a list of the dangerous substances constituting the Class, and, where applicable, in the form of a marginal having a number ending with the letter «a», the exemptions allowed from the provisions of ADR for some of those substances if they comply with certain conditions;

(b) provisions sub-divided as follows:

A. Packages:

1. General conditions of packing;
2. Packing of a single substance or of articles of the same kind;
3. Mixed packing;
4. Marking and danger labels on packages.

B. Particulars in the transport document.

C. Empty packagings.

D. (where appropriate) Other provisions.

(2) Provisions concerning:

- consignment in bulk, in containers and in tanks;
- method of despatch and restrictions on forwarding;

- prohibitions on mixed loading; and  
 - transport equipment are to be found in Annex B and its appendices, which also contain all other pertinent provisions applying specifically to carriage by roade.

(3) The appendices to this Annex contain:

Appendix A.1: Stability and safety conditions relating to explosive substances, inflammable solids and organic peroxides, together with rules for tests;

Appendix A.2: Provisions relating to the nature of aluminium-all receptacles for certain gases of Class 2; provisions relating to the materials and construction of receptacles, intended for the carriage or deeply-refrigerated liquefied gases of Class 2; and provisions relating to tests on aerosol dispensers and non-refillable containers for gases under pressure of Class 2, 10° and 11°;

Appendix A.3: Tests relating to inflammable liquids of Classes 3 and 6.1.;

Appendix A.5: Provisions relating to tests on the metal drums referred to in marginals 2303(6) and 2813(1)(c);

Appendix A.6: Regulations relating to radioactive substances of Class 7;

Appendix A.9: Provisions relating to danger labels, and explanation of the symbols.

Appendixes A.4, A.7, and A.8, are reserved.

(4) For Class 7, the details concerning conditions of packing, mixed packing, labelling and marking of packages as well as provisions governing storage, despatch and carriage, including in bulk in containers and in tanks, are specified in the schedules of Annex A listed in marginal 2702. Some of the detailed and technical provisions affecting this Class are elaborated in Appendix A.6 which also include the complete table of radionuclides and method of testing packagings intended for substances of Class 7.

Where the provisions relating to carriage as a «full load» are applied the competent authorities may require the vehicle or large container used for the transport operation concerned to be loaded at only one point and unloaded at only one point.

(1) If the vehicle carrying out a transport operation subject to the provisions of ADR is conveyed over a section of the journey other than by road haulage, then any national or international regulations on the said section, govern the carriage of dangerous goods by the mode transport used for conveying the road vehicle shall alone be applicable to the said section of the journey.

(2) In cases where a transport operation subject to the provision of ADR is likewise subject over the whole or a part of its road journey to the provisions of an international convention which regulates the carriage of dangerous goods by a mode of transport other than road carriage by virtue of clauses extending the applicability of the said convention to certain motor-vehicle services, then the provisions of that international convention shall apply, over the journey in question concurrently with those of ADR which are not incompatible therewith; the other clauses of ADR shall not apply over the journey in question.

For the purpose of carrying out the trials necessary with a view to amending the provisions of this Annex in order to adapt them to technological and industrial developments, the competent authorities of the Contracting Parties may agree directly among themselves to authorize certain transport operations in their territories by temporary derogation from the provisions of this Annex. The authority which has taken the initiative with respect to the temporary derogation so granted shall notify the competent service of the United Nations Secretariat of the derogation, which service shall bring it to the attention of the Contracting Parties.

2011

## Part II

### LIST OF SUBSTANCES AND SPECIAL PROVISIONS FOR THE VARIOUS CLASSES CLASS 1a EXPLOSIVE SUBSTANCES AND ARTICLES

Note: Substances and articles which cannot explode on

contact with a flame and which are not more sensitive to shock or friction than dinitrobenzene are not subject to the provisions of Class 1a

#### 1. List of substances and articles

(1) Among the substance and articles covered by the heading of Class 1a, only those listed in marginal 2101 are to be accepted for carriage, and then only subject to the provisions of this Annex and of Annex B. These substances and articles to be accepted for carriage under certain conditions are to be considered as substances and articles of ADR. 2100

(2) In the explosives which are to be accepted for carriage, nitroglycerine may be replaced wholly or in part by:

- nitroglycol, or
- dinitrodiethyleneglycol, or
- nitrated sugar (nitrated saccharose), or
- a mixture of the above substances.

1° Highly nitrated nitrocellulose (such as guncotton), i.e. with a nitrogen content of more than 12.6 per cent, well stabilized and containing in addition: 2101

When the nitrocellulose is not compressed, not less than 25 per cent water or alcohol (methyl, ethyl, normal propyl or isopropyl, butyl, or amyl alcohol or mixtures thereof), including denatured alcohol; or mixtures of water and alcohol;

when the nitrocellulose is compressed, not less than 15 per cent water, or not less than 12 per cent paraffin wax or other similar substances.

See also Appendix A1, marginal 3101.

Note: 1. Nitrocellulose with a nitrogen content not exceeding 12.6 per cent is a substance of Class 4.1 if it complies with the specifications set out in marginal 2401, (a), (b) or (c).

2. Nitrocellulose in the form of nitrocellulose-film was free from gelatine, in reels, sheets or strips, is a substance of Class 4.2 (see marginal 2431, 4°).

2° Cordite paste, non-gelatinized («powder cake»), for use in the making of smokeless powders and containing not more than 70 per cent anhydrous substance and not less than 30 per cent water; the anhydrous substance liquid explosives.

3° Gelatinized nitrocellulose powders and gelatinized nitrocellulose powders containing nitroglycerine (nitroglycerine powders):

- non-porous and non-dusty;
- porous or dusty.

4° Plasticized nitrocellulose containing not less than 12 per cent but less than 18 per cent plasticizing substances (such as butyl phthalate whose nitrocellulose has a nitrogen content not exceeding 12.6 per cent, also in the form of chips.

Note: Plasticized nitrocellulose containing not less than 18 per cent butyl phthalate or a plasticizer at least equal in effect is a substance of Class 4.1 [see marginal 2401 7° (b) and (c)].

See also Appendix A.1, marginal 3102, 1.

5° Non-gelatinized nitrocellulose powders. See also Appendix A.1, marginal 3102.

6° Trinitrotoluene (tolite), also when compressed or cast, trinitrotoluene mixed with aluminium, mixtures termed liquid trinitrotoluene, and trinitroanisole. See also Appendix A.1, marginal 3103.

7° (a) Hexyl (hexanitrodiphenylamine) and picric acid;

(b) pentolites (mixtures of pentaerythritol tetranitrate and trinitrotoluene) and hexolites (mixtures of trimethylene-trinitramine and trinitrotoluene) if their trinitrotoluene content is such that their sensitiveness to shock does not exceed that of tetryl;

(c) phlegmatized penthrite (pentaerythritol tetranitrate) and phlegmatized hexogen (trimethylene-trinitramine), both phlegmatized by incorporation of wax, paraffin wax or other similarly effective substances in such quantity

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that the sensitiveness of these substances to shock does not exceed that of tetryl.

For (a), (b) and (c), see also Appendix A.1, marginal 3103.

Note: Substances of 7° (b) and phlegmatized hexogen of 7° (c) may also contain aluminium.

Explosive organic nitro-compounds:

(a) soluble in water, e.g. trinitroresorcinol:

(b) insoluble in water, e.g. tetryl (trinitrophenylmethyl-nitramine)

(c) tetryl gains without metal covering.

For (a) and (b), see also Appendix A.1, marginal 3103.

Note: Except for liquid trinitrotoluene (6°), explosive organic, nitrocompounds in the liquid state are not to be accepted for carriage.

(a) Moist penthrite (pentaerythritol tetranitrate) and moist hexogen (trimethylene- trinitramine) wetted throughout with not less than 20 per cent water in the case of the former and not less than 15 per cent in the case of the latter;

(b) moist pentolites (mixtures of penthrite and trinitrotoluene) and moist hexolites (mixtures of hexogen and trinitrotoluene) whose sensitiveness to shock in the dry state exceeds that of tetryl and which are wetted throughout with not less than 15 per cent water;

(c) moist mixtures of penthrite or of hexogen with wax, paraffin wax or substances similar to wax or paraffin wax, whose sensitiveness to shock in the dry state exceeds that of tetryl and which are wetted throughout with not less than 15 per cent water:

(d) compressed penthrite gains without metal covering.

For (a), (b) and (c), see also Appendix A.1, marginal 3103.

(a) Benzoyl peroxide:

1. in the dry state or with less than 10 per cent water;

2. with less than 30 per cent phlegmatizer.

Note: 1. Benzoyl peroxide with not less than 10 per cent water or with not less than 30 per cent phlegmatizer is a substance of Class 5.2 [see marginal 2551, 8° (a) and (b)].

2. Benzoyl peroxide with not less than 70 per cent dry and inert solids is not subject to the provisions of ADR.

(b) Cyclohexanone peroxides [1-hydroxy -1'hydroperoxy - dicyclohexyl peroxide and bis - (1-hydroxycyclohexyl) peroxide and mixtures of these two

1. in the dry state or with less than 5 per cent water:

2. with less than 30 per cent phlegmatizer.

Note: 1. Cyclohexanone peroxides and their mixtures with not less than 5 per cent water or with not less than 30 per cent phlegmatizer are substances of Class 5.2 [see marginal 2551 9° (a) and (b)].

2. Cyclohexanone peroxides and their mixtures with not less than 70 per cent dry and inert solids are not subject to the provisions of ADR.

(c) Parachlorobenzoyl peroxide:

1. in the dry state or with less than 10 per cent water;

2. with less than 30 per cent phlegmatizer.

Note: 1. Parachlorobenzoyl peroxide with not less than 10 per cent water or with not less than 30 per cent phlegmatizer is a substance of Class 5.2 [see marginal 2551 17° (a) and (b)].

2. Parachlorobenzoyl peroxide with not less than 70 per cent dry and inert solids is not subject to the provisions of ADR.

11° (a) Black powder (with a basis of potassium nitrate) in corned or meal form;

(b) slow mining powders similar to black powder (composed of sodium nitrate, sulphur and wood charcoal, coal or lignite, or composed of potassium nitrate with or without sodium nitrate, sulphur, coal or lignite).

(c) cartridges of compressed black powder or powder similar to compressed black powder.

#### Class 1a

For (a) and (b), see also Appendix A.1, marginal 3104.

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12° (a) Nitrate explosives, in powder form, not covered by 11° or 14° (a) or (c) and consisting essentially of ammonium nitrate or of a mixture of ammonium nitrate and alkali or alkaline-earth nitrates or of a mixture of ammonium nitrate and sodium chloride, or of a mixture of alkali or alkaline-earth nitrates and ammonium chloride, or of a mixture of ammonium nitrate with alkali or alkaline-earth nitrates and of sodium chloride, or of a mixture of ammonium nitrate with alkali or alkaline-earth nitrates and ammonium chloride. They may contain, in addition, combustible substances (such as wood flour, or other vegetable flour or hydrocarbons), sensitizers (for example, fine aluminium powder), aromatic nitro-compounds, nitroglycerine or nitroglycol or a mixture of the two, and inert stabilizing or colouring substances (see also Appendix A.1, marginal 3105).

(b) Explosives not containing inorganic nitrates, in powder form, consisting essentially of a mixture of inert substances (such as alkali chlorides) with nitroglycerine or nitroglycol or a mixture of the two. They may contain, in addition, aromatic nitro-compounds and substances with a phlegmatizing, stabilizing or gelatinizing, or colouring effect. See also Appendix A.1, marginal 3105.

13° Chlorate and perchlorate explosives, i.e. mixtures of chlorates or perchlorates of alkali or alkaline-earth metals with compounds rich in carbon.

See also Appendix A.1, marginal 3106.

14° (a) Dynamites with an inert absorbent, and explosives similar to dynamite with an inert absorbent;

(b) Blasting gelatine consisting of gun-cotton and not more than 93 per cent nitroglycerine, and gelatinized dynamites with a nitroglycerine content not exceeding 85 per cent;

(c) Gelatinous nitrate explosives, consisting essentially of ammonium nitrate or of a mixture of ammonium nitrate with nitrates of alkali or alkaline-earth metals containing not more than 40 per cent gelatinized nitroglycerine or gelatinized nitroglycol or a mixture of the two. They may contain, in addition, nitro-compounds or combustible substances (such as wood flour or another vegetable flour or hydrocarbons) and, in addition, other inert or colouring substances.

For (a), (b) and (c), see also Appendix A.1, marginal 3107.

15° Empty packagings, uncleaned, which have contained dangerous substances of Class 1a.

#### Class 1a

##### A. Packages

##### 2. Provisions

##### 1. General conditions of packing

(1) Packagings shall be so closed and leak-proof as to prevent any loss of the contents. The use of metal bands or wire to ensure closure is forbidden unless this procedure is specifically authorized in the special provisions relating to the packing of the substances or article in question.

(2) The materials of which the packagings and their closures are made must not be liable to attack by the contents or form harmful or dangerous compounds therewith.

(3) Packagings, including their closures, must be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. Solid substances shall be firmly secured in their packagings, and inner packagings shall be firmly secured in outer packagings. Unless otherwise specified in the section entitled «Packing of a single substance or of articles of the same kind», inner packagings may be enclosed in outer packagings, either singly or in groups.

(4) Bottles and other glass receptacles must be free from faults liable to impair their strength; in particular, internal stresses must have been suitably relieved. The thickness of the walls must not be less than 2 mm.

(5) Cushioning materials shall be suited to the nature of the contents; in particular, they must be absorbent if

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Note: The density of the compressed mass must not be less than 1.5.g per 15°.



the contents are liquid or might exude liquid.

2. Packing of a single substance or of articles of the same kind

(1) Substances of 1° and 2° shall be packed:

(a) in wooden receptacles or in drums made of impermeable fibreboard: these receptacles and drums shall in addition be fitted with a lining impermeable to the liquids the contain; their closure must be leak-proof or

(b) in impermeable bags (e.g. made of rubber or of a suitable plastics material not readily inflammable) placed in a wooden case or

(c) in iron drums coated inside with zinc or lead or

(d) in receptacles made of tin-plate, zinc sheet or aluminium sheet, which shall be secured by cushioning materials in wooden cases.

(2) Metal receptacles shall be fitted with closures or safety devices yielding when the internal pressure reaches a value not greater than 3 kg/cm<sup>2</sup>; the presence of these closures or safety devices must not impair the strength of the receptacles nor impair its closure.

(3) Nitrocellulose of 1°, if wetted exclusively with water, may be packed in fibreboard drums; the fibreboard must have undergone a special treatment to render it completely impermeable; the closures of the drums must be water-vapour proof.

(4) A package containing substances of 1° must not weigh more than 120 kg or, if it can be rolled, more than 300 kg; however, where fibreboard drums are used, a packages must not weigh more than 75 kg.

A packages containing substances of 2° must not weigh more than 75 kg.

(1) Substances of 3° (a) and 4° shall be packed:

(a) if they are to be carried as a full load:

1. in drums made of impermeable fibreboard; or

2. in packagings made of wood or of metal other than black sheet-iron;

(b) if they are not to be carried as a full load

1. in boxes made of fibreboard, tin-plate, zinc sheet or aluminium sheet, or of a suitable plastics material not readily inflammable, or in bags made of closely-woven textile or of stout paper of at least two plies or of stout paper lined with aluminium foil or with a suitable plastics material. These packaging shall be placed in wooden cases; or

2. without preliminary packing in boxes or bags:

a. in drums made of impermeable fibreboard or in wooden casks; or

b. in wooden packagings lined with zinc sheet or aluminium sheet or

c. in receptacles made of metal other than black sheet-iron.

(2) If the powder is in tubes, sticks, threads, bands or sheets it may also be enclosed, without preliminary packing in boxes or bags, in wooden cases.

(3) Metal receptacles shall be fitted with closures or safety devices yielding when the internal pressure reaches a value not greater than 3 kg/cm<sup>2</sup>; the presence of these closures or safety devices must not impair the strength of the receptacle not impair its closure.

(4) The closure of wooden cases may be ensured by means of band or wires made of a suitable metal fastened tightly round them. If the band or wires are made of iron they shall be covered with a material not liable to produce sparks when subjected to impact or friction.

(5) A package must not weigh more than 120 kg; however, where fibreboard drums are used, a package must not weigh more than 75 kg.

(1) Substances of 3° (b) and 5° shall be packed:

(a) if they are to be carried as a full load:

1. in drums made of impermeable fibreboard; or

2. in packagings made of wood or of metal other than black sheet-iron.

(b) if they are not to be carried as a full load:

1. in boxes made of fibreboard, tin-plate or aluminium sheet. A box must not contain more than 1 kg of powder and must be wrapped in paper. These packagings shall

be placed in wooden packagings or

2. in bags made of closely-woven textile or of stout paper of at least two plies or of stout paper lined with aluminium foil or with a suitable plastics material. These bags shall be placed in fibreboard drums or in wooden casks or in other wooden packagings lined with zinc sheet or aluminium sheet, or in receptacles made of zinc sheet or aluminium sheet. Receptacles made of zinc sheet or aluminium sheet shall be completely lined with wood or fibreboard.

(2) Metal receptacles shall be fitted with closures or safety devices yielding when the internal pressure reaches a value not greater than 3 kg/cm<sup>2</sup>; the presence of these closures or safety devices must not impair the strength of the receptacle nor impair its closure.

(3) The closure of wooden cases may be ensured by means of band or wires made of a suitable metal fastened tightly round them. If the bands or wires are made of iron they shall be covered with a material not liable to produce sparks when subjected to impact or friction.

(4) A package under (1) (a) must not weigh more than 100 kg; however, where fibreboard drums are used; a package must not weigh more than 75 kg. A package under (1) (b) must not weigh more than 75 kg. It must not contain more than 30 kgr of nitrocellulose powder.

(1) Substances of 6° shall be packed in wooden receptacles. Drums made of impermeable fibreboard are likewise to be accepted for solid trinitrotoluene and for trinitroanisole; and iron receptacles for mixtures termed liquid trinitrotoluene.

(2) Metal receptacles shall be fitted with closures or safety devices yielding when the internal pressure reaches a value not greater than 3 kg/cm<sup>2</sup>; the presence of these closures or safety devices must not impair the strength of the receptacle nor impair its closure.

(3) A package must not weigh more than 120 kg or, if it can be rolled, more than 300 kg; however, where fibreboard drums are used, a package must not weigh more than 75 kg.

(1) Substances of 7° shall be packed:

(a) Substances of 7° (a): in wooden receptacles or in drums made of impermeable fibreboard. Lead and materials containing lead (alloys or compounds) must not be used in the packaging of hexyl (hexanitrodiphenylamine) and picric acid.

Picric acid may also be packed, not more than 500 g per receptacle, in receptacles made of glass, porcelain, stoneware or similar materials or of a suitable plastics material, secured in a wooden case by cushioning material (e.g. corrugated fibreboard). The receptacles shall be closed by means of a stopper, made of cork or rubber or a suitable plastics material, which shall be held in position by an additional device (such as a cap, crown, seal or binding) capable of preventing any loosening of the closure system during carriage;

(b) Substances of 7° (b) and (c): not more than 30 kg per bag, in cloth bags which do not allow the contents to filter through, or in bags made of stout paper or a suitable plastics material, which shall be placed in leak-proof-wooden receptacles or in drums made of hardened fibreboard capable of being so closed as to be leak-proof and whose bottoms and lids shall be made of plywood. The lids of cases shall be secured by means of screws and those of drums by means of a collar.

(2) A package containing substances of 7° (a) must not weigh more than 120 kg if it is a wooden receptacle; where fibreboard drums are used, a package must not weigh more than 75 kg. Packages containing picric acid packed in fragile receptacles or in receptacles made of a plastics material must not weigh more than 15 kg. A package containing substances of 7° (b) or (c) must not weigh more than 75 kg; cases which, with their contents, weigh more than 30 kg shall be fitted with means of handling.

(1) Substances and articles of 8° shall be packed:

(a) substances of 8° (a): in receptacles made of steel not liable to rust, or of any other suitable material (which

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in particular excludes lead and its alloys). Nitro-compounds shall be uniformly wetted with sufficient water to ensure that they contain not less than 25 per cent water throughout the journey, at every point in the substance. Metal receptacles shall be fitted with closures or safety devices yielding when the internal pressure reaches a value not greater than 3 kg/cm<sup>2</sup>; the presence of these closures or safety devices must not impair the strength of the receptacle nor impair its closure. Receptacles, except those made of steel not liable to rust shall be secured by cushioning materials in wooden packagings;

(b) substances of 8° (b): not more than 15 kg per bag, in bags made of cloth or of a suitable plastics material, placed in wooden packagings;

(c) substances of 8° (a) and (b) may also be packed, not more than 500 g per receptacle, in receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, secured by cushioning material (e.g. corrugated fibreboard) in a wooden case. A package must not contain more than 5 kg of nitro-compounds. The receptacles shall be closed by means of a stopper, made of cork or rubber or a suitable plastics material, which shall be held in position by an additional device (such as a cap, seal or binding) capable of preventing any loosening of the closure system during carriage;

(d) articles of 8° (c): separately in stout paper and placed, not more than 100 per box, in sheet-metal boxes. Not more than 100 of these boxes shall be packed in a wooden packing case;

(2) A package under paragraph (1) (a) or (b) must not weigh more than 75 kg; it must not contain more than 25 kg of substances of 8° (a) or more than 50 kg of substances of 8° (b). A package under paragraph (1) (c) not weigh more than 15 kg, or a package under paragraph (1) (d) more than 40 kg.

(1) Substances and articles of 9° shall be packed:

(a) substances of 9° (a) to (c):

1. not more than 10 kg per bag, in bags made of cloth or of a suitable plastics material, placed in an impermeable fibreboard box or in a box made of tin-plate or aluminium sheet or zinc sheet; or

2. not more than 10 kg per receptacle, in receptacles made of fibreboard of adequate strength, impregnated with paraffin wax or rendered impermeable by some other means.

Boxes made of tin-plate or aluminium sheet or zinc sheet and boxes or receptacles of other kinds shall be placed in a wooden case lined with corrugated fibreboard; metal boxes so placed shall be separated from one another by means of a corrugated-fibreboard wrapping. A case may not contain more than four boxes or receptacles of other kinds. The lids of cases shall be secured by means of screws.

b) penthrite [9° (a)] may also be packed either:

1. not more than 5 kg per receptacle, in receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, closed by means of a stopper made of cork or rubber or a suitable plastics material; each receptacle shall be placed in a metal receptacle hermetically closed by welding or soldering and cushioned with resilient materials so as to wedge the inner receptacle securely without leaving any empty space. Not more than 4 metal receptacles shall be packed in a wooden case lined with corrugated fibreboard and shall be separated from one another by several thicknesses of corrugated fibreboard or of another material capable of performing the same function; or

2. not more than 500 g dry weight per receptacle, in receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, closed by means of a stopper made of cork or rubber or a suitable plastics material. These receptacles shall be placed in a wooden case. They shall be separated from one another by means of a corrugated fibreboard wrapping and from the sides of the case by a space of not less than 3 cm filled with cushioning materials;

(c) hexogen [9° (a)] may also be packed as provided

under (b) 1. above for penthrite;

(d) articles of 9° (d): first separately in stout paper and placed, not more than 3 kg per case, in fibreboard cases in which they shall be fixed in position by cushioning materials; these cases, not more than 10 per wooden case, shall be so secured by cushioning materials in a wooden case closed by means of screws that there is a space of not less than 3 cm filled with cushioning materials at all points between the fibreboard cases and the packing case.

(2) A package under (1) (a) or (1) (b) 1. must not weigh more than 75 kg; a package under 1 (c) must not weigh more than 10 kg; a package under (1) (b) 2. or (1) (d) must not weigh more than 35 kg. Packages which, with their contents, weigh more than 30 kg shall be fitted with means of handling.

(1) Substances of 10° shall be packed, not more than 500 g per bag, in firmly-tied bags made of a suitable pliant material; each bag shall be placed in a box made of metal, fibreboard or paperboard; these boxes, not more than 30 per packing case, shall be secured by cushioning materials in a wooden packing case with complete sides not less than 12 mm thick.

(2) A package must not weigh more than 25 kg.

(1) Substances and articles of 11° shall be packed:

(a) substances of 11° (a) and (b):

1. not more than 2.5 kg per bag, in bags placed in boxes made of fibreboard, tin-plate or aluminium. The boxes shall be secured by cushioning materials in wooden packagings; or

2. in bags made of closely-woven fabric, placed in wooden casks or cases;

(b) articles of 11° (c): rolled in stout paper; each roll must not weigh more than 300 g. The rolls shall be placed in a wooden case lined with stout paper.

(2) The lids of the wooden cases shall be secured by means of screws; if the screws are made of iron they shall be coated with a material not liable to produce sparks when subjected to shock or friction.

(3) A package must not weigh more than 75 kg if it is carried as part of a full load, and not more than 35 kg if it is carried as part of a full load and not more than 35 kg if it is not carried as part of a full load.

(1) Substances of 12° shall be cartridge in wrappings made of a suitable plastic material or of paper. The cartridges may be dipped in paraffin wax, ceresine or resin, or be wrapped in a suitable plastics material, so as to be protected from damp. Explosives containing more than 6 per cent liquid nitric esters shall be cartridge in paper coated with paraffin wax or ceresine or in an impermeable plastics material such as polyethylene. The cartridges shall be placed in wooden packagings.

(2) Cartridges not coated with paraffin wax or ceresine, or cartridges in permeable wrappings, shall be made up into packets weighing not more than 2.5 kg each. Packets so made up, whose wrapping must consist at least of stout paper, shall be dipped in paraffin wax, ceresine or resin or wrapped in a suitable plastics material so as to be protected from damp. The packets shall be placed in wooden packagings.

(3) The closure of wooden packagings may be ensured by means of metal bands or wires fastened tightly round them.

(4) A package must not weigh more than 75 kg. It must not contain more than 50 kg of explosives.

(5) Instead of the wooden packagings prescribed in paragraph (1) and paragraph (2), it is also permissible to use suitable cases, made of solid fibreboard or corrugated fibreboard, which are of sufficient mechanical strength and whose lid flaps and bottom flaps must be closed by means of adhesive strips of sufficient strength. The design of cases made of solid fibreboard or corrugated fibreboard must be approved by the competent authority of the country of departure. Such a package must not weigh more than 30 kg; it must not contain more than 25 kg of explosives.

(1) Substances of 13° shall be cartridge in paper wrappings. Cartridges not coated with paraffin wax or ceresine

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shall first be rolled in paper that has been rendered impermeable. They shall be made up by means of a paper wrapping into packets weighing not more than 2.5 kg each, which shall be secured by cushioning materials in wooden packagings whose closure may be ensured by means of metal bands or wires fastened tightly round them.

(2) A package must not weigh more than 35 kg.

(1) Substances of 14° shall be packed:

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(a) substances of 14° (a): cartridge in wrappings made of paper that has been rendered impermeable. The cartridges shall be made up into packets by means of a paper wrapping or, if without a paper wrapping, secured by cushioning materials in fibreboard cases. The packets or fibreboard cases shall be secured by inert cushioning materials in wooden packagings whose closure may be ensured by means of metal bands or wires fastened tightly round them;

(b) substances of 14° (b): cartridge in wrappings made of paper that has been rendered impermeable. The cartridges shall be placed in a fibreboard box. The fibreboard boxes, wrapped in paper that has been rendered impermeable, shall be secured, leaving no empty spaces, in wooden packaging whose closure may be ensured by means of metal bands or wires fastened tightly round them;

(c) substances of 14° (c):

1. cartridge in wrappings made of suitable plastics material or of paper. The cartridges may be dipped in paraffin wax, ceresine or resin or be wrapped in a suitable plastics material, so as to be protected from damp. Explosives containing more than 6 per cent liquid nitric esters shall be cartridge in paper coated with paraffin wax or ceresine or in an impermeable plastics material such as polyethylene. The cartridges shall be placed in wooden packagings;

2. cartridges not coated with paraffin wax or ceresine, or cartridges in permeable wrappings, shall be made up into packets weight more than 2.5 kg each. Packets so made up, whose wrapping may consist at least of stout paper, shall be dipped in paraffin ceresine or resin or be wrapped in a suitable plastics material so as to be protected from damp. The packets shall be placed in wooden packagings;

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3. the closure of wooden packagings may be ensured by means of metal bands or wires fastened tightly round them;

4. instead of the wooden packagings prescribed under 1. and 2. it is also permissible to use suitable cases, made of solid fibreboard or corrugated fibreboard, which are of sufficient mechanical strength and whose lid flaps and bottom flaps must be closed by means of adhesive strips of sufficient strength. The design of cases made of solid fibreboard or corrugated fibreboard must be approved by the competent authority of the country departure.

(2) A package containing substances of 14° (a) or (b) must weigh more than 35 kg. A package containing substances of 14° (c) must not weigh more than 75 kg; it must not contain more than 50 kg of explosives; in the case of a packing conforming to paragraph 1 (c) 4. package must not weigh more than 30 kg nor contain more than 25 kg of explosives.

3. Mixed packing

Substances listed under an item number of marginal 2101 may be included in the same package either with substances grouped under the same or another item number of that marginal, or with substances or any of other Classes, or with other goods.

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Note: Packages as referred to in marginal 2108 (1) (c) may contain organic nitro-compounds having different compositions and names.

4. Marking and danger labels on packages (see Appendix A.9)

Packages containing picric acid (7° (a)) shall be marked with name of the substance in clearly legible and indelible red characters marking shall be in an official language of the country of departure and also, if that language is not English, or French or German in English, French or German, unless international road transport tariffs, if any

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agreements concluded between the countries concerned in the transport operation, provide otherwise.

(1) Packages containing substances and articles of Class Ia shall bear a label conforming to model No. 1. 2117

(2) Packages containing fragile receptacles not visible from the outside shall bear a label conforming to model No. 9. If the fragile receptacles contain liquids, the packages shall in addition, except in the case of sealed ampoules, bear labels conforming to model No. 8; these labels shall be affixed high up on two opposite sides of cases or in an equivalent manner when other packagings are used. 2118

#### B. Particulars in the transport document

The description of the goods in the transport document must conform to one of the names underlined in marginal 2101. Where the name of the substance is not indicated in the case of 8° (a) and (b), the trade name must be used. The description of the goods must be underlined in red and followed by particulars of the Class, the item number (together with the letter, if any), and the initials "ADR" or "RID" [e.g. 1a 3° (a) ADR]. 2119

(2) The following must be certified in the transport document: "The nature of the goods, and the packaging, are in conformity with the provisions of ADR".

(3) For consignments which, under marginal 11 400 of Annex B, are to be accepted for carriage as a full load only, the transport document shall also show the weight of each package and the number and nature of the packagings. 2120

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#### C. Empty packagings

(1) Packagings of 15° must be securely closed and be leak-proof in the same degree as though they were full. 2126

(2) The description in the transport document must be: "Empty packaging, 1a, 15°, ADR (or RID)". This description must be underlined in red. 2127

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#### CLASS 1b. ARTICLES FILLED WITH EXPLOSIVE SUBSTANCES

##### 1. List of articles

(1) Among the articles covered by the heading of Class 1b, only those listed in marginal 2131 are to be accepted for carriage, and then only subject to the provisions of this Annex and of Annex B. These articles to be accepted for carriage under certain conditions are to be considered as articles of ADR. 2130

(2) If the articles listed under 7°, 10° or 11° of marginal 2131 are composed of, or filled with, explosive substances listed in marginal 2101 those substances must satisfy the stability and safety conditions laid down concerning them in Appendix A.1.

1° Fuses, not primed: 2131

(a) rapid combustion fuses (fuses consisting of a thick tube with a core of black powder, or with a core of threads impregnated with black powder, or with a core of nitrated cotton threads);

(b) detonating fuses in the form of small-section metal tubes with thin walls and a core filled with an explosive substance; see also Appendix A.1, marginal 3108;

(c) flexible detonating fuses wrapped in textile or a plastics material, of small section and with a core filled with an explosive substance; see also Appendix A.1, marginal 3109;

(d) instantaneous detonating fuses (small-section woven fuses with a core filled with an explosive substance more dangerous than penthrite).

For other fuses, see Class 1c, 3° (marginal 2171).

2° Non-detonating primers (primers which do not produce a disruptive effect either with the aid of detonators or by other means):

(a) percussion caps;

(b) 1. primed cases of central-percussion cartridges, not filled with propellant powder, for firearms of all calibres;

2. primed cases of rim-fire cartridges, not filled with propellant powder, for Flobert weapons and firearms of similar calibres;

(c) quick-matches, screw-primers and other similar primers containing a small charge (black powder or other explosives), set in action by friction, percussion or electricity;

(d) fuses without any device, e.g. detonator, producing a disruptive effect and without a transmission charge.

3° Railway for signals

4° Small-arms cartridges [with the exception of those containing a bursting charge (see under 11°)];

(a) sporting cartridges;

(b) Flobert cartridges;

(c) tracer cartridges;

(d) incendiary cartridges;

(e) other central-percussion cartridges.

Note: Apart from sporting cartridges with lead pellets, only cartridges whose calibre does not exceed 13.2 mm are to be considered as articles of 4°.

5° Detonating fuses:

(a) detonators with or without a delayed-action device: delayed-action connecting pieces for detonating fuses;

(b) electric detonators fitted with fuses with or without a delayed-action device;

(c) detonators connected firmly to a black-powder fuse;

(d) detonators with gaines (detonators combined with a transmission charge composed of a compressed explosive); see also Appendix A.1, marginal 3110;

(e) fuses with detonators (fused detonators) with or without a transmission charge;

(f) detonators with percussion cap ("bouchons allumeurs") with or without a delayed-action device, with or without a mechanical device for firing, and without a transmission charge.

6° Sounding caps (detonators, with or without primers, contained in sheet-metal tubes).

7° Articles with a propellant charge, other than those listed under 8°; articles with a bursting charge; articles with a propellant and a bursting charge, provided that they contain only explosive substances of Class 1a all without a device producing a disruptive effect (e.g. detonator). The charge in these articles may comprise a tracer substance (see also under 8° and 11°).

Note: Non-detonating primers (2°) are allowed in these articles.

8° Articles filled with tracer substances or substances intended for signalling, with or without a propellant charge, with or without an ejection charge, and without a bursting charge, in which the propellant or tracer substance is compressed in such a way that the articles cannot explode when ignited.

9° Smoke-producing devices containing chlorates or carrying an explosive charge or an explosive ignition charge.

For smoke-producing substances for agricultural and forestry purposes, see Class 1c marginal 2171 27°.

10° Boring devices containing a charge of dynamite or of an explosive similar to dynamite, without fuses and without any device producing a disruptive effect (e.g. detonator), hollow-charge devices for industrial purposes, containing not more than 1 kg of explosive secured within the casing, and without a detonator.

11° Articles with a bursting charge, articles with a propellant and a bursting charge, all fitted with a device producing a disruptive effect (e.g. detonator), the whole well secured. The weight of each article must not exceed 25 kg.

## 2. Provisions

### A. Packages.

#### 1. General conditions of packing

(1) Packagings shall be so closed and leak-proof as to prevent any loss of the contents. The use of metal bands or wires fastened round the packages to ensure their closure is allowed; their use is compulsory with cases having

hinged lids if the lids are not fitted with an effective device to obviate any loosening of the closure.

(2) The materials of which the packagings and their closures are made must not be liable to attack by the contents or form harmful or dangerous compounds therewith.

(3) Packagings, including their closures, must be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. Articles shall be firmly secured in their packagings, and inner packagings shall be firmly secured in outer packagings. Unless otherwise specified in the section entitled "Packing of articles of the same kind", inner packagings may be enclosed in outer packagings, either singly or in groups.

(4) Cushioning materials shall be suited to the nature of the contents.

#### 2. Packing of articles of the same kind

Articles of 1° shall be packed as follows:

(a) articles of 1°(a) and (b): in wooden packagings or in drums made of impermeable fibreboard. A package drums must not weigh more than 120 kg; however, a fibreboard drum must not weigh more than 75 kg;

(b) articles of 1°(c): rolled in lengths of up to 250 m on reels made of wood or fibreboard. The reels shall be placed in wooden cases in such a manner that they cannot come into contact either with one another or with the sides of the cases. A case must not contain more than 1,000 m of fuse;

(c) articles of 1°(d): rolled in lengths of up to 125 m on reels made of wood or fibreboard which shall be packed in a wooden case, closed by means of screws and with sides not less than 18 mm thick, in such a manner that the reels cannot come into contact either with one another or with the sides of the case. A case must not contain more than 1,000 m of instantaneous detonating fuse.

(1) Articles of 2° shall be packed as follows:

(a) articles of 2°(a): caps with an uncovered explosive charge, not more than 500 per box or small case, and caps with a covered explosive charge, not more than 5,000 per box or small case, in sheet-metal boxes, fibreboard boxes or small wooden cases. These packagings shall be placed in a packing case made of wood or sheet-metal;

(b) articles of 2°(b)1: primed cases of central-percussion cartridges, not filled with propellant powder, for firearms of all calibres, for cases made of wood or fibreboard or in textile bags;

(c) articles of 2°(b)2: primed cases of rim-fire cartridges, not filled with propellant powder, for Flobert weapons and firearms of similar calibres, not more than 5,000 per box, in boxes made of sheet-metal or fibreboard which shall be placed in a packing case made of wood or sheet-metal; however, these primed cases for rim-fire cartridges may also be packed, not more than 25,000 per bag, in a bag which must be secured by means of corrugated fibreboard in a packing case made of wood or iron;

(d) articles of 2°(c) and (d): in boxes made of fibreboard, wood or sheet-metal which shall be placed in packagings made of wood or metal.

(2) A package containing articles of 2°(a), (c) or (d) must not weigh more than 100 kg.

(1) Articles of 3° shall be packed in cases made of boards not less than 18 mm thick, tongued and grooved and assembled by means of wood screws. Fog signals shall be secured in cases by cushioning materials in such a manner that they cannot come into contact either with one another or with the sides of the case.

(2) A package must not weight more than 50 kg.

(1) Articles of 4°(a), (b) and (e) shall be placed tightly in firmly-closing boxes made of sheet-metal, wood or fibreboard; these boxes shall be housed, leaving no empty spaces, in packing cases made of metal, wood, hardboard, solid fibreboard or corrugated fibreboard; the fibreboard must have been rendered impermeable by impregnation and be of sufficient mechanical strength.

Fibreboard cases shall be closed by means of adhesive strips of sufficient strength. The production model of cases

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made of solid fibreboard or corrugated fibreboard must be approved by the competent authority of the country of departure.

(2) Articles of 4<sup>o</sup>(c) and (d) shall be placed, not more than 400 per box, in boxes made of sheet-metal, wood or fibreboard; these boxes shall be packed securely in packing cases made of metal or wood.

(3) A package must not weigh more than 100 kg; however, where hardboard or fibreboard cases are used, a package containing articles of 4(a), (b) or (e) must not weigh more than 40 kg.

(1) Articles of 5<sup>o</sup> shall be packed as follows:

(a) articles of 5<sup>o</sup>(a): not more than 100 per receptacle in the case of detonators and not more than 50 per receptacle in the case of connecting pieces, in receptacles, made of sheet-metal or impermeable fibreboard, in which they shall be well protected against ignition and secured by cushioning materials. Sheet-metal receptacles shall be lined with a resilient material. The lids shall be secured all round by adhesive strips. Receptacles shall, not more than 5 per packet or box in the case of detonators and not more than 10 per packet or box in the case of connecting pieces, be enclosed in a packet or placed in a fibreboard box. The packets or boxes shall be packed in a wooden case closed by means of screws and with sides not less than 18 mm thick, or in a sheet-metal packaging, the case or packaging being secured by cushioning materials in a packing case with sides not less than 18 mm thick in such a manner that there is a space of not less than 3 cm filled with cushioning materials at all points between the wooden case or sheet-metal packaging and the packing case;

(b) articles of 5<sup>o</sup>(b): not more than 100 per packet, in packets with alternate detonators lying towards opposite ends of the packet. Not more than 10 of these packets shall be tied together to form a collective packet. Not more than 5 of these collective packets shall be secured by cushioning materials in a wooden packing case with side not less than 18 mm thick, or in a sheet-metal packaging, in such a manner that there is a space of not less than 3 cm filled with cushioning materials at all points between the collective packets and the packing case or sheet-metal packaging;

(c) articles of 5<sup>o</sup>(c): fuses fitted with detonators, rolled into coils; not more than 10 coils shall be made into a roll which shall be wrapped in paper. Not more than 10 rolls shall be secured by cushioning materials in a small wooden case closed by means of screws and with sides not less than 12 mm thick. Not more than 10 small cases shall be secured by cushioning materials in a packing case with sides not less than 18 mm thick in such a manner that there is a span of not less than 3 cm filled with cushioning materials at all points between the small cases and the packing case; (d) articles of 5<sup>o</sup>(d):

1. not more than 100 detonators per case, in wooden cases with sides not less than 18 mm thick, in such a manner that the detonators are spaced not less than 1 cm from one another and from the sides of the case. The said sides shall be mortised and the bottom and lid shall be secured by screws. If the case and the bottom and lid shall be secured by screws. If the case is lined with zinc sheet or aluminium sheet, a side thickness of 16 mm is sufficient. The case shall be secured by cushioning materials in a packing case with sides not less than 18 mm thick in such a manner that there is a space of not less than 3 cm filled with cushioning materials at all points between it and the packing case; or

2. not more than 5 detonators per box, in sheet-metal boxes, the detonators being placed there in slatted wooden frames or in holed pieces of wood. The lid shall be secured all round by adhesive strips. Not more than 20 sheet-metal boxes shall be placed in a packing case with sides not less than 18 mm thick;

(e) articles of 5<sup>o</sup>(e): not more than 50 per case, in wooden cases with sides not less than 18 mm thick. The articles shall be secured within the cases by a wooden structure in such a manner that they are spaced not less than 1 cm from one another and from the sides of the

case. The sides of the case shall be mortised and the bottom and lid shall be secured by screws. Not more than 6 cases shall be secured by cushioning materials in a packing case with sides not less than 18 mm thick in such a manner that there is a space of not less than 3 cm filled with cushioning materials at all points between the cases and the packing case. The space may be reduced to not less than 1 cm if it is filled with porous wood-fibre slabs. If the articles are individually packed and firmly secured in hermetically-closing boxes made of sheet-metal or a plastics material, they may be placed in a wooden packing case with sides not less than 18 mm thick. The articles must be separated from one another and firmly secured by fibreboard or by wood-fibre slabs;

(f) articles of 5<sup>o</sup>(f):

1. not more than 50 per case, in wooden or metal cases; in these cases each detonating part of the "bouchon allumeur" shall be so accommodated in a slotted wooden support that the distance between adjacent detonators and between the detonators of the outermost "bouchons allumeurs" and the side of the case is not less than 2 cm; closing the lid of the case shall ensure complete immobility of the whole; not more than 3 cases shall be placed, leaving no empty spaces, in a wooden packing case with sides not less than 18 mm thick; or

2. in boxes made of wood or metal; in these boxes each "bouchon allumeur" shall be so supported by a frame that the distance between two "bouchon allumeurs" and between a "bouchon allumeur" and the side of the box is not less than 2 cm and that the immobility of the whole is ensured; these boxes shall be placed in a packing case with sides not less than 18 cm thick in such a manner that there is a space of not less than 3 cm filled with cushioning materials at all points between the boxes and between the boxes and the packing case; a package must not contain more than 150 "bouchons allumeurs".

(2) The lid of the packing case shall be closed by means of screws or of hinges and folding bars.

(3) Each package containing articles of 5<sup>o</sup> shall be provided with a closure protected either by lead or other seals (stamp or mark) applied to two screw-heads at the ends of the major axis of the lid or the folding bars, or by a strip, bearing the trade mark, gummed on to the lid and on two opposite sides of the case.

(4) A package must not weigh more than 75 kg; packages weigh more than 30 kg shall be fitted with means of handling.

(1) Articles of 6<sup>o</sup> shall be rolled separately in paper and placed in corrugated fibreboard wrappings. They shall be packed, not more than 25 per box, in boxes made of fibreboard or sheet-metal. The lids shall be secured all round by adhesive strips. Not more than 20 boxes shall be placed in a wooden packing case.

(2) A package must not weigh more than 50 kg. Packages weigh more than 30 kg shall be fitted with means of handling.

(1) Articles of 7<sup>o</sup> shall be packed in wooden cases closed by means of screws or of hinges and folding and with sides not less than 16 mm thick, or in receptacles made of metal or a suitable plastics material of adequate strength. The lids and bottoms of the wooden cases may also be made of highly-compressed paperboard equalling the sides in strength. Articles weighing more than 20 kg may also be despatched in crates or without packing.

(2) A package must not weigh more than 100 kg if it contains articles each of which weighs not more than 1 kg. Cases which, with the contents, weigh more than 30 kg shall be fitted with means of handling.

(1) Articles of 8<sup>o</sup> shall be packed in wooden cases, in drums made of fibreboard which has been rendered impermeable, or in receptacles made of metal or of a suitable plastics material of adequate strength. The ignition head shall be protected in such a manner as to prevent any scattering of the charge from the article.

(2) A package must not weigh more than 100 kg; however, when fibreboard drums are used a package shall not

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weigh more than 75 kg. Cases which, with their contents, weigh more than 30 kg shall be fitted with means of handling.

Articles of 9° shall be enclosed in wooden packagings. A package must not weigh more than 75 kg; packages weighing more than 30 kg shall be fitted with means of handling.

Articles of 10° shall be packed in wooden cases. Packages weighing more than 30 kg shall be fitted with means of handling.

Articles of 11° shall be packed as follows:

(a) articles less than 13.2 mm in diameter; not more than 25 per box, packed tightly in firmly – closing fibreboard boxes or in receptacles made of a suitable plastics material of adequate strength; these boxes or receptacles shall be placed, leaving no empty spaces, in a wooden case, with sides not less than 18 mm thick, which may be lined with tin – plate, zinc or aluminium sheet, or a suitable plastics or similar material of adequate strength.

A package must not weigh more than 60 kg. Packages weighing more than 30 kg shall be fitted with means of handling.

(b) articles from 13.2. mm to 57 mm in diameter:

1. separately

in a tube made of fibreboard or of a suitable plastics material, strong, close – fitting and closing firmly at both ends; or

in a tube made of fibreboard or of a suitable plastics material, strong, close – fitting, closed at one end and open at the other; or

in a tube made of fibreboard or of a suitable plastics material, open at both ends but with an inner projection or other suitable internal device to prevent the article from moving.

Packed in this manner, not more than:

300 articles not less than 13.2. mm and not more than 21 mm in diameter; or

60 articles more than 21 mm but not more than 37 mm in diameter; or

25 articles more than 37 mm but not more than 57 mm in diameter shall be placed in layers in a wooden case with sides not less than 18 mm thick, the wooden case being lined with tin – plate, zinc sheet, or aluminium sheet:

In the case of articles packed in tubes open at both ends or at one end, the packing case shall be lined on the side or sides adjacent to the open ends of the tubes either with a felt pad not less than 7 mm thick or with a sheet of the same thickness of double – faced corrugated fibreboard or similar material.

A package must not weigh more than 100 kg. Packages weighing more than 30 kg shall be fitted with means of handling;

2. articles 20 mm in diameter may also be packed, not more than 10 per box, in strong, closely – fitting fibreboard boxes coated with paraffin wax and equipped with a honey – combed bottom insert and with partitions made of fibreboard coated with paraffin wax. The boxes shall be closed by a gummed flap. Not more than 30 boxes shall be tightly packed in a wooden case being with sides not less than 18 mm thick, the wooden case being lined with zinc sheet, tin – plate or aluminium sheet.

A package must not weigh more than 100 kg. Packages weighing more than 30 kg shall be fitted with means of handling;

3. articles not more than 30 mm in diameter may, in a number not exceeding that indicated under 1., also be put on to strips and packed in a strong steel receptacle. This receptacle may be cylindrical.

These articles put on to strips shall be surrounded by a suitable device so as to constitute a compact unit and as to prevent individual articles from becoming detached. One or more units shall be so fixed in the receptacle that they cannot be displaced.

The ends of articles put on to strips shall rest on shock – absorbing non – metallic supports.

The lid of the receptacle must be so closed as to be

leak – proof and be so secured by a locking device capable of being sealed that the articles cannot fall out.

2141 A package must not weigh more than 100 kg. Packages weighing more than 30 kg shall be fitted with means of handling. Receptacles capable of being rolled shall have their lids fitted with a strong handle enabling them to be carried;

2143 4. articles not less than 30 mm and not more than 57 mm in diameter may also be packed separately in a strong, closely – fitting, hermetically – closed cylindrical box made of fibreboard, fibre or a suitable plastics material. Not more than 40 of these boxes shall be placed in layers in a wooden case with sides not less than 18 mm thick.

A package must not weigh more than 100 kg. Packages weighing more than 30 kg shall be fitted with means of handling.

(c) Other articles of 11°: in conformity with the provisions of marginal 2139 (1. A package must not weigh more than 100 Kg. Packages weighing more than 30 kg shall be fitted with means of handling.

Note: In the case of articles containing both propellant and bursting charges, the diameter referred to is that of the cylindrical portion containing the bursting charge.

3. Mixed packing.

(1) Articles listed under an item number of marginal 2131 may not be included in the same package either with articles of a different kind but of the same item number, or with articles of another item number of than marginal, or with substances or articles belonging to other Classes, or with other goods.

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(2) The following may, however, be included in the same package:

(a) articles of 1° with one another.

When articles of 1°(a) and (b) are included in the same package, they shall be packed in conformity with marginal 2133 (a).

When articles of 1°(c) are included in the same package with articles of 1°(a) or (b) or both, those of 1°(c) shall be made up into packages in conformity with the provisions applicable to them and the outer packaging shall be that prescribed for articles of 1°(a) or (b). A package must not weigh more than 120 kg;

(b) articles of 2°(a) with those of 2°(b), provided that both are contained in inner packagings consisting of boxes placed in wooden cases. A package must not weigh more than 100 Kg;

(c) articles of 4° with one another, taking into account the provisions for inner packaging, in a wooden outer packaging. A package must not weigh more than 100 kg;

(d) articles of 7° with those of 5°(a), (d), (e) and (f), on condition that the packaging of these latter prevents the transmission of a possible detonation to the articles of 7°. In one package the number of articles of 5°(a), (d), (e), and (f) must be the same as that of the articles of 7°. A package must not weigh more than 100 kg.

4. Marking and danger labels on packages (see Appendix A.9)

Packaging containing articles of Class Ib shall bear a label conforming to model No 1. However, packages, containing articles of 1°(d), 5° and 6° shall bear two labels conforming to model No. 1.

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B. Particulars in the transport document

(1) The description of the goods in the transport document must conform to one of the names underlined in marginal 2131; it must be underlined in red and followed by particulars of the Class, the item number together with the letter, if any), and the initials «ADR» or «RID» (e.g. 1b 2°(a) ADR.

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(2) The following must be certified in the transport document:

«The nature of the goods, and the packaging, are in conformity with the provisions of ADR.

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C. Empty packaging

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No provisions.

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## CLASS 1c IGNITERS, FIREWORKS AND SIMILAR GOODS

## 1. List of goods

(1) Among the substances and articles covered by the heading of Class 1c, only those listed in marginal 2171 are to be accepted for carriage, and then only subject to the provisions of this Annex and of Annex B. These substances and articles to be accepted for carriage under certain conditions are to be considered as substances and articles of ADR.

(2) Articles to be accepted must fulfil the following conditions:

(a) The explosive charge shall be constituted, arranged and distributed in such a manner that neither friction, shaking, shock nor ignition of the packed articles can lead to an explosion of the whole contents of the package;

(b) white or yellow phosphorus may not be used except in articles of 2° and 20°;

(c) the detonating compound of fireworks (21°–24°), flash – powders (26°), and the smoke – producing compounds of pesticides (27°), must not contain chlorates;

(d) the explosive charge must satisfy the stability conditions of Appendix A.1., Marginal 3111.

## 4. Ignitens:

1°. (a) Safety matches (with a potassium chlorate and sulphur base);

(b) Matches with a base of potassium chlorate and of phosphorus sesquisulphide, also friction igniters.

2°. Strips of amorces for safety lamps and strips of paraffin – waxed amorces for safety lamps. 1,000 amorces must not contain more than 7.5 explosive.

For strips of caps, see under 15°

3°. Slow – combustion fuses (fuses consisting of a thin impermeable tube with a narrow – section core of black powder).

For other fuses, see Class 1b, 1° (Marginal 2131).

4°. Pyroxlin thread (nitrated cotton thread). See also Appendix A.1, marginal 3101.

5°. Tubular igniters («lances d'allumage» (tubes, made of paper or fibreboard, containing a small quantity of a fuse composition of oxygenated substances and organic substances and, possibly, of nitrated aromatic compounds) and thermite caps with pellet igniter.

6°. Safety igniters for fuses (paper cartridges containing a primer by thread intended to cause friction or tearing, or similar devices).

7°. (a) Electric primers without detonator;

(b) pellets for electric primers.

8°. Electric igniters (e.g. igniters intended for igniting photograph magnesium powders). The charge of each must not exceed 30 mg nor contain more than 10 per cent fulminate of mercury.

Note: Appliances of the electric bulb type producing a sudden light and containing an ignition charge similar to that of electric igniter are not subject to the provisions of ADR.

B. Pyrotechnic articles and toys: caps and (strips) of caps; detonating articles:

9°. Indoor pyrotechnic articles (e.g. Boscocylinders, confetti bombs cotillon fruits). Articles with a nitrated – cotton (collodion – cotton) base must not contain more than 1 g per article.

10°. Fulminating bonbons, flower crackers, strips of nitrated paper (collodion paper).

11°. (a) Fulminating peas, fulminating grenades and other similar pyrotechnic toys containing fulminate of silver;

(b) fulminating matches;

(c) accessories with fulminate of silver.

Ad (a) (b) and (c): 1,000 articles must not contain more than 2.5 g fulminate of silver.

12°. Detonating pebbles, each carrying on the outside a charge of no more than 3 g of an explosive other than fulminate.

13°. Pyrotechnic matches (e.g. Bengal matches, golden – rain matches cascade – of – flowers matches).

14°. Miracle candles without ignition heads.

15°. Caps for children's toys, strips (strings) of caps and rings of caps. 1,000 caps must not contain more than 7.5 g of an explosive free from fulminate.

For strips of caps for safety lamps, see under 2°.

16°. Explosive corks with an explosive charge having a phosphorus and chlorate base or with a charge of fulminate or a similar compound compressed into cardboard cartridges. 1,000 corks must not contain more than 60g chlorate explosive nor more than 10g of fulminate of a compound with a fulminate base.

17°. Round petards with an explosive charge having a phosphorus and chlorate base. 1,000 petards must not contain more than 45g explosive.

18°. Cardboard caps (toy ammunition) with an explosive charge having a phosphorus and chlorate base or with a charge of fulminate or a similar compound. 1,000 caps must not contain more than 25 g explosive.

19°. Cardboard caps exploding under foot, with a protected charge having a phosphorus and chlorate base. 1,000 caps must not contain more than 30 g explosive.

20°. (a) Detonating sheets;

(b) Martinikas (so called Spanish fireworks).

Both comprise a mixture of white (yellow) and red phosphorus with potassium chlorate and not less than 50 per cent inert substances not taking part in the decomposition of the mixture of phosphorus and chlorate. A sheet must not weigh more than 2.5 g and a martinika not more than 0.1 g.

## C. Fireworks

21°. Anti – hail rockets not fitted with a detonator, bombs and firepots. The charge, including the propellant charge, must not weigh more than 14 kg per article, the bomb or firepot not more than 18 kg in all.

22°. Incendiary bombs, rockets, Roman candles, fountains, wheels and similar fireworks, with a charge not weighing more than 1,200 g per article.

23°. Cannon shots each containing not more than 600 g granulated black powder or 220 g of an explosive not more dangerous than aluminium powder with potassium perchlorate, rifle shots (crackers) each containing not more than 20 g granulated black powder, all provided with fuses with covered ends; and similar articles for producing a loud detonation.

For railway fog – signals, see Class 1b, 3o (Marginal 2131).

24°. Small fireworks (e.g. jumping – crackers, serpents, golden rain, silver rain, if they contain not more than 1,000 g granulated black powder per 144 articles; volcanoes and hand comets, if they contain not more than 30 g each of granulated black powder).

25°. Bengal fires without ignition heads (e.g. Bengal torches, lights, flames).

26°. Magnesium flash – powders, not more than 5 g per bag or tube, in paper bags or in small glass tubes.

## D. Pesticides (substances and articles):

27°. Smoke producing substances for agricultural and forestry purposes and smoke – producing cartridges for use as pesticides.

For smoke – producing devices containing chlorates or carrying an explosive charge or an explosive ignition charge, see Class 1b (Marginal 2131).

## 2. Provisions

## A. Packages

## 1. General conditions of packing

(1) Packings shall be so closed and leak – proof as to prevent any loss of the contents.

(2) Packagings, including their closures, must be sufficient rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. Articles shall be firmly secured in outer packagings. Unless otherwise specified in the section entitled «Packing of a single substance or of articles of the same kind», inner packagings may be enclosed in outer packagings, either singly or in groups.

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(3) Cushioning materials shall be suited to the nature of the contents.

2. Packing of a single substance or of articles of the same kind 2173

(1) Articles of 1°(a) shall be packed in boxes or in books. These boxes or books shall be wrapped in stout paper to form a collective packet all the folds of which shall be glued. The books may also be placed in boxes made of thin fibreboard or of a material not readily inflammable (e.g. cellulose acetate). The fibreboard boxes or the collective packets shall be placed in a strong case made of wood, metal, compressed - wood hardboard, strong solid fibreboard or double - faced corrugated fibreboard.

All joints of metal cases shall be secured by soft soldering or double - seaming.

Fibreboard cases shall be closed by means of joined flaps. The edges of the outer flaps, and all joints, must be either flued or firmly closed by some other suitable means.

If the fibreboard boxes or collective packets are packed in fibreboard cases, the weight of a package may not exceed 20 kg.

(2) Articles of 1° (b) shall be so packed in boxes as to prevent any movement. Not more than 12 of these boxes shall be enclosed in a packet all the folds of which shall be glued.

Not more than 12 of these packets shall be wrapped in stout paper to form a collective packet all the folds of which shall be glued. The collective packets shall be placed in a strong case made of wood, metal, compressed - wood hardboard, strong solid fibreboard or double - faced corrugated fibreboard.

All joints of metal cases shall be secured by soft soldering or double - seaming.

Fibreboard cases shall be closed by means of joined flaps. The edges of the outer flaps, and all joints, must be either glued or firmly closed by some other suitable means.

If the collective packets are packed in fibreboard cases, the weight of package must not exceed 20 Kg.

(1) Articles of 2° shall be packed in boxes made of sheet - metal or fibreboard. Not more than 30 sheet - metal or 144 fibreboard boxes shall be enclosed in a packets which must not contain more than 90 g explosive. These packets shall be placed in a packing case, with well-jointed sides not less than 18 mm thick, lined with stout paper or with thin zinc or aluminium sheet or with a sheet of a plastics material not readily inflammable. A side thickness of 11 mm is sufficient for a package weighing not more than 35 kg if the case is encircled with an iron band. 2174

(2) A package must not weigh more than 100 kg.

(1) Articles of 3° shall be packed in wooden cases lined with stout paper or thin zinc or aluminium sheet, or in drums of impermeable fibreboard. 2175

Small consignments weighing not more than 20 kg, wrapped in corrugated fibreboard, may also be made up into packets in stout two ply packing paper securely tied with string.

(2) Where fibreboard drums are used, a package must not weigh more than 75 kg.

(1) Pyroxylin thread (4°) shall be rolled, in lengths not exceeding 30 m per strip, in fibreboard strips. Each roll shall be wrapped in paper. Not more than 10 of these rolls shall be wrapped in packing paper to form packets which shall be secured by cushioning materials in small wooden cases. The cases shall be placed in a wooden packing case. 2176

(2) A package must not contain more than 6,000 m of pyroxylin thread.

(1) Articles of 5° shall be packed, not more than 25 per box, in boxes made of tin-plate or fibreboard; however, thermite caps may be packed, not more than 100 per box, in fibreboard boxes. Not more than 40 of these boxes shall be secured by cushioning materials in a wooden case 2177

in such a manner that they cannot come into contact either with one another or with the sides of the case.

(2) A package must not weigh more than 100 kg.

(1) Articles of 6° - 8° shall be packed.

(a) articles of 6°: in wooden cases; 2178

(b) articles of 7° (a): in wooden cases or in wooden casks or in drums made of impermeable fibreboard;

(c) articles of 7° (b): not more than 1,000 per box, secured by sawdust cushioning in fibreboard boxes divided into not less than three compartments each containing approximately the same number of articles and separated by interposed fibreboard sheets. The lids of boxes shall be secured by gummed strips applied all round. Not more than 100 of these fibreboard boxes shall be placed in a perforated sheet - iron receptacle. This receptacle shall be secured by cushioning materials in a wooden packing case closed by means of screws and with sides not less than 18 mm thick, in such a manner that there is a space of not less than 3 cm filled with cushioning materials at all points between the sheet - iron receptacle and the packing case;

(d) articles of 8°: in fibreboard boxes. The boxes shall be made up into a packet containing not more than 1,000 electric igniters. The packet shall be placed in a wooden packing case.

(2) In the case of fibreboard drums, a package containing articles of 7° (a) must not weigh more than 75 kg. A package containing articles of 7° (b) must not weigh more than 50 kg; if it weighs more than 30 kg it shall be fitted with means of handling.

(1) Articles of 9° - 26° shall be enclosed (inner packaging): 2179

(a) articles of 9° and 10°: in paper packagings or in boxes;

(b) articles of 11° (a): not more than 500 per fibreboard box or per small wooden case, secured by sawdust cushioning;

1. in fibreboard boxes which shall be wrapped in paper; or

2. in small wooden cases;

(c) articles of 11° (b): not more than 10 per book, in books; not more than 100 books together shall be packed in a fibreboard box; or wrapped in stout paper;

(e) articles of 12°: not more than 25 per box, in fibreboard boxes;

(f) articles of 13°: in boxes wrapped in paper to form packets each containing not more than 12 boxes;

(g) articles of 14°: in boxes or in bags made of paper or of a suitable plastics material. These packagings shall be wrapped in paper to form packets each containing not more than 144 of these articles;

(h) articles of 15°: in fibreboard boxes each containing: not more than 100 caps each charged with not more than 5 mg explosive; or not more than 50 caps each charged with not more than 7.5 mg explosive. 2175

Not more than 12 of these boxes shall be made up in paper into a roll and not more than 12 of these rolls shall be wrapped in packing paper to form a packet.

Strips (strings) of 50 caps, each cap being charged with not more than 5 mg explosive, may be packed in the following manner

5 strips (strings) per box, in fibreboard boxes wrapped 6 together in paper equivalent in strength to Kraftpapier of a minimum weight of 40 mg/m<sup>2</sup>; 12 small packets so made up shall be wrapped together in paper of the same quality to form a large packet;

(i) articles of 16°: secured by cushioning materials, not more than 50 per box, in fibreboard boxes. The corks shall be glued to the bottom of the boxes or fixed in position there by some equivalent method. Each box shall be wrapped in paper and not more than 10 of these boxes shall be wrapped in packing paper to form a package; 2177

(k) articles of 17°: not more than 5 per box, in fibreboard boxes. Not more than 200 boxes, arranged in rolls, shall be placed together in a collective fibreboard box;

(l) articles of 18°: secured by cushioning materials, not



more than 10 per box, in fibreboard boxes. Not more than 100 boxes, arranged in rolls, shall be wrapped in paper to form a packet;

(m) articles of 19°: secured by cushioning materials, not more than 15 per box, in fibreboard boxes. Not more than 144 boxes, arranged in rolls, shall be packed in a second fibreboard box;

(n) articles of 20° (a) secured by cushioning materials, not more than 144 per case, in fibreboard cases;

(o) articles of 20° (b): not more than 75 per box, in fibreboard boxes not more than 72 boxes shall be wrapped in fibreboard to form a packet;

(p) articles of 21°: in fibreboard boxes or in stout paper. If the ignition point of the articles is not covered by a protective cap each article must first be wrapped separately in paper. The propellant charge of bombs weighing more than 5 kg shall be protected by a paper case covering the lower part of bomb;

(q) articles of 22°: in fibreboard boxes or in stout paper. However large fireworks need not have an inner packaging if their igniting point is covered by a protective cap;

(r) articles of 23°: secured by cushioning materials in boxes made wood or fibreboard. The ignition heads shall be protected by a protective cap;

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(s) articles of 24°: in fibreboard boxes or in stout paper;

(t) articles of 25°: in fibreboard boxes or in stout paper. However, large fireworks need not have an inner packaging if their ignition point is covered by a protective cap;

(u) articles of 26°: in fibreboard boxes. A box must not contain more than 3 glass tubes.

(2) The inner packagings mentioned under (1) shall be placed:

(a) packagings containing articles of 10°, 13° and 14°, in wooden packing cases;

(b) packagings containing substances or articles of 9°, 11°, 12° and 15° - 26°, in wooden packing cases with well-jointed sides not less than 18 mm thick, lined with stout paper or thin zinc or aluminium sheet. A side thickness of 11 mm is sufficient for a package weighing not more than 35 kg if the case is encircled with an iron band.

The contents of a packing case are to be limited as follows:

in the case of articles of 17°, to 50 outer fibreboard boxes;

in the case of articles of 18°, to 25 packets;

in the case of articles of 20° (a), to 50 fibre-board cases;

in the case of articles of 20°(b), to 50 packets, each of 72 fibreboard boxes; and

in the case of articles of 21°, to a number of articles such that the weight of their total charge does not exceed 56 kg;

(c) packaging containing magnesium flash-powders (26°), either in conformity with (b) above, or in wooden packing cases each weighing not more than 5 kg, or, in the case of packagings in the form of paper bags, in strong fibreboard cases each weighing not more than 5 kg.

(3) Wooden cases containing articles with an explosive charge with a phosphorus and chlorate base must be closed by means of screws.

(4) A package containing articles of 9°, 11°, 12°, 15° - 22° or 24° - 26° must not weigh more than 100 kg; it must not weigh more than 50 kg if it contains articles of 23° or more than 35 kg if the sides of the case are only 11 mm thick and the case is encircled with an iron band.

(1) Substances of articles of 27° shall be packed in wooden cases lined with packing paper, oiled paper or corrugated fibreboard. No lining is necessary if these substances and articles are wrapped in paper or fibreboard.

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(2) A package must not weigh more than 100 kg.

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(3) Smoke-producing cartridges for use as pesticides may, if wrapped in paper or fibreboard, likewise be packed:

(a) in corrugated-fibreboard boxes or in strong fibreboard cases; such a package must not weigh more than 20 kg; or

(b) in ordinary-fibreboard cases; such a package must not weigh more than 5 kg.

Mixed packing

(1) Substances and articles grouped under the same item number may be included in the same package. The inner packagings shall conform to what is laid down for

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Special conditions:

Class 1c

Item No.	Description of substance	Maximum quantity		Special provisions
		per receptacle	Special per package	
1°	Matches	5 kg	5 kg	Must not be packed together with substances of Classes 3,4,1 and 4,2.
2° and 3°	Strips of amorces and slow-combustion fuses	Mixed packing not allowed		
4°	Pyroxylin thread		1.500 m of pyroxylin thread	
5° - 8°	All articles	Mixed packing not allowed		
9° - 20°	All articles			Mixed packing allowed only with small wares or non pyrotechnic toys, from which they must be kept separate. The collective case must meet the requirements laid down for those articles contained therein in respect of which marginal 2179 (2) and (3) imposes the most stringent conditions.
21° - 25°	All articles			Mixed packing allowed only with one another. The collective case must meet the requirements laid down for those articles contained therein in respect of which marginal 2179 (2) and (3) imposes the most stringent conditions.
26° and 27°	All articles and substances	Mixed packing not allowed		

each dangerous substance, and the outer packaging shall be that laid down for the dangerous substances of the item number in question. In this connexion a fibreboard case containing articles of 20° (a) shall be deemed equivalent to a packet containing articles of 20° (b).

(2) If smaller quantities are not prescribed in the section entitled «Packing of a single substance or of articles of the same kind dangerous substances of this Class, in quantities not exceeding 6 kg for all of the dangerous substances listed under the same item number or the same letter, may be enclosed in the same package either with dangerous substances of another item number or of another letter of the same class or with dangerous substances belonging to other Classes (if mixed packing is likewise permitted in the case of such substances), or with other goods, subject to the following special conditions.

The inner packagings must satisfy the general and special conditions of packing. In addition, the general provisions contained in marginals 2001(5) and 2002(6) and (7) must be observed.

A package must not weigh more than 100 kg, or more than 50 kg if it contains articles of 23°.

#### Class 1c

4. Marking and danger labels on packages (see Appendix A.9)

(1) Packages containing articles of Class 1c, 16° or 21° to 23°, shall bear a label conforming to model No.1.

(2) Packages containing fragile receptacles not visible from the outside shall bear a label conforming to model No. 9.

#### B. Particulars in the transport document

(1) The description of the goods in the transport document must conform to one of the names underlined in marginal 2171; it must be underlined in red and followed by particulars of the Class, the item number (together with the letter, if any), and the initials «ADR», or «RID» [e.g. 1c, 1°(a) «ADR»] The wording «Fireworks of ADR, 1c, item number.....», with particulars of the item numbers under with the substances or articles to be carried are listed, is also allowed in the transport document.

(2) In the case of substances or articles of 2°, 4°, 5°, 8°, 9°, 11°, 12° and 15° - 27°, the following must be certified in the transport document: «The nature of the goods, and the packaging, are in conformity with the provisions of ADR».

#### C. Empty packagings

No provisions.

### CLASS 2.

#### GASES: COMPRESSED, LIQUEFIED OR DISSOLVED UNDER PRESSURE

##### 1. List of substances

(1) Among the substances and articles covered by the heading of Class 2, only those listed in marginal 2201 are to be accepted for carriage, and then only subject to the requirements of this Annex and to the provisions of Annex B. These substances and articles to be accepted for carriage under certain conditions are to be considered as substances and articles of ADR.

(2) Substances having a critical temperature lower than 50°C or, at 50°C, a vapour pressure greater than 3 kg/cm<sup>2</sup> are deemed to be substances of Class 2.

(3) The substances and articles of Class 2 are classified as follows:

A: Compressed gases having a critical temperature below -10°C;

B: Liquefied gases having a critical temperature of -10°C or above:

(a) Liquefied gases having a critical temperature of 70°C or above:

(a) Liquefied gases having a critical temperature of 70°C or above;

(b) Liquefied gases having a critical temperature of -10°C or above, but below 70°C;

C: Deeply-refrigerated liquefied gases;

D: Gases dissolved under pressure;

E: Aerosol dispensers and non-refillable containers of gas under pressure;

F: Gases subject to special requirements; and

G: Empty receptacles and empty tanks.

The substances and articles of Class 2 are subdivided according to their chemical properties, as follows:

(a) non-inflammable;

(a t) non-inflammable, toxic;

(b) inflammable;

(b t) inflammable, toxic;

(c) chemically unstable;

(c t) chemically unstable, toxic.

Unless otherwise specified, chemically unstable substances shall be considered to be inflammable.

#### Class 2

The names of corrosive gases and of articles containing such gases shall be followed by the word «corrosive» in brackets.

(4) Substances of Class 2 which are listed among the chemically unstable gases are to be accepted for carriage only if the necessary steps have been taken to prevent their dangerous decomposition, dismutation or polymerization during carriage.

To this end, care should in particular be taken to ensure that receptacles and tanks do not contain any substances liable to promote these reactions.

A. Compressed gases [see also marginal 2201a under (a). For gases of 1° and (b) and 2° (a) in aerosol dispensers or in non-refillable containers for gases under pressure, see under 10° and 11°]:

Gases having a critical temperature below -10°C are considered to be compressed gases for the purposes of ADR.

1° Pure gases and technically-pure gases

(a) Non-inflammable

Argon; helium; krypton; neon; nitrogen; oxygen; tetrafluoromethane (R 14).

(a t) Non-inflammable, toxic

Boron trifluoride; fluorine (corrosive); silicon tetrafluoride (corrosive).

(b) Inflammable

Deuterium; hydrogen; methane.

(b t) Inflammable, toxic.

Carbon monoxide.

(c t) Chemically unstable, toxic

Nitric oxide (nitrogen monoxide) NO (non-inflammable).

2° Mixtures of gases

(a) Non-inflammable

Mixtures of two or more of the following gases: rare gases (containing not more than 10 per cent xenon by volume), nitrogen oxygen, carbon dioxide (not more than 30 per cent by volume); non-inflammable mixtures of two or more of the following gases hydrogen, methane, nitrogen, rare gases (containing not more than 10 per cent xenon by volume), not more than 30 per cent carbon dioxide by volume; nitrogen containing not more than 6 per cent ethylene by volume; air.

(b) Inflammable

Mixtures of not less than 90 per cent methane by volume with hydrocarbons of 3° (b) and 5° (b); inflammable mixtures of two of the following gases: hydrogen,

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methane, nitrogen, rare gases (containing not more than 10 per cent xenon by volume), not more than 30 per cent carbon dioxide by volume; natural gas.

(b t) Inflammable, toxic

Town gas; mixtures of hydrogen with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume; mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume; water gas; synthesis gas (e.g. from the Fischer-Tropsch process); mixtures of carbon monoxide with hydrogen or with methane.

(c t) Chemically unstable, toxic

Mixtures of hydrogen with not more than 10 per cent diborane by volume; mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent diborane by volume.

Liquefied gases [see also marginal 2201a under (b) and (e)]. For gases of 5° to 6° in aerosol dispensers or in non-refillable containers for gases under pressure, see under 10° and 11°]:

Gases having a critical temperature of -10°C or above are considered to be liquefied gases for the purposes of ADR.

(a) Liquefied gases having a critical temperature of 70°C or above:

Pure gases and technically-pure gases

(a) Non-inflammable

Bromochlorodifluoromethane (R 12 B1); chlorodifluoromethane (R 22); chloropentafluoroethane (R 115); 1-chloro-2,2,2-trifluoroethane (R 133a) dichlorodifluoromethane (R 12); dichlorofluoromethane (R 21); 1,2-dichloro-1,1,2,2-tetrafluoroethane (R 114); octofluorocyclobutane (RC 318).

(a t) Non-inflammable, toxic

Ammonia; boron chloride (corrosive); chlorine (corrosive); chlorine trifluoride (corrosive); hexafluoropropylene (R 216); hydrogen bromide (corrosive); methyl bromide; nitrosyl chloride (corrosive); nitrogen dioxide  $\text{NO}_2$  (nitrogen peroxide, nitrogen tetroxide  $\text{N}_2\text{O}_4$ ) (corrosive); phosgene (corrosive); sulphur dioxide; sulphuryl fluoride; tungsten hexafluoride.

(b) Inflammable

Butane; 1-butylene (1-butene); 1-chloro-1, 1-difluoroethane (R 142b); cis-2-butylene (cis-2-butene); cyclopropane; 1,1-difluoroethane (R 152a); isobutane, isobutylene; methylsilane; propane; propylene; trans-2-butylene (trans-2-butene); 1,1 1-trifluoroethane.

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(b t) Inflammable, toxic

Arsine; dichlorosilane; dimethylamine; dimethyl ether; dimethylsilane; ethylamine; ethyl chloride; hydrogen selenide; hydrogen sulphide; methylamine; methyl chloride; methyl mercaptan trimethylamine; trimethylsilane.

(c) Chemically unstable

1,3-butadiene; vinyl chloride.

(c t) Chemically unstable, toxic

Cyanogen; cyanogen chloride (non-inflammable) (corrosive); ethylene oxide; methyl vinyl ether; trifluorochloroethylene (R 1113); vinyl bromide.

Note: in the case of halogenated hydrocarbons, the use of names customary in the trade, such as the following, is also permitted: Alkofrene, Arcton Edifren, Flugene, Forane, Freon, Fresane, Frigen, Isceon, Kaltron, followed by the substance identification number without the letter R.

4° Mixtures of gases

(a) Non-inflammable

Mixtures of substances listed under 3° (a) with or without hexafluoropropylene of 3° (a t), which as:

mixture F 1 have a vapour pressure at 70°C not exceeding 13 Kg/cm<sup>2</sup> and a density at 50°C not lower than that

of dichlorofluoromethane (1.3).

mixture F 2 have a vapour pressure at 70°C not exceeding 19 Kg/cm<sup>2</sup> and a density at 50°C not lower than that of dichlorofluoromethane.

mixture F 3 have a vapour pressure at 70°C not exceeding 30 Kg/cm<sup>2</sup> and a density at 50°C not lower than that of dichlorofluoromethane (1.09).

Note: 1. Trichlorofluoromethane (R 11), trichlorotrifluoroethane (R113 and chlorotrifluoroethane (R133 are not liquefied gases within the meaning of ADR and thus are not subject to the requirements of ADR. They may however enter into the composition of mixtures F1 to F3.

2. See Note under 3°.

The azeotropic mixture of dichlorodifluoromethane (R 12) and 1,1-difluoroethane (R 152a), known as R500;

The azeotropic mixture of chloropentafluoroethane (R 115) and chlorodifluoromethane (R 22), known as R 502;

The mixture of 19 to 21 per cent by weight dichlorodifluoromethane (R 12) and 79 to 81 per cent by weight bromochlorodifluoromethane (R 12 B1).

Class 2

(a t) Non-inflammable, toxic

Mixtures of methyl bromide and chloropicrin having a vapour pressure above 3 kg/cm<sup>2</sup> at 50°C.

(b) Inflammable

Mixture of hydrocarbons listed under 3° (b) and of ethane and ethylene of 5° (b), which as:

mixture A have a vapour pressure at 70°C not exceeding 11 kg/cm<sup>2</sup> and a density at 50°C not lower than 0.525;

mixture A 0 have a vapour pressure at 70°C not exceeding 16 kg/cm<sup>2</sup> and a density at 50°C not lower than 0.495;

mixture A 1 have a vapour pressure at 70°C not exceeding 21 kg/cm<sup>2</sup> and a density at 50°C not lower than 0.485;

mixture B have a vapour pressure at 70°C not exceeding 26 kg/cm<sup>2</sup> and a density at 50°C not lower than 0.450;

mixture C have a vapour pressure at 70°C not exceeding 31 kg/cm<sup>2</sup> and a density at 50°C not lower than 0.440.

Note: In the case of the foregoing mixtures the use of the following names customary in the trade is permitted for describing these substances:

Name given under 4°(b)

Mixture A, mixture A 0

Mixture C

Name customary in the trade

butane

propane

Mixtures of hydrocarbons of 3° (b) and 5° (b) containing methane.

(b t) Inflammable, toxic

Mixtures of two or more of the following gases: methylsilane, dimethylsilane, trimethylsilane; methyl chloride and methylene chloride in mixtures having a vapour pressure above 3 kg/cm<sup>2</sup> at 50°C; mixtures of methyl chloride and chloropicrin and mixtures of methyl bromide and ethylene bromide having in either case a vapour pressure above 3 kg/cm<sup>2</sup> at 50°C.

(c) Chemically unstable

Mixtures of methylacetylene and propadiene with the hydrocarbons of 3° (b), which as:

mixture P 1 contain not more than 63 per cent methylacetylene and propadiene by volume and not more than 24 per cent propane and propylene by volume, the percentage of C<sub>4</sub>-saturated hydrocarbons being not less than 14 per cent by volume; and as mixture P2: contain not

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more than 48 per cent methylacetylene and propadiene by volume and not more than 50 per cent propane and propylene by volume, the percentage of  $C_4$ -saturated hydrocarbons being not less than 5 per cent by volume<sup>4</sup>.

(c) Chemically unstable, toxic

Ethylene oxide containing not more than 10 per cent carbon dioxide weight; ethylene oxide containing not more than 50 per cent methylene formate by weight, with nitrogen up to a total pressure not exceeded 10 kg/cm<sup>2</sup> at 50°C ethylene oxide with nitrogen up to a total pressure of 10 kg/cm<sup>2</sup> at 50°C dichlorodifluoromethane containing 12 per cent ethylene oxide by weight.

(b) Liquefied gases having a critical temperature of -10°C or above, below 70°C:

5° Pure gases and technically-pure gases

(a) Non-inflammable

Bromotrifluoromethane (R 13 B 1); carbon dioxide; chlorotrifluoromethane (R 13); hexafluoroethane (R 116);

nitrous oxide  $N_2O$ ; sulphur hexafluoride; trifluoromethane (R 23) xenon.

With regard to carbon dioxide, see also marginal 2201a under (c).

Note: 1. Nitrous oxide is to be accepted for carriage only if it is less than 99 per cent pure.

2. See Note under 3°.

(a) Non-inflammable, toxic

Hydrogen chloride (corrosive).

(b) Inflammable

Ethane; ethylene; silane.

(b) Inflammable, toxic

Germane; phosphine.

(c) Chemically unstable

1,1-difluoroethylene; vinyl fluoride.

(c) Chemically unstable, toxic

Diborane.

#### Class 2

6° Mixtures of gases

(a) Non-inflammable

Carbon dioxide containing not less than 1 per cent and not more than 10 per cent nitrogen, oxygen, air or rare gases by weight; the azeotropic mixture of chlorotrifluoromethane (R 13) and trifluoromethane (R 23) known as R 503.

Note: Carbon dioxide containing less than 1 per cent nitrogen, oxygen, air or rare gases by weight is a substance of 5°(a).

(c) Chemically unstable

Carbon dioxide containing not more than 35 per cent ethylene oxide by weight.

(c) Chemically unstable, toxic

Ethylene oxide containing more than 10 per cent but not more than 50 per cent carbon dioxide by weight.

C. Deeply - refrigerated liquefied gases

7° Pure gases and technically - pure gases

(a) Non-inflammable

Argon; carbon dioxide; helium; krypton; neon; nitrogen; nitrous oxide  $N_2O$ ; oxygen; xenon.

(b) Inflammable

Ethane; ethylene; hydrogen; methane.

8° Mixtures of gases

(a) Non-inflammable

Air; mixtures of substances of 7°(a)

(b) Inflammable

Mixtures of substances of 7°(b); natural gas.

D. Gases dissolved under pressure

9° Pure gases and technically - pure gases

(a) Non-inflammable, toxic

Ammonia dissolved in water with more than 35 per cent but not more than 40 per cent ammonia by weight; ammonia dissolved in water with more than 40 per cent but not more than 50 per cent ammonia by weight.

Note: Ammonia solution with an ammonia content not exceeding 35 per cent by weight is not subject to the requirements of ADR.

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(c) Chemically unstable

Acetylene dissolved in a solvent (e.g. acetone) absorbed by porous substances.

E. Aerosol dispensers and non-refillable containers of gas under pressure [see also marginal 2201a under (d)]:

Note: 1. Aerosol dispensers are receptacles which can be used only once are equipped with a release valve or dispersal device, and contain, under pressure, a gas or mixture of gases listed in marginal 2208 (2) or contain an active substance (insecticide, cosmetic, etc.) together with such a gas or mixture of gases as a propellant.

2. Non-refillable containers of gas under pressure are receptacles which can be used only once and contain a gas or a mixture of gases listed in marginal 2208 (2) and (3) (e.g. butane for camp-cookers, refrigerant gases; etc), but are not equipped with a release valve.

3. The term «inflammable substances» means:

(i) gases (propellant in aerosol dispensers; contents of non-refillable containers of gas under pressure) whose mixtures with air can be ignited and have a lower and an upper inflammability limit!

(ii) liquids (active substances in aerosol dispensers) of Class 3.

4. The term «chemically unstable» is applied to contents which the absence of special precautions undergo dangerous decomposition or self-polymerization at a temperature of not more than 70°C.

10° Aerosol dispensers

(a) Non-inflammable

With non-inflammable contents.

(a) Non-inflammable, toxic

With non-inflammable toxic contents.

(b) Inflammable

1. With not more than 45 per cent of inflammable contents by weight

2. With more than 45 per cent of inflammable contents by weight

(b) Inflammable, toxic

1. With toxic contents and not more than 45 per cent of inflammable contents by weight.

2. With toxic contents and more than 45 per cent of inflammable contents by weight.

#### Class 2

(c) Chemically unstable

With chemically-unstable contents.

(c) Chemically unstable, toxic

With chemically - unstable toxic contents.

11° Non-refillable containers of gas under pressure

(a) Non-inflammable

With non-inflammable contents.

(a) Non-inflammable, toxic

With non-inflammable toxic contents.

(b) Inflammable

With inflammable contents.

(b) Inflammable, toxic

With inflammable toxic contents.

(c) Chemically unstable

With chemically-unstable contents.

(c) Chemically unstable, toxic

With chemically-unstable toxic contents.

F. Gases subject to special requirements

12° Various mixtures of gases

Mixtures containing gases listed under other item numbers of this Class, and mixtures of one or more gases listed under other item numbers of this Class with one or more vapours of substances not excluded from carriage under ADR, on condition that during carriage:

1. the mixture remains entirely gaseous; and

2. all possibility of a dangerous reaction is excluded.

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## 13° Test gases

Gases and mixtures of gases not listed under other item numbers of this Class and used only in laboratory tests, on condition that during carriage:

- (a) the gas or mixture of gases remains entirely gaseous; and
- (b) all possibility of a dangerous reaction is excluded.

## G. Empty receptacles and empty tanks

14° Empty receptacles and empty tanks, uncleaned, which have contained tetrafluoromethane of 1°(a), substances of 1°, (a t) - (c t); 2°, (b) - (c t); 3° - 6°; carbon dioxide and nitrous oxide of 7°(a); or substances of 7°(b), 8°(b), 9°, 12° or 13°.

Note: 1. Receptacles and tanks which after being emptied of substances listed under 14° still contain small residual amounts are regarded as empty receptacles or empty tanks, uncleaned.

2. Empty receptacles or empty tanks, uncleaned, which have contained gases of 1°(a) other than tetrafluoromethane (R 14), or gases 2°(a), 7°(a) other than carbon dioxide and nitrous oxide, or 8°(a) are not subject to the requirements of ADR.

Gases and articles handed over for carriage in conformity with the following provisions are not subject to the requirements or provisions relating to this Class set out elsewhere in this Annex or in Annex B:

(a) compressed gases which are neither inflammable nor toxic nor corrosives and whose pressure in the receptacle, referred to a temperature of 15°C, does not exceed 2 kg/cm<sup>2</sup>; the same rule applies to mixtures of gases containing not more than 2 per cent inflammable components;

(b) liquefied gases contained, in quantities not exceeding 60 l, or in quantities of less than 5 l with not more than 25g hydrogen, in freeing appliances (refrigerators, ice machines, etc.) and necessary for their operation;

(c) carbon dioxide [5°(a)] in metal capsules (sodors, sparklets) if the carbon dioxide in the gaseous state does not contain more than 0.5 per cent air and the capsules contain not more than 25g carbon dioxide and not more than 0.75 g per cm<sup>3</sup> of capacity;

(d) articles of 10° and 11° of a capacity not exceeding 50 cm<sup>3</sup>. A package of such articles shall not weigh more than 10 kg;

(e) liquefied petroleum gases contained in motor-vehicle tanks firmly secured to the vehicles; the fuel cock between tank and engine must be closed and the electrical contact open.

## 2. Provisions

## A. Packages

## 1. General conditions of packing

(1) The materials of which the receptacles and their closures are made must not be liable to attack by the contents or form harmful or dangerous compounds therewith.

Note: Care must be taken not to allow any moisture to enter receptacles when they are being filled, and to dry receptacles completely after hydraulic pressure tests (see marginal 2216 carried out with water or with aqueous solutions).

(2) Packagings, including their closures, shall be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. When outer packagings are prescribed, the receptacles shall be firmly secured therein. Unless otherwise specified in the section entitled «Packing of a single substance or of articles of the same kind», inner packagings may be enclosed in outer packagings, either singly or in groups.

(3) Metal receptacles intended for the carriage of gases of 1° to 6° and 9° shall contain only the gas for which they have been tested and whose name is inscribed on the receptacle [see marginal 2218 (a)].

Derogations are allowed

2201

1. for metal receptacles tested for one of the substances of 3°(a) or 4°(a) or for bromotrifluoromethane, chlorotrifluoromethane or trifluoromethane of 5° (a). These receptacles may also be filled with some other substance of the aforesaid items on condition that the minimum test pressure prescribed for that substance does not exceed the test pressure of the receptacle and that the name of the substance and its permissible maximum filling weight are inscribed on the receptacle;

2. for metal receptacles tested for hydrocarbons of 3°(b) or 4°(b). These receptacles may also be filled with some other hydrocarbon on condition that the minimum test pressure prescribed for that substance does not exceed the test pressure of the receptacle and that the name of the substance and its permissible maximum filling weight are inscribed on the receptacle.

For 1 and 2, see also marginals 2215, 2218 (1)(a) and 2220, (1) to (3).

(4) A change in the use to which a receptacle is assigned is allowed in principle if it does not conflict with national regulations; it requires however the approval of the competent authority and replacement of the former markings by markings relating to the new use.

2201a

2. Packing of a single substance or of articles of the same kind

Note: Carbon dioxide and nitrous oxide [7°(a)] and mixtures of these two gases [8°(a)] may not be carried otherwise than in specially-equipped tanks (see Annex B, marginal 21400).

## a. Nature of receptacles

(1) Receptacles intended for the carriage of gases of 1° to 6°, 9°, 12° and 13° shall be so closed and leak-proof as to prevent any escape of the gases.

(2) These receptacles shall be made of carbon steel or of alloy steel (special steels).

The following may however be used:

(a) copper receptacles for:

1. compressed gases of 1°, (a), (b) and (b t),

and 2o, (a) and (b), whose filling pressure referred to a temperature of 15°C does not exceed 20 kg/cm<sup>2</sup>; and

2. liquefied gases of 3°(a); sulphur dioxide of 3o(a t); dimethyl-ether, ethyl chloride and methyl chloride of 3°(b) vinyl chloride of 3°(c); vinyl bromide of 3°(a t); mixtures F 1, F 2 and F 3 of 4°(a); and ethylene oxide containing not more than 10 per cent carbon dioxide by weight of 4° (c t);

(b) aluminium - alloy receptacles (see Appendix A.2) for:

1. compressed gases of 1°, (a), (b) and (b t); nitric oxide (nitrogen monoxide) NO of 1°(c t); and compressed gases of 2° (a), (b) and (b t);

2. liquefied gas of 3° (a); sulphur dioxide of 3°(a t); liquefied gases of 3°(b) other than methylsilane; dimethyl ether, hydrogen selenide, and methyl mercaptan of 3°(b t); ethylene oxide of 3°(c t); liquefied gases of 4°, (a) and (b) ethylene oxide containing not more than 10 per cent carbon dioxide by weight, of 4°(c t); and liquefied gases of 5°, (a) and (b), and 6° (a) and (c). Sulphur dioxide of 3°(a t) and substances of 3°(a) and 4°(a) shall be dry; and

3. dissolved acetylen of 9°(c).

All gases which are to be carried in aluminium-alloy receptacles must be free from alkaline impurities.

(1) Receptacles for dissolved acetylene [9°(c)] shall be entirely filled with a porous material, uniformly distributed, of a type approved by the competent authority and which

(a) does not attack the receptacles on form harmful or dangerous compounds either with acetylene or with the solvent;

(b) does not shake down, even after prolonged use or through jolting temperatures up to 60° C;

(c) is capable of preventing the spread of decomposition of the acetylene in the mass.

(2) The solvent must not attack the receptacles.

(1) The following liquefied gases may, in addition, be

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carried in thick-walled glass tubes on condition that the quantity of substance each tube and the degree of filling of the tubes do not exceed the indicated below:

Names of gases	Quantity of substance	Degree filling of tube
Carbon dioxide, nitrous oxide N <sub>2</sub> O[-5 <sup>o</sup> (a)], ethane, ethylene [5 <sup>o</sup> (b)]	3g	one half of capacity
Ammonia, chlorine, methyl bromide [3 <sup>o</sup> (a t)], cyclopropane [3 <sup>o</sup> (b)], ethyl chloride [3 <sup>o</sup> (b t)]	20 g	two-thirds of capacity
Phosgene, sulphur dioxide [3 <sup>o</sup> (a t)]	100 g	three-quarters of capacity

(2) The glass tubes shall be flame-sealed and secured separately by infusorial - earth cushioning in closed sheet - metal capsules which shall be placed in a wooden case or in some other outer packaging of sufficient strength (see also marginal 2222).

(3) For sulphur dioxide of 3<sup>o</sup>(a t) stout glass siphons containing not more than 1.5 kg of substance and filled to not more than 88 per cent of their capacity are also allowed. The siphons shall be secured by infusorial earth, sawdust or powdered carbonate of lime, or by a mixture of the two latter, in strong wooden cases or in some other outer packaging of sufficient strength. A package shall not weigh more than 100 kg. If it weighs more than 30 kg it shall be fitted with means of handling.

(1) Gases of 3<sup>o</sup>(a); 3<sup>o</sup>(b) other than methylsilane; 3<sup>o</sup>(b t) other than arsine, dichlorosilane, dimethylsilane, hydrogen selenide and trimethylsilane; 3<sup>o</sup>(c); 3<sup>o</sup>(c t) other than cyanogen chloride; and mixtures of 4<sup>o</sup>(a) and 4<sup>o</sup>(b), may also, on condition that the weight of liquid per litre of capacity does not exceed either the maximum weight of contents indicated in marginal 2220 or 150 g per tube, be contained in thick-walled glass tubes, or in thick-walled metal tubes made of a metal allowed by marginal 2203 (2). The tubes shall be free from faults liable to impair their strength; in particular, internal stresses in glass tubes shall have been suitably relieved and the thickness of the tube walls shall not be less than 2 mm. The leakproofness of the closure system shall be ensured by an additional device (cap, crown, seal, binding, etc.) capable of preventing any loosening of the closure system during carriage. The tubes shall be secured by cushioning material in small boxes made of wood or fibreboard, the number of tubes per box being such that the weight of the liquid contained in a box does not exceed 600 g. These small boxes shall be placed in wooden cases or in some other outer packaging of sufficient strength; if the liquid contents of a case weigh more than 5 kg the case shall be lined with soft-soldered sheet-metal.

(2) A package shall not weigh more than 75 kg.

(1) Gases of 7<sup>o</sup>(a) other than carbon dioxide and nitrous oxide, and of 8<sup>o</sup>(a) other than mixtures containing carbon dioxide and nitrous oxide, shall be enclosed in closed, double - walled metal receptacles which are so insulated that they cannot become coated with dew or hoar-frost and which are fitted with safety valves.

(2) Gases of 7<sup>o</sup>(a) other than carbon dioxide and nitrous oxide, and of 8<sup>o</sup>(a) other than mixtures containing carbon dioxide and nitrous oxide, may also be enclosed in receptacles which are not hermetically closed and which are:

(a) double - walled vacuum-jacketed glass receptacles surrounded by an absorbent insulating material; these receptacles shall be protected by iron-wire baskets and placed in metal cases; or

(b) metal receptacles protected against heat transmission in such a way that they cannot become coated with dew or hoar-frost; the capacity of these receptacles shall not exceed 100 litres.

(3) The metal cases referred to in subparagraph (2)(a) and the receptacles referred to in subparagraph (2)(b) above shall be fitted with means of handling. The openings of the receptacles referred to in subparagraphs (2)(a) and (b) shall be fitted with devices allowing gases to escape, preventing any splashing out of the liquid, and so fixed that they cannot fall out. In the case of oxygen of 7<sup>o</sup>(a) and mixtures containing oxygen of 8<sup>o</sup>(a), the devices referred to above and the absorbent insulating material surrounding the receptacles referred to in subparagraph (2)(a) shall be made of incombustible materials.

(1) Aerosol dispensers (10<sup>o</sup>) and non-refillable containers for gas under pressure (11<sup>o</sup>) shall satisfy the following requirements:

(a) aerosol dispensers containing only a gas or a mixture of gases, and non-refillable containers for gas under pressure, shall be made of metal. This requirement shall not apply to non-refillable containers for gas under pressure with a maximum capacity of 100 ml for butane. Other aerosol dispensers shall be made of metal, a plastics material or glass. Receptacles made of metal and having an outside diameter of less than 40 mm shall have a concave bottom;

(b) receptacles made of materials liable to shatter, such as glass or certain plastics materials, shall be enclosed in a device (close - wire netting, flexible cover made of a plastics material, etc.) and affording protection against fragments and their dispersal. Receptacles whose capacity does not exceed 150 cm<sup>3</sup> and whose internal pressure 20°C is below 1.5 kg/cm<sup>2</sup> are exempted from this requirement;

(c) the capacity of receptacles made of metal shall not exceed 1,000 cm<sup>3</sup> and that of receptacles made of a plastics material or of glass shall not exceed 500 cm<sup>3</sup>;

(d) each model of receptacle shall, before being put into service, say a hydraulic pressure test carried out in conformity with Appendix marginal 3291. The internal pressure to be applied (test pressure shall be 1.5 times the internal pressure at 50°C, with a minimum of 10 kg/cm<sup>2</sup>;

(e) the release valves of aerosol dispensers, and their dispersal devices shall ensure that the dispensers are so closed as to be leak-proof shall be protected against accidental opening. Valves and dispersal devices which close only by the action of the internal pressure are to be accepted.

(2) The following gases shall be accepted as propellants, or as constituents of propellants, or as filler gases, for aerosol dispenser gases of 1<sup>o</sup>(a) and (b); 2<sup>o</sup>(a) and (b); 3<sup>o</sup>(a) and (b) other than methylsilane; ethyl chloride and dimethyl ether of 3<sup>o</sup>(b t); 1,3-butadiene of 3<sup>o</sup>(c); trifluoro-chloroethylene of 3<sup>o</sup>(c t); gases of 4<sup>o</sup>, (a) and (b); gases of 5<sup>o</sup>, (a) and (b) other than silane; gases of 5<sup>o</sup>(c) and 6<sup>o</sup>(a) and (c).

(3) All the gases listed under (2) and, in addition, the following gases shall be accepted as filling gases for non-refillable containers for gas under pressure; methyl bromide of 3<sup>o</sup>(a t); dimethylamine, ethylamine, methylamine, methyl mercaptan and trimethylamine of 3<sup>o</sup>(b t); ethylene oxide, methyl vinyl ether and vinyl bromide of 3<sup>o</sup>(c t); ethylene oxide containing not more than 10 per cent carbon dioxide by weight, of 4<sup>o</sup>(c t).

(1) The internal pressure at 50°C of aerosol dispensers and of non-refillable containers of gas under pressure shall exceed neither two-thirds of the test pressure of the receptacle nor 12 kg/cm<sup>2</sup>.

(2) Aerosol dispensers and non refillable containers of gas under pressure shall be so filled that at 50°C the liquid phase does not exceed 95 per cent of their capacity. The capacity of aerosol dispensers is the available volume in a closed dispenser fitted with the valve support, the valve and the dip tube.

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(3) All aerosol dispensers and non-refillable containers for gas under pressure shall satisfy a tightness (leakproofness) tests in conformity with Appanedix A.2, marginal 3292.

(1) Aerosol dispensers and non-refillable containers of gas under pressure shall be placed in wooden cases or strong fibreboard or metal boxes; aerosol dispensers made of glass or a plastics material and liable to shatter shall be separated from one another by interposed sheets of fibreboard or of another suitable material.

(2) A package shall not weigh more than 50 kg if fibreboard boxes are used or more than 75 kg if other packagings are used.

(3) Where carriage is by full load, each load comprising only aerosol dispensers made of metal, the dispensers may be grouped together and secured on trays with the aid of an appropriate plastics material by means of a shrinkage and heat-sealing process, on condition that the groups of dispensers are then stacked and suitably secured on pallets.

#### b. Conditions governing metal receptacles

(These conditions are not applicable to the metal tubes referred to in marginal 2206, to the receptacles referred to in marginal 2207 (2)(b), or to the aerosol dispensers or non-refillable metal containers for gas under pressure referred to in marginal 2208).

#### 1. Construction and fittings (see also marginal 2238).

(1) At the test pressure, the stress in the metal at the most severely stressed point of the receptacle (marginals 2215, 2219 and 2220) shall not exceed three-quarters of the guaranteed minimum yield stress (Re). By «yield stress» is meant the stress at which a permanent elongation of 2% (i.e. 0.2 per cent) or, for austenitic steels, 1 per cent of the gauge length on the test-piece, has been produced.

Note: In the case of sheet-metal the axis of the tensile test-piece shall be at right angles to the direction of rolling. The permanent elongation at fracture ( $l = 5d$ ) shall be measured on a test-piece of circular cross-section in which the gauge length  $l$  is equal to five times, the diameter  $d$ ; if test-pieces of rectangular cross-section are used, the gauge length shall be calculated by the formula  $l = 5,65 \sqrt{F_0}$  where  $F_0$  indicates the initial cross-sectional area of the test-piece.

(2) (a) Steel receptacles whose test pressure exceeds 60 kg/cm<sup>2</sup> shall be of seamless construction or welded. For welded receptacles, steels, (carbon or alloy) of fully satisfactory weldability shall be used.

(b) Receptacles whose test pressure does not exceed 60 kg/cm<sup>2</sup> shall either conform to the provisions of subparagraph (a) above, or be riveted or hard-soldered on condition that the manufacturer guarantees the workmanship of the riveting and hard-soldering and that the competent authorities of the country of origin have given their approval.

(3) Aluminium - alloy receptacles shall be seamless or welded.

(4) Welded receptacles are to be accepted only on condition that manufacturer guarantees the workmanship of the welding and that the competent authorities of the country of origin have given their approval.

(1) A distinction is made between the following types of receptacles.

(a) cylinders of a capacity not exceeding 150 litres;

(b) receptacles of a capacity of not less than 100 litres [with the exception of cylinders in conformity with subparagraph (a)] and not more than, 1,000 litres (e.g. cylindrical receptacles equipped with rolling hoops, and receptacles on skids);

(c) tanks (see Annex B);

(d) assemblies, known as «frames», of cylinders in conformity with subparagraph (1)(a), the cylinders being interconnected by a manifold and held firmly together by a metal fitting;

(2) (a) If under the regulations of the country of departure the cylinders referred to in subparagraph (1)(a) are required to be fitted with device to prevent rolling, this

device shall not be integral with the valve cap (marginal 2213 (2)).

(b) Receptacles in conformity with subparagraph (1)(b) which are capable of being rolled shall be equipped with rolling hoops or be otherwise protected against damage due to rolling (e.g. by corrosion-resistant metal sprayed on to the receptacle's outer surface).

Receptacles in conformity with subparagraphs (1)(b) and (1)(c) which are not capable of being rolled shall be fitted with devices (skids, rings straps) ensuring that they can be safely handled by mechanical means and so arranged as not to impair the strength of, nor cause undue stresses in, the wall of the receptacle.

(c) Frames of cylinders in conformity with subparagraph (1)(d) shall be fitted with devices ensuring that they can be handled safely. The manifold and the master cock shall be situated within the frame and be so mounted as to be protected against any damage.

(3) (a) With the exceptions of gases of 7° and 8°, gases of Class 2 may be carried in cylinders in conformity with subparagraph (1)(a).

Note: For possible limitations on the capacity of cylinders for certain gases, see marginal 2219.

(b) With the exception of fluorine and silicon tetrafluoride [1°(a t)]; nitric oxide (NO) [1o(c t)]; mixtures of hydrogen with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume; mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume [2°(b t)]; mixtures of hydrogen with not more than 10 per cent diborane by volume; mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent diborane by volume [2°(c t)]; boron chloride, chlorine trifluoride, nitrosyl chloride, sulphuryl fluoride and tungsten hexafluoride [3°(a t)]; methylsilane [3°(b)] arsine, dichlorosilane, dimethylsilane, hydrogen selenide and trimethylsilane [3°(b t)]; cyanogen chloride, cyanogen and ethylene oxide [3°(c t)]; mixtures of methylsilanes [4°(b t)]; substances of 4°(c) and 4o(c t) other than dichlorodifluoromethane containing 12 per cent ethylene oxide by weight; nitrous oxide [5°(a)]; silane [5°(b)]; and substances of 5°(b t), 5°(c t), 7°, 8°, 12° and 13°, gases of Class 2 may be carried in receptacles in conformity with subparagraph (1) (b).

(c) With the exception of silicon tetrafluoride [1°(a t)]; nitric oxide [1°(c t)]; mixtures of hydrogen with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume; mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume [2°(b t)]; mixtures of hydrogen with not more than 10 per cent diborane by volume; mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent diborane by volume [2°(c t)]; boron chloride, chlorine trifluoride, nitrosyl chloride, sulphuryl fluoride and tungsten hexafluoride [3°(a t)]; methylsilane [3°(b)]; arsine, dichlorosilane, dimethylsilane, hydrogen selenide and trimethylsilane [3°(b t)]; cyanogen chloride, cyanogen and ethylene oxide [3°(c t)]; mixtures of methylsilanes [4°(b t)]; substances of 4°(c) and 4°(c t) other than dichlorodifluoromethane containing 12 per cent ethylene oxide by weight; nitrous oxide [5°(a)]; silane [5°(b)]; and substances of 5°(b t), 5°(c t), 7°, 8°, 12° and 13°, gases of Class 2 may be carried in frames of cylinders in conformity with subparagraph (1)(d). The individual cylinders in a frame of cylinders shall contain only one and the same compressed gas, liquefied gas or gas dissolved under pressure. Each cylinder in a frame of cylinders for fluorine [1°(a t)] or dissolved acetylene [9°(c)] shall however be fitted with a cock. The cylinders in a frame of cylinders

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of acetylene shall all contain the same porous material (marginal 2201).

(1) Openings for filling and emptying receptacles shall be fitted with flap valves or needle-valves. Valves of other types may however be allowed if they present equivalent guarantees of safety and have been approved in the country of origin. Nevertheless, whatever the type of valve adopted, its system of attachment shall be strong and such that satisfactory condition can be verified easily before each filling.

Apart from a manhole, which if provided shall be closed by an effective closure, and from the necessary orifice for the removal of deposits, receptacles and tanks in conformity with marginal 2212 (1)(b) and (c) shall not be equipped with more than two openings, for filling and discharge respectively. Nevertheless, receptacles of a capacity of not than 100 l intended for the carriage of dissolved acetylene [9°(c)] may have more than two openings for filling and discharge.

Similarly, receptacles and tanks in conformity with marginal 2212 (b) and (c), intended for the carriage of substances of 3°(b) and 4°(b) be provided with other openings intended in particular for verifying the level of the liquid and the gauge pressure.

(2) Valves (cocks) shall be effectively protected by caps or fixed flanges. Caps shall possess vent-holes of sufficient cross-sectional area to evacuate gases if leakage occurs at the valves. The caps or ganges shall adequately protect the valve if the cylinder falls and during the carriage and stacking. Valves placed inside the neck of the receptacle and protected by a screw-threaded plug, and receptacles carried packed by protective cases, shall not require a cap. Likewise, no protective case will be required for valves (cocks) on frames of cylinders.

(3) Receptacles containing fluorine [1°(a t)]; chlorine trifluoride [3°(a t)]; or cyanogen chloride [3°(c t)] shall, whether they are carried packed in protective cases, be fitted with steel caps. These caps shall have no openings and shall, throughout carriage, be equipped with a gasket ensuring gas-tightness and made of a material not liable to attack by the contents of the receptacle.

(1) In the case of receptacles containing boron trifluoride or fluorine [1°(a t)]; chlorine trifluoride or liquefied ammonia [3°(a)]; ammonia dissolved in water [9°(a t)]; nitrosyl chloride [3°(a t)]; dimethylamine, ethylamine, methylamine or trimethylamine [3°(b t)]; or made of copper or of any other metal liable to be attacked by these gases are not to be accepted.

(2) The use of substances containing grease or oil for ensuring leakproofness of joints (seams) or for maintaining the closure device and receptacles used for oxygen [10(a)]; fluorine [10(a t)]; mixtures with oxygen [2°(a)]; nitrogen dioxide, chlorine trifluoride [3°(a t)]; nitrous oxide [5°(a)]; nitrogen dioxide, chlorine trifluoride [3°(a t)]; nitrous oxide [5°(a)]; or mixtures of 12° containing more than 10 per cent oxygen by volume is prohibited.

(3) The following requirements shall apply to the construction receptacles referred to in marginal 2207 (1):

(a) The materials and construction of the receptacles shall be in conformity with the requirements of Appendix A.2, B, marginals 3250 to 3254. All the mechanical and technological characteristics of the material used shall be established for each receptacle at the first test; with regard to the impact strength and the bending coefficient, see Appendix A.2, marginals 3265 to 3285.

(b) Receptacles shall be fitted with a safety valve which shall be capable of opening at the working pressure shown on the receptacle. The valves shall be so constructed as to work perfectly even at their lowest working temperature. Their reliability of functioning at that temperature shall be established and checked by testing each valve or a sample of valves of the same type of construction.

(c) The vents and safety valves of receptacles shall be so designed as to prevent the liquid from splashing out.

(d) The closing devices shall be so arranged that they

cannot be opened by unqualified persons.

(e) Receptacles whose filling is measured by volume shall be provided with a level indicator.

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(f) The receptacles shall be thermally insulated. The thermal insulation shall be protected against impact by means of continuous metal sheathing. If the space between the receptacle and the metal sheathing is airless (vacuum insulation), the protective sheathing shall be designed to withstand without deformation an external pressure of at least 1 kg/cm<sup>2</sup>. If the sheathing is so closed as to be gas-tight (e.g. in the case of vacuum insulation), device shall be provided to prevent any dangerous pressure from developing in the insulating layer in the event of inadequate gas - tightness of the receptacle or its fittings. The device shall prevent moisture from penetrating into the insulation.

(4) In the case of receptacles containing mixtures of 4° (c) or dissolved acetylene [9° (c)], metal parts of closing devices in contact with the contents shall not contain more than 70 per cent copper. Receptacles for dissolved acetylene [9° (c)] may also have stop-valves taking yoke connectors.

(5) Receptacles containing oxygen of 1° (a) or 7° (a) and fitted in fish-tanks are likewise to be accepted if they are provided with appliances enabling the oxygen to escape gradually.

2. Official test of receptacles (for aluminium - alloy receptacles see also Appendix A.2)

(1) Metal receptacles shall be subjected to initial and periodic tests under the supervision of an expert approved by the competent authority. The nature of these tests is specified in marginals 2216 and 2217.

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(2) In order to ensure compliance with the requirements of marginals 2204 and 2221 (2), tests of receptacles intended to contain dissolved acetylene [9° (c)] shall include, in addition, examination of the nature of the porous material and of the quantity of solvent.

(1) The initial test of new or unused receptacles shall comprise:

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A. On an adequate sample of receptacles:

(a) testing of the material of construction in respect at least of yield stress, tensile strength, and permanent elongation at fracture; the values yielded by these tests shall comply with national regulations;

(b) measurement of wall thickness at the thinnest point, and calculation of the stress;

(c) checking the homogeneity of the material for each manufacturing batch, and inspection of the external and internal condition of the receptacles;

B. For all receptacles:

(d) a hydraulic pressure test in conformity with the provisions of marginals 2219 to 2221;

(e) an inspection of the markings on the receptacles (see marginal)

C. In addition, for receptacles intended for the carriage of dissolved acetylene [9° (c)]:

(f) an inspection as required by national regulations.

(2) Receptacles shall withstand the test pressure without undergoing permanent deformation or exhibiting cracks.

(3) At the periodic inspections the following shall be repeated:

the hydraulic pressure test; check of the external and internal condition of the receptacle (e.g. by weighing, internal inspection, checks of wall thickness); verification of the equipment and markings and, if necessary verification of the characteristics of the material by suitable tests.

Periodic inspections shall be carried out:

(a) every 2 years in the case of receptacles intended for the carriage of gases of 1° (a t) and 1° (c t); town gas of 2° (b t); gases of 3° (a t) other than ammonia, hexafluoropropylene and methyl; cyanogen chloride of 3° (c t); and substances of 5° (a t);

(b) every 5 years in the case of receptacles intended for the carriage of other compressed and liquefied gases (subject to the provision of subparagraph (c) below) and



of receptacles for the carriage of ammonia dissolved under pressure [9° (a t)];

(c) every 10 years in the case of receptacles intended for the carriage of gases of 1° (a) other than oxygen; of mixtures of nitrogen rare gases, of 2° (a); of gases of 3° (a and 3° (b) other than 1,1-difluoroethane, 1-chloro-1,1-difluoroethane, methylsilane 1,1,1-trifluoroethane, and of mixtures of gases of 4° (a) and if the receptacles have a capacity of not more than 150 litres the country of origin does not prescribe a shorter interval.

(d) in the case of receptacles intended for the carriage of dissolved acetylene [9° (c)], marginal 2217 (1) shall apply, and in that of receptacles conforming to marginal 2207 (1), marginal 2217 (2) shall apply.

(1) The external condition (corrosion, deformation) of, and the condition (loosening, settlement) of the porous material in, receptacles intended for the carriage of dissolved acetylene [9° (c)] shall be examined every 5 years. Sampling shall be performed by cutting up, if considered necessary, a suitable number of receptacles and inspecting them internally for corrosion and for any changes that may have occurred in the constituent materials and in the porous material.

(2) Receptacles conforming to marginal 2207 (1) shall be subjected every 5 years to external inspection and to a tightness (leakproofness) test. The tightness (leakproofness) test shall be carried out with the gas contained in the receptacle or with an inert gas at a pressure of 2 kg/cm<sup>2</sup>. Checking shall be performed by means of a pressure gauge or by vacuum measurement. The thermal insulation shall not be removed. The pressure shall not decline during the 8-hour test period. Changes resulting from the nature of the test gas or from variations in temperature shall be taken into account.

### 3. Marks on receptacles

(1) Metal receptacles shall bear the following particulars in clearly legible and durable characters:

(a) one of the names of the gas or of the mixture of gases in full, as given in marginal 2201, 1° to 9°; the name or mark of the maker or owner; and the number of the receptacle [see also marginal 2202 (3)]. In the case of halogenated hydrocarbons of 1° (a), 3° (a), 3° (a t), 3° (b), 3° (c t), 4° (a), 5° (a) and 6° (a) the use of the letter R, followed by the substance identification number is also permitted;

(b) in the case of receptacles intended for liquefied gases, the tare of the receptacle including such fittings and accessories as valves, cocks, metal plugs, etc., but excluding the protective cap;

(c) in the case of receptacles intended for compressed gases, the tare of the receptacle proper;

(d) the test pressure (see marginals 2219 to 2221) and the date (month, year) of the last test undergone (see marginals 2216 and 2217);

(e) the stamp of the expert who carried out the tests and inspections; and in addition:

(f) in the case of compressed gases of mixtures of compressed gases [1°, 2°, 12° and 13°]: the maximum filling pressure at 15° C allowed for the receptacle in question (see marginal 2219);

(g) in the case of boron fluoride [1° (a t)], liquefied gases [3° to 6°] and ammonia dissolved in water [9° (a t)]: the maximum filling allowed, and the capacity. In the cases of deeply-refrigerated gases of 7° and 8°: the capacity;

(h) in the case of acetylene dissolved in a solvent [9° (c)]: the permitted filling pressure [see marginal 2221 (2)], and the weight of the empty receptacle including the weight of the fittings and accessories, of the porous material, and of the solvent;

(1) in the case of mixtures of gases of 12° and test gases of 13°, the words «mixtures of gases» or «test gases», as the case may be, shall be engraved on the receptacle as a general indication of the content. An exact description of the contents shall be shown in a durable form throughout carriage;

(k) in the case of metal receptacles which, under marginal 2202 (3), are accepted for the carriage of a number of different gases (multi-purpose receptacles), an exact description of the contents shall be shown in a durable form during carriage.

(2) The marks shall be engraved either on a reinforced part of the receptacle, or on a ring, or on a data plate, immovably affixed to the receptacle. In addition, the name of the substance may be indicated on the receptacle by an adherent and clearly - visible inscription applied by painting or by any other, equivalent, process.

(c) Test pressure, degree of filling, and limitation of capacity, of receptacles (see also marginals 2238, 211 180 and 212 180

2217 (1) In the case of receptacles intended for the carriage of compressed gases of 1°, 2° and 12°, the internal pressure (test pressure to be applied in the hydraulic pressure test shall be at least one and one-half times the filling pressure at 15° C indicated on the receptacle, but shall not be less than 10 kg/cm<sup>2</sup>.

2219

(2) In the case of receptacles used for the carriage of substances 1° (a) other than tetrafluoromethane; of deuterium and hydrogen of 1° (b) or of gases of 2° (a), the filling pressure shall not exceed 300 kg/cm<sup>2</sup> referred to a temperature of 15° C. In the case of tanks, the filling pressure shall not exceed 250 kg/cm<sup>2</sup> referred to a temperature of 15° C.

In the case of receptacles and tanks intended for the carriage of other gases of 1° and 2° the filling pressure shall not exceed 200 kg/cm<sup>2</sup> referred to a temperature of 15° C.

(3) In the case receptacles intended for the carriage of fluorine [1° (a t)] the internal pressure (test pressure) to be applied in the hydraulic pressure test shall be 200 kg/cm<sup>2</sup> and the filling pressure shall not exceed 28 kg/cm<sup>2</sup> at a temperatures of 15° C; in addition, on receptacle may contain more than 5 kg fluorine.

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In the case of receptacles for the carriage of boron trifluoride [1° (a t)] the hydraulic to be applied in the test (test) pressure shall be either 300 kg/cm<sup>2</sup>, in which case the maximum weight of the contents per litre of capacity shall not exceed 0.86 kg, or 225 kg/cm<sup>2</sup>, in which case the maximum weight of the contents per litre of capacity shall not exceed 0.715 kg.

(4) in the case of receptacles intended for the carriage of nitric oxide No [1° (c t)], the capacity shall be limited to 50 l; the hydraulic pressure to be applied in the test (test pressure) shall be 200 kg/cm<sup>2</sup>; and the filling pressure shall not exceed 50 kg/cm<sup>2</sup> at a temperature of 15° C.

(5) In the case of receptacles intended for, the carriage of mixtures of hydrogen with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume; of mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume [2° (b t)]; of mixtures of hydrogen with not more than 10 per cent diborane by volume; or of mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent diborane by volume [2° (c t)], the capacity shall be limited to 50 l; the hydraulic pressure to be applied in the test (test pressure) shall be not less than 200 kg/cm<sup>2</sup>; and the filling pressure shall not exceed 50 kg/cm<sup>2</sup> at a temperature of 15° C.

(6) Receptacles in conformity with marginal 2207 (1) shall not, at the filling temperature and at a pressure of 1 kg/cm<sup>2</sup>, be filled beyond 98 per cent of their capacity.

Where oxygen of 7° (a) is carried, steps shall be taken to prevent any spillage of the liquid phase.

(7) Where dissolved acetylene [9° (c)] is carried in receptacles in conformity with marginal 2212 (1) (b), the capacity of the receptacles shall not exceed 150 l.

(8) The capacity of receptacles intended for the carriage of mixtures of gases of 12° shall not exceed 50 l. The pressure of the mixture shall not exceed 150 kg/cm<sup>2</sup> at

a temperature of 15° C.

(9) The capacity of receptacles intended for the carriage of test gases of 13° shall not exceed 50 l. The filling pressure at a temperature of 15° C shall not exceed 7 per cent of the test pressure of the receptacle.

(10) In the case of tungsten hexafluoride [3° (a t)] the capacity of the receptacles shall be limited to 60 l.

The capacity of receptacles for silicon tetrafluoride [1° (a t)]; boron chloride, nitrosyl chloride and sulphuryl fluoride [3° (a t)]; methylsilane [3° (b)]; arsine, dichlorosilane, dimethylsilane, hydrogen selenide and trimethylsilane [3° (b t)]; cyanogen chloride and cyanogen [3° (c t)]; mixtures of methylsilanes [4o (b t)]; substances of 4° (c t) other than dichlorodifluoromethane containing 12 per cent ethylene oxide by weight; silane [5° (b)]; and substances of 5o (b t) and (c t), shall be limited to 50.

(11) In the case of receptacles intended for chlorine trifluoride [3° (a t)] the capacity shall be limited to 40 l. After filling, a receptacle containing chlorine trifluoride [3° (a t)] shall, before being handed over for carriage, be held back for not less than seven days in order to verify that it is leak-proof.

(1) In the case of receptacles intended for the carriage of liquefied gases of 3° to 6°, and of receptacles intended for the carriage of gases dissolved under pressure of 9°, the hydraulic pressure to be applied in the test (test pressure) shall be not less than 10 kg/cm<sup>2</sup>.

(2) In the case of liquefied gases of 3° and 4° the following values shall be complied with for the hydraulic pressure to be applied to the receptacles in the test (test pressure) and for the maximum degree of filling allowed:\*

\*See the end of the table in paragraph (2).

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Description of substance	Item number	Minimum Test pressure kg/cm <sup>2</sup>	Maximum weight of contents per litre of capacity kg
Bromochlorodifluoromethane (R 12 B 1)	3°(a)	10	1.61
Chlorodifluoromethane (R 22)	3°(a)	29	1.03
Chloropentafluoroethane (R 115)	3°(a)	25	1.06
1-chloro-2,2,2-trifluoroethane (R 133a)	3°(a)	10	1.18
Dichlorodifluoromethane (R 12)	3°(a)	18	1.15
Dichlorofluoromethane (R 21)	3°(a)	10	1.23
1,2-Dichloro-1,1,2,2-tetrafluoroethane (R 114)	3°(a)	10	1.30
Octafluorocyclobutane (RC 318)	3°(a)	11	1.34
Ammonia	3°(at)	33	0.53
Boron chloride	3°(at)	10	1.19
Chlorine	3°(at)	22	1.25
Chlorine trifluoride	3°(at)	30	1.40
Hexafluoropropylene (R 216)	3°(at)	22	1.11
Hydrogen bromide	3°(at)	60	1.20
Methyl bromide	3°(at)	10	1.51
Nitrogen dioxide	3°(at)	10	1.30
Nitrosyl chloride	3°(at)	13	1.10
Phosgene	3°(at)	20	1.23
Sulphur dioxide	3°(at)	14	1.23
Sulphuryl fluoride	3°(at)	50	1.10
Tungsten hexafluoride	3°(at)	10	2.70
Butane	3°(b)	10	0.51
1-Butene	3°(b)	10	0.53
1-Chloro-1,1-difluoroethane (R 142b)	3°(b)		
Cis-2-butene	3°(b)	10	0.55
Cyclopropane	3°(b)	20	0.53
1,1-Difluoroethane (R 152a)	3°(b)	18	0.79
Isobutane	3°(b)	10	0.49
Isobutene	3°(b)	10	0.52
Methylsilane	3°(b)	225	0.39
Propane	3°(b)	25	0.42
Propylene	3°(b)	30	0.43
Trans-2-butene	3°(b)	10	0.54
1,1,1-Trifluoroethane	3°(b)	35	0.75
Arsine	3°(bt)	42	1.10
Dichlorosilane	3°(bt)	10	0.90
Dimethylamine	3°(bt)	10	0.59
Dimethyl ether	3°(bt)	18	0.58
Dimethylsilane	3°(bt)	225	0.39
Ethylamine	3°(bt)	10	0.61
Ethyl chloride	3°(bt)	10	0.80
Hydrogen selenide	3°(bt)	31	1.60
Hydrogen sulphide	3°(bt)	55	0.67
Methylamine	3°(bt)	13	0.58
Methyl chloride	3°(bt)	17	0.81

Methyl mercaptan	3°(bt)	10	0.78
Trimethylamine	3°(bt)	10	0.56
Trimethylsilane	3°(bt4)	225	0.39
1,3-Butadiene	3°(c)	10	0.55
Vinyl chloride	3°(c)	12	0.81
Cyanogen	3°(ct)	100	0.70
Cyanogen chloride	3°(ct)	20	1.03
Ethylene oxide	3°(ct)	10	0.78
Methyl vinyl ether	3°(ct)	10	0.67
Trifluorochloroethylene (R 1113)	3°(ct)	19	1.13
Vinyl bromide	3°(ct)	10	1.37
Mixture F1	4°(a)	12	1.23
Mixture F2	4°(a)	18	1.15
Mixture F3	4°(a)	29	1.03
Mixture of gases R 500	4°(a)	22	1.01
Mixture of gases R 502	4°(a4)	31	1.05
Mixture of 19 to 21 per cent by weight dichlorodifluoromethane (R 12) and 79 to 81 per cent by weight bromochlorodifluoromethane (R 12 B1)	4°(a)	12	1.50
Mixtures of methyl bromide and chloropicrin	3°(at)	10	1.51
Mixture A (trade name: butane)	4°(b)	10	0.50
Mixture A 0 (trade name: butane)	4°(b)	15	0.47
Mixture A 1	4°(b)	20	0.46
Mixture B	4°(b)	25	0.43
Mixture C (trade name: propane)	4°(b)	30	0.42
Mixtures of hydrocarbons containing methane	4°(b)	225	0.187
		300	0.244
Mixtures of methylsilanes	4°(bt)	225	0.39
Mixtures of methyl chloride and methylene chloride	4°(bt)	19	0.81
Mixtures of methyl bromide and ethylene bromide	4°(bt)	10	1.51
Mixtures of methylacetylene / propadiene and hydrocarbons			
Mixture P 1	4°(c)	30	0.49
Mixture P 2	4°(c)	24	0.47
Ethylene oxide containing not more than 10 per cent carbon dioxide by weight	4°(ct)	28	0.73
Ethylene oxide containing not more than 50 per cent methyl formate by weight with nitrogen up to a maximum total pressure of 10 kg/cm <sup>2</sup> at 50°C	4°(ct)	25	0.80
Ethylene oxide with nitrogen up to a total pressure of 10 kg/cm <sup>2</sup> at 50°C	4°(ct)	15	0.78
Dichlorodifluoromethane containing 12 per cent ethylene oxide by weight	4°(ct)	18	1.09

\* 1. The test pressures prescribed are at least equal to the vapour pressures of the liquids at 70°C, reduced by 1 kg/cm<sup>2</sup>, the minimum test pressure required being however 10 kg/cm<sup>2</sup>.

2. In view of the high degree of toxicity of phosgene (carbonyl chloride) [3° (at)] and of cyanogen chloride [3°(ct)], the minimum test pressure for these gases has been fixed at 20 kg/cm<sup>2</sup>.

3. The maximum values prescribed for the degree of filling in kg/litre have been determined as follows: maximum weight of contents per litre of capacity=0.95 times the density of the liquid at 50°C; in addition, the vapour phase must not disappear below 60°C.

(3) In the case of receptacles intended to contain liquefied gases of 5° and 6° the degree of filling shall be such that the internal pressure at 65° C does not exceed the test pressure of the receptacles. The following values shall be complied with [see also paragraph (4)]:

Description of substance	Item number	Minimum Test pressure kg/cm <sup>2</sup>	Maximum weight of contents per litre of capacity kg
Bromotrifluoromethane (R 13 B 1)	5°(a)	42	1.13
		120	1.44
		250	1.60
Carbon dioxide	5°(a)	190	0.66
		250	0.75
Chlorotrifluoromethane (R 13)	5°(a)	100	0.83
		120	0.90
		190	1.04
		250	1.10
Hexafluoroethane (R 116)	5°(a)	200	1.10
Nitrous oxide N <sub>2</sub> O	5°(a)	180	0.68
		225	0.74
250	0.75		
Sulphur hexafluoride	5°(a)	70	1.04
Trifluoromethane (R 23)	5°(a)	190	0.87
		250	0.95
		130	1.24
Xenon	5°(a)	100	0.30
Hydrogen chloride	5°(at)	120	0.56
		150	0.67
		200	0.74
		95	0.25
Ethane	5°(b)	120	0.29
		300	0.39
		225	0.34
Ethylene	5°(b)	300	0.37
		225	0.32
Silane	5°(b)	250	0.41
		250	1.02
Germane	o(bt)	225	0.30
Phosphine	5°(bt)	250	0.51
		250	0.77
1.1.-Difluoroethylene	5°(c)	250	0.64
Vinyl fluoride	5°(c)	250	

## Class 2

Description of substance	Item number	Minimum test pressure kg/cm <sup>2</sup>	Maximum weight of contents per litre of capacity kg
Diborane	5°(ct)	250	0.072
Carbon dioxide containing 1-10 per cent nitrogen, oxygen, air or rare gases by weight	6°(a)	190	0.64
		190	0.48
		250	0.73
		250	0.59
		31	0.11
Mixture of gases R 503	6°(a)	42	0.20
		100	0.66
		190	0.66
Carbon dioxide containing not more than 35 per cent ethylene oxide by weight	6°(c)	250	0.75
		190	0.66
Ethylene oxide containing more than 10 per cent but not more than 50 per cent carbon dioxide by weight	6°(ct)	250	0.75

(4) For substances of 5° other than hydrogen chloride [5° (at)]; germane and phosphine [5° (bt)]; and diborane [5° (ct)], and for substances of 6°, the use of receptacles tested at a lower pressure than that indicated in paragraph (3) for the substance in question is allowed, but the quantity of substance per receptacle shall not exceed that which at 65°C would produce inside the receptacle a pressure equal to the test pressure. In such a case the permis-

sible maximum load shall be prescribed by the expert approved by the competent authority.

(1) In the case of gases dissolved under pressure, of 9°, the following values shall be complied with for the hydraulic pressure to be applied to the receptacles in the test (test pressure), and for the maximum degree of filling allowed:

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## Class 2

Description of substance	Item number	Minimum test pressure kg/cm <sup>2</sup>	Maximum weight of contents per litre of capacity kg
Ammonia dissolved under pressure in water with more than 35 per cent but not more than 40 per cent ammonia by weight with more than 40 per cent but not more than 50 per cent ammonia by weight Dissolved acetylene	9o (at)	10	0.80
	9° (at)	12	0.77
	9° (c)	60	see under (2)

(2) In the case of dissolved acetylene [9o (c)], once equilibrium has been achieved at 15°C the cylinder filling pressure shall not exceed the value prescribed by the competent authority for the porous mass, which value

shall be engraved on the cylinder. The quantity of solvent and the quantity of acetylene shall likewise correspond to the figures specified in the approval.

## Class 2

## Special conditions:

Item No or letter	Description of substance	Maximum quantity		Special requirements
		per receptacle	per package	
(a) (at)	Gases packed in accordance with marginal 2205 All gases listed in this marginal	in the quantities prescribed in marginal 2205	6 kg	Chlorine [3° (at)] shall not be packed together with sulphur dioxide [3° (at)]
	Non-inflammable gases Non-inflammable toxic gases			Shall not be packed together with substances of Classes 1a, 1d, 1c, 3, 4.2, 5.2 or 7
	Inflammable gases			Shall not be packed together with substances of Classes 1a, 1d, 1c, 3, 4.1, 5.2 7 or 8
(a) (at)	Gases packed in accordance with marginal 2206 All gases listed in the marginal except ammonia and cyclopropane Non-inflammable gases Non-inflammable toxic gases	150 g	6 kg	Shall not be packed together with substances of Classes 1a, 1b, 1c, 3, 4.2, 5.2 or 7
	(b) (bt) (c) (ct)			Inflammable gases Inflammable toxic gases Chemically unstable gases Chemically unstable toxic gases
3° (at) 3° (b)	Ammonia Cyclopropane	20 g	6 kg	

## 3. Mixed packing

(1) Substances of this Class other than substances of 7° and 8° may be enclosed in the same package with one another if they are contained:

(a) in metal pressure - receptacles of a volume not exceeding 10 litres;

(b) in thick - walled glass tubes or glass syphons in accordance with marginals 2205 and 2206, on condition that these fragile receptacles are secured in accordance with the provisions of marginal 2001 (5). The cushioning materials shall be suited to the properties of the contents. Inner packagings shall be placed in an outer packaging in which they shall be effectively kept apart from one another.

(2) Articles of 10° and 11° may be enclosed in the same package with one another under the conditions prescribed in marginal 2210.

(3) In addition, substances packed in accordance with marginals 2205 and 2206 may be enclosed in the same package with one another subject to the following special conditions.

(4) A package which meets the requirements of (1) and (2) shall not weigh more than 100 kg, or more than 75 kg if it contains fragile receptacles.

## Class 2

## 4. Markings and labels on packages (see Appendix A.9)

(1) Every package containing receptacles holding gases of 1° to 9°, 12° or 13° or non-refillable containers of gas under pressure of 11° shall be marked legibly and indelibly with an indication of its contents, with the addition «Class 2». This marking shall be in an official language of the country of departure, and also, if that language is not English, French or German, in English, French or German, unless any agreements concluded between the countries concerned in the transport operation provide otherwise.

This provision need not be complied with if the receptacles and their markings are clearly visible.

(2) Packages containing aerosol dispensers of 10° shall be marked with the word «AEROSOL» in clearly legible and indelible characters.

(3) Where a consignment constitutes a full load, the markings referred to in paragraph (1) are not mandatory.

(1) Packages which contain receptacles made of materials liable to shatter, such as glass or certain plastics materials, shall bear a label conforming to model No. 9.

(2) Every package containing gases of 7° (a) or 8° (a) shall bear, on two opposite sides, labels conforming to model No. 8, and if the substances it contains are enclosed in glass receptacles [marginal 2207 (2) (a)] it shall, in addition, bear a label conforming to model No. 9.

Every package containing aerosol dispensers of 10° (b) 2., 10° (bt) 2., 10° (c) or 10° (ct), or non - refillable containers of gas under pressure of 11° (b), 11° (bt), 11° (c) or 11° (ct), shall bear a label conforming to model No. 2A.

## B. Particulars in the transport document

(1) The description of the goods in the transport document must be:

(a) in the case of pure and technically - pure gases of 1°, 3°, 5°, 7° or 9°, of aerosol dispensers of 10°, of non - refillable containers of gas under pressure of 11° one of the names underlined in marginal 2201;

(b) in the case of mixtures of gases of 2°, 4°, 6°, 8°, 12° or 13° «mixture of gases». This description must be supplemented by an indication of the composition of the mixture of gases in volume per cent or weight per cent. Constituents below one per cent need not be indicated. In the case of mixtures of gases of 2° (a), 2° (b), 2° (bt), 4° (a), 4° (b), 4° (c), 6° (a), 8° (a) or 8° (b) the descriptions or names customary in the trade which are underlined in marginal 2201 may likewise be used, without indication of the composition.

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## Class 2

These descriptions must be underlined in red and followed by particulars of the Class, the item number (together with the letter, if any), and the initials «ADR» or «RID» [e.g., 2, 5° (at), ADR]

(2) In the case of consignments of gases which are listed among the chemically unstable gases the sender shall certify as follows in the transport document: «The necessary steps have been taken to satisfy the requirements of ADR marginal 2200 (4)». In the case of consignments of mixtures of gases of 12° or test gases of 13°, the sender shall certify as follows in the transport document: «The conditions laid down in ADR marginal 2201, 12° or 13°, have been complied with».

(3) In the case of consignments of chlorine trifluoride [3° (at)] the sender shall certify as follows in the transport document: «After filling with chlorine trifluoride, the receptacle has been kept under observation for not less than seven days and its leakproofness has been verified».

(4) In the case of tanks containing gases of 7° (a) or 8° (a) other than carbon dioxide and nitrous oxide, the transport document shall bear the following entry:

«The tank is in permanent communication with the atmosphere».

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2236

## C. Empty packagings

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(1) Receptacles and tanks of 14° shall be closed in the same manner as though they were full.

(2) The description in the transport document must be: «Empty receptacle or («Empty tank»), uncleaned, 2, 14°, ADR (or Item 14, RID)». This text must be underlined in red.

## D. Transitional provisions

The following transitional provisions shall apply to receptacles for compressed or liquefied gases or gases dissolved under pressure:

(a) receptacles already in service shall, subject to the following exceptions, be accepted in international traffic so long as the requirements of the contracting country in which the tests in accordance with marginal 2216 were carried out so permit and as the intervals prescribed in marginals 2216 (3) and 2217 for the periodic inspections are observed;

(b) in the case of receptacles manufactured under the previous system (permissible stress two - thirds, instead of three - quarters, of the yield stress), no increase in either the test pressure or the filling pressure shall be permitted [see marginal 2211 (1)];

(c) transitional measures for tanks: see marginal 211180;

(d) transitional measures for tank-containers: see marginal 212180.

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## CLASS 3. INFLAMMABLE LIQUIDS

## 1. List of substances

(1) Among the inflammable liquids and mixtures thereof, whether liquid or still pasty at a temperature not exceeding 15°C, the substances listed in marginal 2301 are subject to the provisions of this Annex and of Annex B. These substances to be accepted for carriage under certain conditions are to be considered as substances of ADR.

(2) Inflammable liquids which at a temperature of 50° C have a vapour pressure not exceeding 3 kg/cm<sup>2</sup>, except those listed in other Classes, are deemed to be inflammable liquids within the meaning of ADR.

(3) Liquids of Class 3 which are liable to form peroxides easily (as happens with ethers or with certain heterocyclic oxygenated substances) are not to be handed over for carriage unless their peroxide content, reckoned as hydrogen peroxide H<sub>2</sub>O<sub>2</sub>, does not exceed 0.3 per cent.

(4) The peroxide content referred to above and the flash - point referred to below shall be determined as shown in Appendix A.3 (marginals 3300 - 3303).

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2300

(5) Substances of Class 3 which polymerize easily are to be accepted for carriage only if the necessary precautions have been taken to prevent their polymerization during carriage.

(6) Solid substances soluble in liquids shall be deemed to include driers, fixed oils (boiled or blown linseed oils, etc.) or similar substances (nitrocellulose excepted) whose flash - point is above 100°C.

1o (a) Liquids not miscible, or only partially miscible, with water which have a flash - point below 21°C, also when they contain not more than 30 per cent solids (nitrocellulose excepted) either dissolved, or held in suspension in the liquids, or both, e.g. crude petroleum and other crude oils; volatile products from the distillation of petroleum and of other crude oils or of coal, lignite, shale, wood and peat tars, e.g. petroleum ether, pentanes, benzene, benzol and toluene; condensation products of natural gas; ethyl acetate (acetic ester), vinyl acetate, diethyl ether ether (sulphuric ether) methyl formate and other ethers and esters; carbon disulphide; acrylaldehyde (acrolein); certain chlorinated hydrocarbons [e.g. 1,2 - dichloroethane and chloroprene (chlorobutadiene)];

(b) mixtures of liquids having a flash - point below 21°C and containing not more than 55 per cent nitrocellulose with a nitrogen content not exceeding 12.6 per cent (collodions, semi - collodions and other nitrocellulose solutions).

### Class 3

For (a), see also marginal 2301a under (a), (b) and (d); for (b), see also marginal 2301a, under (a).

Note: For mixtures of liquids having a flash - point below 21°C and

— containing more than 55 per cent nitrocellulose, whatever its nitrogen content, or

— containing not more than 55 per cent nitrocellulose with nitrogen content above 12.6 per cent,

see Class 1a, marginal 2101, 1°, and Class 4.1, marginal 2401 7° (a+).

2° Liquids not miscible, or only partially miscible, with water which have a flash - point below 21°C and contain more than 30 per cent solids (nitrocellulose excepted) either dissolved, or held in suspension in the liquids, or both, e.g.: certain colours for rotogravures and for leathers, certain varnishes, certain enamel paints, and rubber solutions. See also marginal 2301a, under (c).

3° Liquids not miscible, or only partially miscible, with water which have a flash - point between 21°C and 55°C inclusive, also when they contain not more than 30 per cent solids either dissolved, or held in suspension in the liquids, or both, e.g.: turpentine: semi - heavy products from the distillation of petroleum and of other crude oils, or of coal, lignite, shale, wood and peat tars, e.g. white spirit (turpentine substitute), heavy benzols, petroleum oils (for lighting, heating or engines), xylene, styrene, cumene, solvent naphtha; butanol; butyl acetate; pentyl acetate (amyl acetate); nitromethane (mononitromethane) and certain mononitro - paraffins; certain chlorinated hydrocarbons (e.g. chlorobenzene). See also marginal 2301a, under (c) and (d).

4° Liquids not miscible, or only partially miscible, with water which have a flash - point above 55°C but not exceeding 100°C, also when they contain not more than 30 per cent solids either dissolved, or held in suspension in the liquids, or both, e.g.: certain tars and their distillation products: heating oils, diesel oils, certain gas oils; tetrahydronaphthalene (tetralin); nitrobenzene; certain chlorinated hydrocarbons (e.g. 1 - chloro - 2 - ethylhexane). See also marginal 2301a, under (c) and (d).

5° Liquids miscible in all proportions with water which have a flash - point below 21°C, also when they contain not more than 30 per cent solids either dissolved, or held in suspension in the liquids, or both, e.g.: methanol (methyl alcohol, wood spirit), denatured or not;

### Class 3

Ethanol (ethyl alcohol, ordinary alcohol), denatured or not; acetaldehyde; acetone and acetone mixtures; pyridine. See also marginal 2301a, under (a) and (c).

6° Empty receptacles, uncleaned, and empty tanks, uncleaned, which have contained inflammable liquids of Class 3.

Substances handed over for carriage in conformity with the following provisions are subject neither to the provisions for this Class contained in this Annex nor to those contained in Annex B:

(a) liquids of 1° (except those mentioned under (b) below), and acetone and acetone mixtures (5°): in quantities not exceeding 200 g per receptacle, in receptacles made of sheet - metal, glass, porcelain, stoneware or a suitable plastics material, these receptacles, with a total content not exceeding 1 kg, being placed together in an outer packaging made of sheet - metal, wood or fibreboard and fragile receptacles being suitably secured in the packaging to prevent their leakage;

(b) carbon disulphide, diethyl ether, petroleum ether, pentanes, methyl formate: 50 g per receptacle and 250 g per package, these substances being packed in the same way as those of (a);

(c) liquids of 2° - 5°, except acetaldehyde, acetone and acetone mixtures: 1 kg per receptacle and 10 kg per package, these substances being packed in the same way as those of (a);

(d) the motor - fuel contained in the tanks of motor - driven vehicles or in closed auxiliary tanks firmly fixed to the vehicles. If there is a cock between the tank and the engine it must be closed; the electric circuit must also be disconnected. Motor cycles and motor - assisted pedal cycles whose tanks contain motor - fuel must be loaded upright on their wheels, secured against falling.

### 2. Provisions

#### A. Packages

##### 1. General conditions of packing

(1) Receptacles shall be so closed and leak - proof as to prevent any loss of the contents, and particularly any evaporation.

(2) The materials of which the receptacles and their closures are made must not be liable to attack by the contents nor form harmful or dangerous compounds therewith.

### Class 3

(3) Packagings, including their closures, must be sufficiently, rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. In particular, receptacles and their closures must, unless the section headed «Packing of a single substance» provides otherwise, be able to withstand any pressure which, the presence of air also being taken into account, may arise inside the receptacles in normal carriage. For this purpose a free space must be left, account being taken of the difference between the temperature of the substances at the time of filling and the highest mean temperature which they are likely to reach during carriage (see also marginal 2305). Inner packagings shall be firmly secured in outer packagings. Unless otherwise specified in the section entitled «Packing of a single substance», inner packagings may be enclosed in outer packagings, either singly or in groups.

(4) Bottles and other glass receptacles must be free from faults liable to impair their strength; in particular, internal stresses must have been suitably relieved. The walls must be not less than 3 mm thick in the case of receptacles weighing, with their contents, more than 35 kg and not less than 2 mm in the case of other receptacles.

The tightness of the closure system must be ensured by an additional device (cap, crown, seal, binding, etc.) capable of preventing any loosening of the closure system during carriage.

(5) Cushioning materials shall be suited to the nature of the contents and, in particular, shall be absorbent. Suitable materials must be used to secure receptacles in the protective packaging; this securing must be carried out with care and be checked periodically (possibly before each fresh filling of the receptacle).

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## 2. Packing of a single substance

(1) Substances of 1° - 5° must be packed in suitable receptacles made of metal or of glass, porcelain, stoneware or similar materials. Substances of 4° and corrosive liquids of 1° (a), 3° and 5° may also be packed in receptacles made of a suitable plastics material. [For the special provisions concerning chloroprene and nitromethane, see under (8) and (9), respectively, below].

(2) Fragile receptacles (glass, porcelain, stoneware or similar materials) may not contain more than the following quantities of substances of 1°:

carbon disulphide . . . . . 1 litre;  
diethyl ether, petroleum ether, pentanes . . . . . 2 litres;  
other substances of 1° . . . . . 5 litres;

## Class 3

(3) Tin-plate receptacles having a capacity not exceeding 10 litres must have a wall thickness of not less than 0.25 mm; those having a capacity exceeding 10 litres but not exceeding 60 litres must have a wall thickness of not less than 0.3 mm and their joints shall be double-seamed by welting, or soldered, or produced by a process ensuring a similar degree of strength and tightness.

(4) Receptacles made of sheet-steel [for tin-plate receptacles having a capacity not exceeding 60 litres, see also (3)] must be welded or hard-soldered, and the quantities of substances of 1°-5° they may contain, according to the thickness of their walls, are as follows:

if the wall thickness is not less than 0.5 mm: not more than 30 litres;

if the wall thickness is not less than 0.7 mm: not more than 60 litres;

if the wall thickness is not less than 1.5 mm: over 60 litres.

Packages weighing more than 100 kg shall be fitted with rolling hoops.

(5) Receptacles made of sheet-metal other than steel must be designed and manufactured in such a way that they possess the same strength as the sheet-steel receptacles referred to under (4).

(6) Liquids whose vapour pressure at 50°C does not exceed 1.5 Kg/cm<sup>2</sup>, with the exception of carbon disulphide, may also be carried in metal drums complying with the following provisions:

The body joints of the drums must be welded and the end joints welded or double-seamed by welting. The drums must be fitted with rolling hoops or strengthening ribs. Every drum must have undergone the leakage test prescribed in marginal 3502 of Appendix A.5. The drums must be of a type of construction which has satisfied the other tests prescribed in the aforesaid Appendix A.5. and must bear the mark assigned at the time of type approval.

(7) For the carriage in non-returnable metal packagings (new packagings intended to be used only once) of inflammable products whose vapour pressure at 50°C does not exceed 1.1 kg/cm<sup>2</sup> it is not necessary, in the case of a package whose unit weight must not exceed 225 kg, for the end of the receptacle to be welded to the body and for the wall thickness to be greater than 1.25 mm, but the receptacle must be able to withstand, without leakage, a hydraulic pressure of 0.3 kg/cm<sup>2</sup> at least, and its body and ends must be equipped with devices (such as ribs or rolling hoops), whether detachable or not, ensuring rigidity.

(8) Chloroprene [1° (a)] shall be packed:

(a) in hermetically-closed metal receptacles, suitably lined if necessary, having a capacity not exceeding 15 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or other outer packaging of adequate strength; or

(b) in sheet-steel canisters, welded or hard-soldered, having a capacity not exceeding 60 litres, hermetically closed and fitted with means of handling.

(9) Nitromethane (3°) must be contained:

(a) in fragile receptacles containing not more than 1 litre; or

(b) in sheet-steel receptacles in conformity with (4) above having a capacity not exceeding 10 litres; or

(c) in metal drums each having two hermetic closures, one of them screwthreaded, each drum being fitted with rolling hoops and having a capacity not exceeding 200 litres.

(1) Fragile receptacles containing substances of 1° to 5°, receptacles made of a plastics material and containing corrosive liquids of 1° (a), 3° and 5°, tin-plate receptacles containing substances of 1° and 5°, tin-plate receptacles having a wall thickness of less than 0.5 mm and containing substances of 2°-4°, and sheet-steel receptacles containing nitromethane in conformity with marginal 2303 (9) (b), shall be secured by cushioning materials in protective packagings. If receptacles made of a plastics material are secured separately in protective packagings, cushioning materials are not necessary.

Protective packagings enclosing fragile receptacles containing substances of 1° and 5° and protective packagings enclosing receptacles containing nitromethane (3°) must have complete sides and be made of wood, sheet-metal or a similar material.

The closure of fragile receptacles placed in open protective packagings must be provided with a protective cover shielding them from damage. If the packages are loaded on an open vehicle, the protective cover must be incapable of igniting on contact with a flame.

(2) The following are to be accepted for carriage without protective packaging:

(a) receptacles made of a plastics material in conformity with marginal 2304 (1), containing substances of 4°;

(b) receptacles made of tin-plate not less than 0.5 mm thick, containing substances of 2°-4°;

(c) sheet-metal receptacles in conformity with marginal 2303 (4) to (7);

(d) metal canisters in conformity with marginal 2303 (8) (b) containing chloroprene [1° (a)];

(e) metal drums in conformity with marginal 2303 (9) (c) containing nitromethane (3°).

(3) The following packages must not exceed the maximum weights indicated below:

(a)	packages of fragile receptacles containing substances of 1°	30 kg;
(b)	packages of fragile receptacles containing substances of 2° - 5°	75 kg;
(c)	packages of receptacles made of a plastics material and containing substances of 1° (a) and 3°-5°, and of tin-plate receptacles containing substances of 1°-5°	75 kg;
(d)	packages of receptacles containing chloroprene in conformity with marginal 2303 (8)	75 kg;
(e)	packages of sheet-steel receptacles containing nitromethane in conformity with marginal 2303 (9) (b)	75 kg;
(f)	drums tested in conformity with marginal 2303 (6)	250 kg;
(g)	receptacles in conformity with marginal 2303 (7)	225 kg;
(h)	drums containing nitromethane in conformity with marginal 2303 (9) (c)	275 kg;

(4) Packages other than cases and metal drums shall be fitted with means of handling.

Metal receptacles intended to contain liquids of 1°, nitromethane (3°), or acetaldehyde, acetone, or acetone mixtures (5°), shall not be filled beyond 93 per cent of their capacity. Nevertheless, receptacles containing hydrocarbons other than petroleum ether, pentanes, benzene and toluene may be filled to 95 per cent of their capacity.

## 3. Mixed packing

(1) Substances grouped under the same item number may be included in the same package. The inner packa-

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gings shall conform to what is prescribed for each substance, and the outer packaging shall be that laid down for the substances of the item number in question.

(2) If smaller quantities are not prescribed in the section entitled «Packing of a single substance», substances of this Class may be enclosed in the same package either with dangerous substances of other Classes (if mixed packing

is likewise permitted in the case of such substances) or with other goods, as indicated below.

The inner packagings must satisfy the general and special conditions of packing. In addition, the general provisions contained in marginals 2001 (5) and 2002 (6) and (7) must be observed.

A package must not weigh more than 150° kg, or more than 75 kg if it contains fragile receptacles.

Item No.	Description of substances	Maximum quantity			Special provisions
		per fragile receptacle	per other receptacle	per package	
1o (a)	Carbon disulphide	0.3 litre	1 litre	1 litre	Liquids of Class 3 must not be packed together with substances of Class 4.2, hydrogen peroxide or perchloric acid of Class 5.1, or substances of Class 8, 2°(a), 3°(a), 4°, 7° and 41°.
1° 3a) and 1° (b)	All substances except carbon disulphide	1 litre	5 litres	5 litres	
2°	All substances	1 litre	5 litres	10 litres	
3°	All substances	3 litres	5 litres	10 litres	
4°	All substances	5 litres	5 litres	10 litres	
5°	Liquids having a boiling point $\leq 50^{\circ}\text{C}$	1 litres	5 litres	5 litres	
	Other substances	3 litres	5 litres	10 litres	

#### 4. Marking and danger labels on packages (see Appendix A')

(1) Packages containing liquids of 1° to 3° and 5° shall bear a label conforming to model No. 2A.

However, if substances of 2°, 3° or 5° are packed in receptacles made of glass, porcelain, stoneware or similar material, of a capacity exceeding 5 litres, the packages shall bear two labels conforming to model No. 2A.

Packages containing acrylaldehyde or chloroprene (chlorobutadiene) [1° (a)] or methanol (methyl alcohol) (5°) shall in addition bear a label conforming to model No. 4.

(2) Packages containing fragile receptacles not visible from the outside shall bear a label conforming to model No. 9. If the fragile receptacles contain liquids, the packages shall in addition, except in the case of sealed ampoules, bear labels conforming to model No. 8; these labels shall be affixed high up on two opposite sides of cases or in an equivalent manner when other packagings are used.

(3) In the case of consignments carried as a full load, labels Nos. 2A and 4, as prescribed under (1), need not be affixed to the packages if the vehicle bears the marking prescribed in Annex B, marginal 10 500.

#### B. Particulars in the transport document

(1) The description of the goods in the transport document must conform to one of the names underlined in marginal 2301. If the latter does not contain the name of the substance, the trade name shall be used. The description of the goods must be underlined in red and followed by particulars of the Class, the item number (together with the letter, if any), and the initials «ADR» or «RID» [e.g. 3, 1°(a), ADR].

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(2) In the case of all consignments of substances which polymerize easily, the following must be certified in the transport document: «The necessary steps have been taken to prevent polymerization during carriage».

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#### C. Empty packagings

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(1) Receptacles and tanks of 6° must be closed in the same manner and leak-proof in the same degree as though they were full.

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(2) The description in the transport document must be: «Empty receptacle (or empty tank), 3, 6° ADR (or RID)». This description must be underlined in red.

(3) Empty receptacles, uncleaned, of 6° which have contained substances of 1° to 3° and 5° shall bear a label conforming to model No. 2A. Those which have contained acrylaldehyde or chloroprene (chlorobutadiene) (1° (a)) or methanol (methyl alcohol) (5°) shall in addition bear a label conforming to model No. 4.

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#### CLASS 4.1. INFLAMMABLE SOLIDS

##### 1. List of substances

Among the substances covered by the heading of Class 4.1, those listed in marginal 2401 are subject to the provisions of this Annex and of Annex B. These substances to be accepted for carriage under certain conditions are to be considered as substances of ADR.

2400

1° Substances which can easily be ignited by sparks, such as wood flour, sawdust, wood shavings, wood fibre, wood charcoal, wood parings and wood cellulose, old paper and waste paper, paper fibres, cane (except Spanish broom), reeds, hay, straw, also when damp (including

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maize, rice and flax straw), vegetable textile substances and waste of vegetable textile substances, cork in powder or granular form, expanded or not, with or without an admixture of tar or of other substances not subject to spontaneous oxidation, and cork waste in small lumps. See also Class 4.2, marginal 2431, 8°-10°, and marginal 2431a, under (b).

Note: 1. These substances are included in the list only for the purposes of the prohibitions on mixed loading. For this purpose the provisions of marginal 2416 (1) apply. No other clause, either of this Annex or of Annex B, is applicable to them.

2. Hay still having a degree of humidity which might lead to fermentation is not to be accepted for carriage.

3. Wrappings and slabs of expanded cork, manufactured under pressure, with or without an admixture of tar or of other substances not subject to spontaneous oxidation, are not subject to any of the provisions of ADR.

4. Cork impregnated with substances still subject to spontaneous oxidation is a substance of Class 4.2 (see marginal 2431, 9°).

2° (a) Sulphur (including flowers of sulphur);

3° (b) sulphur in the melted state.

3° Celloidin, produced by incomplete evaporation of the alcohol contained in collodion and consisting mainly of collodion cotton.

4° Celluloid in slabs, sheets, rods or tubes, and fabrics coated with nitrocellulose.

5° Film celluloid, i.e. the raw material for films, without emulsion, in rolls, and developed celluloid films.

6° Celluloid waste and celluloid-film waste.

Note: Nitrocellulose-film waste, free from gelatine, in reels, sheets or strips, is a substance of Class 4.2 (see marginal 2431, 4°)

7° (a) Weakly nitrated nitrocellulose (such as collodion cotton), i.e. with a nitrogen content not-exceeding 12.6 per cent, well stabilized and containing in addition not less than 25 per cent water or alcohol (methyl, ethyl, normal propyl or isopropyl, butyl or amyl alcohol, or mixtures thereof), also if denatured, solvent naphtha, benzol, toluene, xylene, mixtures of denatured alcohol and xylene, mixture water and alcohol or alcohol containing camphor in solution;

Note: 1. Nitrocellulose with a nitrogen content exceeding 12.6 per cent is a substance of Class 1a (see marginal 2101, 1°).

2. When the nitrocellulose is wetted with denatured alcohol, the denaturing substance must not have a detrimental effect on the stability of the nitrocellulose.

(b) plasticized nitrocellulose, non-pigmented, containing not less than 18 per cent plasticizer (butyl phthalate or a plasticizer at least equivalent in effect) and in which the nitrocellulose has a nitrogen content not exceeding 12.6 per cent; the nitrocellulose may be in the form of chips;

Note: Plasticized nitrocellulose, non-pigmented, containing not less than 12 per cent and less than 18 per cent butyl phthalate or a plasticizer at least equivalent in effect is a substance of Class 1a (see marginal 2102, 4°).

(c) plasticized nitrocellulose, pigmented, containing not less than 18 per cent plasticizer (butyl phthalate or a plasticizer at least equivalent in effect), in which the nitrocellulose has a nitrogen content not exceeding 12.6 per cent and which contains not less than 40 per cent nitrocellulose; the nitrocellulose may be in the form of chips.

Note: Plasticized nitrocellulose, pigmented, containing less than 40 per cent-nitrocellulose is not subject to the provisions of ADR.

For (a), (b) and (c): weakly-nitrated nitrocellulose and plasticized nitrocellulose, pigmented or not, are not to be accepted for carriage unless they satisfy the stability and safety conditions of Appendix A.1 or the conditions set forth above regarding the nature and quantity of the additional substances.

For (a), see also Appendix A.1, marginal 3101, for (b) and (c), see also Appendix A.1, marginal 3102, 1.

8° Red phosphorus (amorphous), phosphorus sesquisulphide and phosphorus pentasulphide.

Note: Phosphorus pentasulphide not free from white or yellow phosphorus is not to be accepted for carriage.

9° Ground rubber, rubber dust.

10° Dust of coal, lignite, lignite coke and peat, artificially prepared (e.g. by pulverization or other processes), and coke from carbonized lignite rendered inert (i.e. not liable to spontaneous ignition).

MNote: 1. Natural dusts obtained as residues in the production of coal, coke, lignite or peat are not subject to the provisions of ADR.

2. Coke from carbonized lignite not rendered completely inert is not to be accepted for carriage.

11° (a) Crude naphthalene with a melting point below 75°C;

(b) pure naphthalene and crude naphthalene with a melting point of 75°C or over;

(c) Naphthalene in the melted state.

for (a) and (b), see also marginal 2401a.

Naphthalene in balls of flakes [11° (a) and (b) is subject neither to the provisions for this Class contained in this Annex nor to those contained in Annex B if it is packed, not more than 1 kg per box, in tightly-closed fibreboard or wooden boxes and these boxes are enclosed, not more than 10 per case, in wooden cases.

2401a

## 2. Provisions

### A. Packages

#### 1. General conditions of packing

(1) Packagings shall be so closed and arranged as to prevent any loss of the contents.

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(2) The materials of which the packagings and their closures are made must not be liable to attack by the contents or form harmful or dangerous compounds therewith.

(3) Packagings, including their closures, must be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. Solid substances shall be firmly secured in their packagings, and inner packagings shall be firmly secured in outer packagings. Unless otherwise specified in the section entitled «Packing of a single substance», inner packagings may be enclosed in outer packagings, either singly or in groups.

(4) Cushioning materials shall be suited to the nature of the contents; in particular, they must be absorbent when the contents are liquid or might exude liquid.

#### 2. Packing of a single substance

(1) Sulphur of 2° (a) shall be packed in stout in stout bags made of paper or of closely-woven jute.

2403

(2) Sulphur in the melted state, of 2° (b), may not be carried otherwise than in tanks.

Celloidin (3°) shall be so packed as to prevent its desiccation.

2404

(1) Celluloid in slabs, sheets, rods or tubes, and fabrics coated with nitrocellulose, (4°), shall be enclosed:

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(a) in firmly-closed wooden packagings, or

(b) in strong paper wrappings which shall be placed

1. in crates; or

2. between frames made of boards, the edges of the frames extending beyond the paper wrapping and the frames being bound together with iron bands; or

3. in wrappings of closely-woven fabric.

(2) A package must not weigh more than:

75 kg in the case of celluloid in slabs, sheets or tubes and of fabrics coated with nitrocellulose, if the outer packaging is made of in fabrics conformity with (1) (b) 3;

120 kg in all other cases.

Film celluloid in rolls and developed celluloid films (5°) shall be enclosed in wooden packagings or in fibreboard boxes.

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(1) Celluloid waste and celluloid-film waste (6°) shall be enclosed in wooden packagings or in two strong bags made of coarse, closely woven jute canvas, the bags being fireproofed so as not to ignite even on contact with a flame and having strong and continuous seams. These bags shall be placed one inside the other; after filling, their openings shall be separately and several times folded over and closely stitched so as to prevent any escape of the contents. However, celluloid waste may be packed in a single bag if the celluloid waste is first packed in strong packing paper or in a suitable plastics material and it is certified in the transport document that the celluloid waste does not contain any waste in the form of dust.

(2) Packages having a raw-canvas or jute packaging must not weigh more than 40 kg in single packaging not more than 80 kg in double packaging.

(3) For the particulars in the transport document, see marginal 2416(2).

(1) Substances of 7°(a) shall be packed:

(a) in wooden receptacles or in drums made of impermeable fibreboard; these receptacles and drums shall have a lining impermeable to the liquids they contain; their closures must be leak-proof; or

(b) in bags impermeable to the vapours from the liquids they contain (e.g. bags made of rubber or of a suitable plastics material not readily inflammable), placed in a wooden case or in a metal receptacle; or

(c) in zinc-lined or lead-lined iron drums; or

(d) in receptacles made of tin-plate, zinc sheet or aluminium sheet and secured by cushioning materials in wooden cases.

(2) Nitrocellulose of 7°(a), if potted exclusively with water, may be packed in fibreboard drums; this fibreboard must have undergone a special treatment to render it completely impermeable; the closures of the drums shall be water-vapour proof.

(3) Nitrocellulose of 7°(a), with added xylene, may not be packed otherwise than in metal receptacles.

(4) Substances of 7°(b) and (c) shall be packed:

(a) in wooden packagings lined with stout paper or zinc sheet or aluminium sheet; or

(b) in strong fibreboard drums or provided that the substances are dustfree and that this is certified in the transport document, in fibreboard cases which have been rendered impermeable; or

(c) in sheet-metal packagings.

(5) For substances of 7°, metal receptacles must be so constructed that, by reason of the method of assembly of their walls, of their mode of closure, or of the presence of a safety device, they yield when the internal pressure reaches a value not greater than 3 kg/cm<sup>2</sup>; the presence of these closures or safety devices must not impair the strength of the receptacle nor impair its closure.

(6) A package must not weigh more than 75 kg or, if it can be rolled, not more than 300 kg; however, a fibreboard drum must not weigh more than 75 kg and a fibreboard case not more than 35 kg.

(7) For the particulars in the transport document, see marginal 2416(3).

(1) Red phosphorus and phosphorus pentasulphide (8°) shall be packed:

2407

(a) in receptacles made of sheet iron or tin-plate, which shall be placed in a strong wooden case; a package must not weigh more than 100 kg; or

(b) in receptacles made of glass or stoneware not less than 3 mm thick, or of a suitable plastics material, each containing not more than 12.5 kg of substance. These receptacles shall be secured with cushioning materials in a strong wooden case; a package must not weigh more than 100 kg; or

(c) in metal receptacles which, if with their contents they weigh more than 200 kg, shall be fitted with reinforcing hoops at their ends, and with rolling hoops.

(2) Phosphorus sesquisulphide (8°) shall be packed in leak-proof metal receptacles, which shall be secured by cushioning materials in wooden cases with closely-fitting sides. A package must not weigh more than 75 kg.

Substances of 9° shall be packed in firmly-closing leak-proof receptacles.

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(1) Substances of 10° shall be packed in metal or wooden receptacles or in strong bags.

2411

(2) Wooden receptacles and bags are not, however, to be accepted for coal dust, lignite dust or peat dust artificially prepared unless the dust has been completely cooled after drying by heat.

(3) For the particulars in the transport document, see marginal 2416(4).

(1) Naphthalene of 11°(a) shall be packed in firmly-closed wooden or metal receptacles.

2412

(2) Naphthalene of 11°(b) shall be packed in wooden or metal receptacles, or in stout fibreboard cases, or in strong bags made of textile or of four-ply paper or of a suitable plastics material.

Where fibreboard cases are used, a package must not weigh more than 30 kg.

(3) Naphthalene in the melted state [11°(c)] must not be carried otherwise than in tanks.

### 3. Mixed packing

(1) Substances grouped under the same item number may be included in the same package. The inner packagings shall conform to what is prescribed for each substance, and the outer packaging shall be that laid down for the substances of the item number in question. A package containing celluloid rods and tubes packed together in a textile wrapping must not weigh more than 75 kg.

2413

(2) If smaller quantities are not prescribed in the section entitled "Packing of a single substance", substances of this Class, in quantities not exceeding 6 kg for all of the substances listed under the same item number or the same letter, may be enclosed in the same package either with substances of another item number or of another letter of the same Class, or with dangerous substances belonging to other Classes (if mixed packing is likewise allowed in the case of such substances), or with other goods, subject to the following special conditions.

The inner packagings must satisfy the general and special conditions of packing. In addition, the general provisions contained in marginals 2001 (5) and 2002 (6) and (7) must be observed.

A package must not weigh more than 150 kg, or more than 75 kg if it contains fragile receptacles.  
Special conditions:

2409

Item No.	Description of substance	Maximum quantity		Special provisions
		per receptacle	per package	
2°(a)	Sulphur	5 kg	5 kg	Must not be packed together with chlorates, permanganates, perchlorates, or peroxides (other than solutions of hydrogen peroxide)
7°(a)	Weakly-nitrated nitrocellulose (such as collodion cotton)	100 g	1 kg	Must not be packed together with substances of Classes 4.2 and 5.1
8°	Red (amorphous phosphorus)	5 kg	5 kg	
8°	Phosphorus sesquisulphide	Mixed packing not allowed		

4. Marking and danger labels on packages (see Appendix A.9)

(1) Packages containing substances of 4° to 8° shall bear a label conforming to model No. 2B.

However, if substances of 4° to 7° are packed in wrappings made of closely woven fabric in accordance with marginal 2405 (1) (b) 3., in fibreboard boxes or cases in accordance with marginals 2406 and 2408 (4) (b), in jute bags in accordance with marginal 2407 (1) or in fibreboard drums in accordance with marginal 2408 (1) (a), (2) and 4 (b), the packages shall bear two labels conforming to model No. 2B.

(2) Packages containing fragile receptacles not visible from the outside shall bear a label conforming to model No. 9. If the fragile receptacles contain liquids, the packages shall in addition, except in the case of sealed ampoules, bear labels conforming to model No. 8; these labels shall be affixed high up on two opposite sides of cases or in an equivalent manner when other packagings are used.

(3) In the case of consignments carried as a full load, label No. 2B need not be affixed to the packages.

#### B. Particulars in the transport document

(1) The description of the goods in the transport document must conform to one of the names underlined in marginal 2401. Where the name of the substance is not indicated in the case of 1°, the trade name must be used. The description of the goods must be underlined in red and followed by particulars of the Class, the item number (together with the letter, if any), and the initials "ADR" or "RID" [e.g. 4.1, 7° (a), ADR].

(2) In the case of celluloid waste (6°) packed in stout packing paper or in a suitable plastics material and placed, so packed, in bags made of closely-woven raw canvas or jute, the following must be certified in the transport document: "Contains no waste in dust form".

(3) In the case of substances of 7° (b) and (c) packed in fibreboard cases, the following must be certified in the transport document: "Substances free from dust".

(4) In the case of coal dust, lignite dust or peat dust (10°) artificially prepared and packed in wooden receptacles or in bags [see marginal 2411(2)], the following must be certified in the transport document: "Substances completely cooled after drying by heat".

Empty packagings  
No provisions.

### CLASS 4.2 SUBSTANCES LIABLE TO SPONTANEOUS COMBUSTION

#### 1. List of substances

Among the substances and articles covered by the heading of Class 4.2 only those listed in marginal 2431 are to be accepted for carriage, and then only subject to the provisions of this Annex and of Annex B. These substances and articles to be accepted for carriage under certain conditions are to be considered as substances and articles of ADR.

1° White or yellow phosphorus.

2° Compounds of phosphorus with alkali metals or alkaline-earth metals, e.g., sodium phosphide, calcium phosphide, strontium phosphide.

Note: Compounds of phosphorus with the so-called heavy metals, such as iron, copper, tin, etc., but with the exception of zinc (zinc phosphide is a substance of Class 6.1 - see marginal 2601 33°), are not subject to the provisions of ADR.

3° Zinc alkyls, magnesium alkyls, aluminium alkyls and halides and hydrides of aluminium alkyls. See also marginal 2431a under (a).

4° Nitrocellulose-film waste, free from gelatine, in reels, sheets or strips.

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Note: Nitrocellulose-film waste free from gelatine is not to be accepted for carriage if it is dusty or includes dusty portions.

5° (a) Used rags and waste;

(b) Greasy or oily fabrics, wicks, cord or thread;

(c) The following greasy or oily substances: wool, hair (and horsehair), artificial wool, reclaimed wool (also called wool shoddy), cotton, recarded cotton, artificial fibres (rayon, etc.), silk, flax, hemp and jute, also in the form of spinning or weaving waste.

For (a), (b) and (c), see also marginal 2431a under (b).

Note: Wetted substances of 5° (b) and (c) are not to be accepted for carriage.

6° (a) Dust and powder of aluminium or zinc and mixtures of dust of powder of aluminium and zinc, also when greasy or oily; powder of zirconium and titanium; dust from blast-furnace filters;

(b) Dust, powder and fine shavings of magnesium and of magnesium alloys with a magnesium content of more than 80 per cent, all free from particles likely to promote ignition;

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(c) The following salts of dithionous (hydrosulphurous) acid ( $H_2SO_3$ ): dithionites (hydrosulphites) of sodium, potassium, calcium and zinc;

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(d) Metals in a pyrophoric form.

For (a), see also marginal 2431a under (b) and (c); for (b) and (c), see also marginal 2431a under (b).

7° Freshly calcined soot. See also marginal 2431a under (b).

8° Newly-quenched charcoal, powdered, granulated or in lumps.

See also marginal 2431a under (b) and Class 4.1, marginal 2401, 1°.

Note: By "newly-quenched charcoal" is meant:

in the case of charcoal in lumps, charcoal which has been quenched less than four days previously;

in the case of powdered charcoal and of granulated charcoal in a granule size of less than 8 mm, charcoal which has been quenched less than eight days previously and has been air-cooled in thin layers or by a process ensuring an equivalent degree of cooling.

9° Mixtures of granulated or porous combustible substances with constituents still liable to spontaneous oxidation, such as linseed oil or other natural drying oils, boiled or with added drying compounds, resin, resin oil, petroleum residues, etc. (e.g. the substance known as cork waste, lupuline), and oily residues from the bleaching of soya oil.

See also marginal 2431a under (b) and Class 4.1, marginal 2401, 1°.

10° Paper, cardboard and products made of paper or cardboard (e.g. cardboard wrappings and cardboard rings), wood-fibre sheets, skein of thread, fabrics, string, thread, spinning or weaving wastes, are impregnated with oils, greases, natural drying oils, boiled or with added drying compounds or other impregnating substances liable to spontaneous oxidation. See also marginal 2431a under (b) and Class 4.1, marginal 2401, 1°.

Note: Substances of 10° are not to be accepted for carriage if their humidity exceeds the hygroscopic humidity.

2417  
-24232424  
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11° The substance with an iron oxide base having been used for purifying lighting gas (spent oxide of iron).

Note: If the substance which has been used for purifying lighting gas (spent oxide of iron) is, after storage and aeration, no longer liable to spontaneous ignition, and if this is certified in the transport document by the entry: "Substance not liable to spontaneous ignition", it is not subject to the provisions of ADR.

2431

12° Used yeast bags, uncleaned. See also marginal 2431a under (b).

13° Empty sodium nitrate bags made of a textile fabric.

Note: Textile bags from which all the nitrate impregnating them has been completely removed by washing are not subject to the provisions of ADR.

14° Empty iron drums, uncleaned, and empty tanks, uncleaned, which have contained phosphorus of 1°.

15° Empty receptacles, uncleaned, which have contained substances of 3°.

Note: re 14° and 15°: Empty packagings which have contained other substances of Class 4.2 are not subject to the provisions of ADR.

Dangerous substances handed over for carriage in conformity with the following provisions are subject neither to the provisions for this Class contained in this Annex nor to those contained in Annex B:

(a) solutions of substances of 3° in a concentration not exceeding 10 per cent in solvents with a boiling point not lower than 95°C, if their condition is such as to exclude any danger of spontaneous ignition and if this is certified in the transport document by the entry: "Substance not liable to spontaneous ignition"; see, however, Class 3;

(b) substances of 5°- 10° and 12° (excluding, however, those of 6° (d)), if their condition is such as to exclude any danger of spontaneous ignition and if this is certified in the transport document by the entry: "Substance not liable to spontaneous ignition"; for the substances of 8° certain substances of 9° and 10°, however, see Class 4.1 marginal 2401, 1°;

(c) dust and powder of aluminium or zinc [6°(a)], e.g. packed together with varnish for use in the manufacture of colours, if packed with care in quantities not exceeding 1 kg.

## 2. Provisions

### A. Packages

#### 1. General conditions of packing

(1) Packagings shall be so closed and arranged as to prevent any loss of the contents.

(2) The materials of which the packagings and their closures are made, must not be liable to attack by the contents nor form harmful or dangerous compounds therewith.

(3) Packagings, including their closures, must be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. In particular, in the case of substances in the liquid state of immersed in a liquid or in solution, receptacles and their closures must, unless the section headed "Packing of a single substance or of articles of the same kind" provides otherwise, be able to withstand any pressure which, the pressure of air also being taken into account, may arise inside the receptacles in normal carriage. For this purpose a free space must be left, account being taken of the difference between the temperature of the substances at the time of filling and the highest mean temperature which they are likely to reach during carriage. Solid substances shall be firmly secured in their packagings, and inner packagings shall be firmly secured in outer packagings. Unless otherwise specified in the section entitled "Packing of a single substance or of articles of the same kind", inner packagings may be enclosed in outer packagings, either singly or in groups.

(4) Bottles and other glass receptacles must be free from faults liable to impair their strength; in particular, internal stresses must have been suitably relieved. The thickness of the walls must be not less than 3 mm in the case of receptacles which, with their contents, weigh more than 35 kg, and not less than 2 mm in the case of other receptacles.

The tightness of the closure system must be ensured by an additional device (cap, crown, seal, binding, etc.) capable of preventing any loosening of the closure system during carriage.

(5) When receptacles made of glass, porcelain, stoneware or similar materials are prescribed or allowed, they must be secured by cushioning materials in protective packagings.

Cushioning materials shall be suited to the nature of the contents; in particular, they shall be dry and absorbent when the content are liquid or might exude liquid.

2. Packing of a single substance or of articles of the same kind

(1) Phosphorus of 1° shall be packed:

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(a) in leak-proof tin-plate receptacles hermetically closed and placed in wooden cases; or

(b) in sheet-iron drums closing hermetically. Press-on lids shall not be allowed. The sheet-iron constituting the body, bottom and lid shall not be less than 1.5 mm thick. A package must not weigh more than 500 kg. If it weighs more than 100 kg, it shall be fitted with rolling hoops or strengthening ribs, and shall be welded; or

(c) not more than 250 g per receptacle, in hermetically-closed glass receptacles secured by cushioning materials in leak-proof tin-plate receptacles closed by soldering and secured, likewise by cushioning materials, in wooden cases.

(2) Receptacles and drums containing phosphorus shall be filled with water.

(2) Receptacles and drums containing phosphorus shall be filled with water.

(1) Substances of 2° shall be packed in leak-proof tin-plate receptacles hermetically closed and placed in wooden cases.

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(2) Substances of 2° may also be packed, not more than 2 kg per receptacle, in receptacles made of glass, porcelain, stoneware or similar materials, secured by cushioning materials in wooden cases.

(1) Substances of 3° shall be packed in receptacles made either of metal or of glass, porcelain, stoneware or similar materials, hermetically closed. Receptacles must not be filled beyond 90 per cent of their capacity.

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(2) Metal receptacles shall be secured by cushioning materials in protective packagings which, if they are not closed, shall be covered. If the covering consists of readily-inflammable substances, it shall be rendered sufficiently fire-resistant to prevent its catching alight in contact with a flame. If the protective packaging is not closed, the package shall be fitted with means of handling and shall not weigh more than 75 kg.

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(3) Receptacles made of glass, porcelain, stoneware or similar materials shall have a capacity of not more than 5 litres and shall be secured by cushioning materials in leak-proof sheet-metal receptacles hermetically closed.

(4) Substances of 3° may also be packed in hermetically-closed drums made of corrosion-resistant steel and having a capacity of not more than 300 litres and a wall thickness of not less than 3 mm. The drums must withstand a test pressure of 10 kg/cm<sup>2</sup> and satisfy the conditions of marginal 2211 (1) and (2) (b). The closure of the filling and emptying device must be ensured by a protective cap. Receptacles must not be filled beyond 90 per cent of their capacity; however, with the liquid at a mean temperature of 50° C, a free space of 5 per cent must remain for safety purposes. When handed over for carriage, the liquid must be under a layer of inert gas at a pressure not exceeding 0.5 kg/cm<sup>2</sup>. Receptacles shall be tested in conformity with the provisions of marginal 2216 (2) and (3). The tests shall be repeated every 5 years. The receptacles shall bear the following particulars in clearly legible and indelible characters:

1. the name of the substance in full, the name or mark of the maker or owner, and the number of the receptacle;

2. the tare of the receptacle, including fittings and accessories;

3. the test pressure, the date (month, year) of the last test undergone, and the stamp of the expert who carried out the tests and inspections;

4. the capacity of the receptacle and the maximum filling allowed;

5. the wording: «Do not open during carriage; liable to spontaneous ignition».

A package must not weigh more than 400 kg.

(1) Substances of 4° shall be packed in bags placed in drums made of impermeable fibreboard or in receptacles

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made of zinc sheet or aluminium sheet. The sides of metal receptacles shall be lined with fibreboard. The bottoms and lids of fibreboard drums and metal receptacles shall be lined with wood.

(2) Metal receptacles shall be fitted with closures or safety devices yielding when the internal pressure reaches a value not greater than 3 kg/cm<sup>2</sup>; the presence of these closures or safety devices must impair the strength of the receptacle nor impair its closure.

(3) A package must not weigh more than 75 kg.

(1) Substances of 5° (a) shall be tightly compressed and be placed in leak-proof metal receptacles.

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(2) Substances of 5° (b) and (c) shall be tightly compressed and be packed either in wooden or fibreboard cases or in paper or textile wrappings firmly secured.

(1) Substances of 6o (a) shall be enclosed in tightly-closing leak-proof receptacles made of wood or metal. However, zirconium shall be enclosed only in metal or glass receptacles, which shall be secured by cushioning materials in strong wooden cases. If the cushioning materials are inflammable, they shall be fireproofed.

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(2) Substances of 6o (b) shall be enclosed in tightly-closing leak-proof iron drums or in wooden cases with a sheet-metal lining rendered leak-proof (by soldering, for example) or in boxes made of tin-plate or thin aluminium sheet and so closing as to be leak-proof; these drums, cases or boxes shall be placed in wooden cases. For substances of 6o (b) handed over individually for carriage in boxes made of tin-plate or aluminium sheet, a wrapping of corrugated fibreboard will suffice instead of a wooden case; a package of this nature must not weigh more than 12 kg.

(3) Substances of 6o (c) shall be packed in air-tight sheet-metal receptacles or air-tight iron drums. In the case of sheet-metal receptacles, a package must not weigh more than 50 kg.

(4) Substances of 6o (d) shall be packed in receptacles made of metal, glass or a suitable plastics material and so closing as to be gas-tight. The stoppers used for closure shall be held in position by an additional device (such as a cap, crown, seal or binding) capable of preventing any loosening during carriage. The substances shall be dispatched under a protective liquid (such as methanol) or a protective gas.

Metal receptacles shall be placed in a wooden packing case. A package must not weigh more than 50 kg.

Glass receptacles shall be secured by cushioning materials in fibreboard or metal packagings; the cushioning materials must be incombustible. Receptacles made of a plastics material shall be placed in fibreboard or metal packagings. Packagings containing receptacles made of glass or a plastics material shall be placed in a wooden packing case. A package must not weigh more than 25 kg.

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Substances of 7o - 10o and 12o shall be enclosed in tightly-closing packages. Wooden packagings used for substances of 7o and 8o shall be provided with a leak-proof lining.

The substance having been used for purifying lighting gas (spent oxide of iron) (11o) shall be packed in tightly-closing sheet-metal receptacles.

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Empty sodium nitrate bags (13o) shall be made up into tightly-packed bundles securely fastened with string and placed either in a wooden case or in a wrapping consisting either of several thicknesses of stout paper or of waterproofed fabric.

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### 3. Mixed packing

(1) Substances grouped under the same item number may be included in the same package. The inner packagings shall conform to what is prescribed for each substance, and the outer packaging shall be that laid down for the substances of the item number in question.

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(2) If smaller quantities are not prescribed in the section entitled «Packing of a single substance or of articles of the same kind substances of this Class, in quantities not exceeding 6 kg in the case solids or 3 litres in the case of liquids for all of the substances listed under the same item number or the same letter, may be enclosed in the same package either with substances of another item number or of another letter of the same Class, or with dangerous substances delonging to other Classes (if mixed packing is likewise allowed in the case of such substances), or with other goods, subject to the following special conditions.

The inner packagings must satisfy the general and special conditions of packing. In addition, the general provisions of marginal 2001 (5) and 2002 (6) and (7) must be observed.

A package must not weigh more than 150 kg, or more than 75 kg if it contains fragile receptacles.

Special conditions:

Item No.	Description of substance	Maximum quantity		Special provisions
		per receptacle	per package	
1o	White or yellow phosphorus			
2o 3o	Phosphides Zinc alkyls, etc.	Mixed packing not allowed		
6o (a) (b) and (d)	Dust and powder of aluminium or zinc  Dust, powder and fine shavings of magnesium Metals in a pyrophoric form	3 kg	3 kg	Must not be packed together with weakly-nitrated nitrocellulose and red phosphorus of Class 4.1, nor with bifluorides
4o, 5o, 6o (c) 7o - 12o	all substances			

4. Marking and danger labels on packages (See Appendix A.9)

(1) Packages containing substances of 1o to 4o or 6o shall bear a label conforming to model No. 2C.

However, if substances of 4o are packed in drums made of impermeable fibreboard in conformity with marginal 2436 (1), the packages, shall bear two labels conforming to model No. 2C.

(2) Drums containing phosphorus of 1o and having a screw-cap lid shall, unless they are fitted with a device maintaining them upright, bear in addition, high up in two diametrically opposite places, two labels conforming to model No. 8.

(3) Packages containing fragile receptacles not visible from the outside shall bear labels conforming to model No. 9. If the fragile receptacles contain liquids, the packages shall in addition, except in the case of sealed ampoules, bear labels conforming to model No. 8; these labels shall be affixed high up on two opposite sides of cases or in an equivalent manner when other packagings are used.

(4) In the case of consignments carried as a full load, label No. 2C as prescribed under (1), need not be affixed to the packages if the vehicle bears the marking prescribed in Annex B, marginal 10500.

#### B. Particulars in the transport document

The description of the goods in the transport document must conform to one of the names underlined in marginal 2431. Where the name of the substance is not indicated in the case of 2°, 3°, 9° and 10°, the trade name must be used. The description of the goods must be underlined in red and followed by particulars of the Class, the item number (together with the letter, if any), and the initials «ADR» or «RID» [e.g. 4.2,5° (a), ADR].

#### C. Empty packagings

(1) Receptacles and tanks of 14o and receptacles of 15o must be closed in the same manner and leak-proof in the same degree as though they were full.

(2) The description in the transport document must be: «Empty receptacle (or empty tank), 4.2, 14o (or 15o), ADR (or RID)». This description must be underlined in red.

### CLASS 4.3 SUBSTANCES WHICH GIVE OFF INFLAMMABLE GASES ON CONTACT CT WITH WATER

#### 1. List of substances

Among the substances and articles covered by the heading of Class 4.3 only those listed in marginal 2471 are to be accepted for carriage, and then only subject to the provisions of this Annex and of Annex B. These substances and articles to be accepted for carriage under certain conditions are to be considered as substances and articles of DR.

1° (a) Alkali and alkaline-earth metals, e.g. sodium, potassium, calcium, as well as alkali metal alloys, alkaline-earth metal alloys and alloys of alkali and alkaline-earth metals;

(b) alkali-metal amalgams and alkaline-earth metal amalgams;

(c) alkali-metal dispersions.

2° (a) Calcium carbide and aluminium carbide

(b) alkali-metal and alkaline-earth metal hydrides (e.g. lithium hydride, calcium hydride), mixed hydrides, and boron hydrides and aluminium hydrides of alkali metals and alkaline-earth metals;

(c) alkali silicides;

(d) calcium silicide, in powder, grains or lumps, containing more than 50 per cent silicon, manganese calcium silicide (silicomanganese-calcium);

(e) alloys of magnesium with manganese.

3° Amides of alkali metals and alkaline-earth metals,

e.g. sodamide (sodium amide). See also marginal 2471a.

Note: Calcium cyanamide is not subject to the provisions of DR.

4° Trichlorosilane (silicochloroform).

5° Empty receptacles, uncleaned, and empty tanks, uncleaned, which have contained substances of Class 4.3.

Sodamide (3°) in quantities not exceeding 200 g per package is not subject to the provisions for this Class contained in this Annex or in Annex B if it is packed in receptacles which are so closed as to be leak-proof and which cannot be attacked by the contents, and if these receptacles are packed with care in a strong, leak-proof wooden packaging with a leak-proof closure.

#### 2. Provisions

##### A. Packages

##### 1. General conditions of packing

(1) Packagings shall be so closed and leak-proof as to prevent the ingress of moisture and any loss of the contents.

(2) The materials of which the receptacles and their closures are made must not be liable to attack by the contents or form harmful or dangerous compounds therewith. Receptacles must in all cases be free from moisture.

(3) Packagings, including their closures, must be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. In particular, in the case of solids immersed in a liquid, receptacles and their closures must, unless the section headed «Packing of a single substance» provides otherwise, be able to withstand any pressure which, the presence of air also being taken into account, may arise inside the receptacles in normal carriage. For this purpose a free space must be left, account being taken of the difference between the temperature of the substances at the time of filling and the highest mean temperature which they are likely to reach during carriage. Solid substances shall be firmly secured in their packagings, and inner packagings shall be firmly secured in outer packagings.

Unless otherwise specified in the section entitled «Packing of a single substance», inner packagings may be enclosed in outer packagings, either singly or in groups.

(4) Bottles and other glass receptacles must be free from faults liable to impair their strength; in particular, internal stresses must have been suitably relieved. The thickness of the walls must in no case be less than 2 mm.

The tightness of the closure system must be ensured by an additional device (cap, crown, seal, binding, etc.) capable of preventing any loosening of the closure system during carriage.

35) Cushioning materials shall be suited to the nature of the contents.

##### 2. Packing of a single substance

(1) Substances of 1o shall be packed:

(a) in receptacles made of sheet-iron, lead-lined sheet-iron or tin-plate. For substances of 1o (b), however, receptacles made of lead-lined sheet-iron or of tin-plate are not to be accepted. These receptacles, with the exception of iron drums, must be placed in wooden packing cases or in protective iron hampers; or

(b) not more than 1 kg per receptacle, in receptacles made of glass or stoneware. Not more than 5 of these receptacles shall be packed in a wooden packing case having a leak-proof lining of ordinary sheet-iron, lead-lined sheet-iron, or tin-plate, assembled by soldering. For glass receptacles containing quantities not exceeding 250 g, the lined wooden case may be replaced by an outer receptacle made of ordinary sheet-iron, lead-lined sheet-iron, or tin-plate. Glass receptacles shall be secured in the outer packagings by incombustible cushioning materials.

(2) If a substance of 1o (a) is not packed in a welded metal receptacle with a lid hermetically closed by soldering, then:

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(a) it must be completely covered by mineral oil whose flash-point is above 50° C, or be sufficiently sprinkled to ensure that the lumps are coated with this oil; or

(b) the air in the receptacle must be completely replaced by a protective gas (e.g. nitrogen) and the receptacle so closed as to be gas-tight; or

(c) the substance must be poured into the receptacle, which must be filled to the brim and so closed, after cooling, as to be gas-tight.

(3) Iron receptacles must have sides not less than 1.25 mm thick. If, with their contents, they weigh more than 75 kg, they must be hard-soldered or welded. If they weigh more than 125 kg, they must in addition be fitted with end and rolling hoops or with rolling flanges.

(1) Substances of 2<sup>o</sup> shall be packed:

(a) in receptacles made of sheet-iron, lead-lined sheet-iron or tin-plate. For substances of 2<sup>o</sup> (b) and (c) a receptacle must not contain more than 10 kg. Those receptacles, with the exception of iron drums, must be placed in wooden packing cases or in protective iron hampers; or

(b) not more than 1 kg per receptacle, in receptacles made of glass or stoneware or of a suitable plastics material. Not more than 5 of these receptacles shall be packed in a wooden packing case with a leak-proof lining of ordinary sheet-iron, lead-lined sheet-iron or tin-plate, assembled by soldering. For glass receptacles containing quantities not exceeding 250 g, the lined wooden case may be replaced by an outer receptacle made of ordinary sheet-iron, lead-lined sheet-iron or tin-plate. Glass receptacles shall be secured in the packing cases by incombustible cushioning materials.

(2) A package must not weigh more than 75 kg if it contains substances of 2<sup>o</sup> (b) or (c) and not more than 125 kg if it contains substances of 2<sup>o</sup> (d) or (e).

Amides (3<sup>o</sup>) shall be packed, not more than 10 kg per box or drum, in hermetically-closed metal boxes or drums, which shall be placed in wooden cases. A package must not weigh more than 75 kg.

(1) Trichlorosilane (4<sup>o</sup>) must be packed in receptacles made of corrosion-resistant steel and having a capacity

not exceeding 500 litres. The receptacles must be hermetically closed; the closing device must be specially protected by a cap. The receptacles must be constructed as pressure vessels for a working pressure of 4 kg/cm<sup>2</sup> and be tested in conformity with the regulations governing pressure vessels in force in the country of departure. Receptacles with a capacity not exceeding 250 litres must have a wall thickness of not less than 2.5 mm, and those with a higher capacity a wall thickness of not less than 3 mm.

(2) If filling is based on weight, the degree of filling must not exceed 1.14 kg/l. If it is carried out by visual check, the degree of filling shall not exceed 84.5 per cent.

3. Mixed packing

2474 (1) The substances grouped under the same item number may be included in the same package. The inner packagings shall conform to what is prescribed for each substance, and the outer packaging shall be that laid down for the substances of the item number in question.

(2) If smaller quantities are not prescribed in the section entitled «Packing of a single substance», substances of this Class, in quantities not exceeding 6 kg in the case of solids or 3 litres in the case of liquids for all of the substances listed under the same item number or the same letter, may be enclosed in the same package either with substances of another item number or of another letter of the same Class, or with dangerous substances belonging to other Classes (if mixed packing is likewise permitted in the case of such substances), or with other goods, subject to the following special conditions.

Class 4.3

2475 The inner packagings must satisfy the general and special conditions of packing. In addition, the general provisions contained in marginals 2001(5) and 2002(6) and (7) must be observed.

A package must not weigh more than 150 kg, or more than 75 kg if it contains fragile receptacles.

2476 Special conditions:

Item No.	Description of substance	Maximum quantity		Special provisions
		per receptacle	per package	
1 <sup>o</sup> (a)	Alkali and alkaline - earth metals (e.g. sodium, potassium, calcium, barium) - in fragile receptacles	500 g	500 g	The limits of 500 g or 1 kg apply to alkali metals and alkaline - earth metals of 1 <sup>o</sup> (a), and to alkali metal and alkaline - earth metal hydrides of 2 <sup>o</sup> (b), in respect of the aggregate weight of these substances. Alkali metals and alkaline - earth metals, and substances of 2 <sup>o</sup> (b), may not be packed together with acids, nor with liquids contain water.
	- in other receptacles	1 kg	1 kg	
2 <sup>o</sup> (a)	Calcium carbide	Mixed packing not allowed		
2 <sup>o</sup> (b)	Alkali metal and alkaline - earth metal hydrides (e.g. lithium hydride, calcium hydride), mixed hydrides, boron hydrides and aluminium hydrides - in fragile receptacles	500 g	500 g	
	- in other receptacles	1 kg	1 kg	
4 <sup>o</sup>	Trichlorosilane	Mixed packing not allowed		

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#### 4. Marking and danger labels on packages (see Appendix A.9)

(1) Every package containing substances of Class 4.3 shall bear a label of model No. 2D and a label conforming to model No. 7.

(2) Every package containing trichlorosilane of 4° shall bear in addition a label conforming to model No. 2A.

(3) Packages containing fragile receptacles not visible from the outside shall bear a label conforming to model No. 9. If the fragile receptacles contain liquids, the packages shall in addition, except in the case of sealed ampoules, bear labels conforming to model No.8; these labels shall be affixed high up on two opposite sides of cases or in an equivalent manner when other packagings are used.

#### B. Particulars in the transport document

The description of the goods in the transport document must conform to one of the names underlined in marginal 2471. Where the name of the substance is not indicated in the case of 1°, the trade name must be used. The description of the goods must be underlined in red and followed by particulars of the Class, the item number (together with the letter, if any), and the initials «ADR» or «RID» [e.g.4.3 2°(a), ADR].

#### C. Empty packagings

(1) Receptacles and tanks of 5o must be closed in same manner and be leak-proof in the same degree as though they were full.

(2) The description in the transport document must be: «Empty receptacle (or empty tank), 4.3. 5°, ADR (or RID)». This description must be underlined in red.

### CLASS 5.1 OXIDIZING SUBSTANCES

#### 1. List of substances

Among the substances and articles covered by the heading of Class 5.1, those listed in marginal 2501 are subject to the provisions of this Annex and of Annex B. These substances and articles to be accepted for carriage under certain conditions are to be considered as substances and articles of ADR.

Note: Unless specifically listed in class 1a or Class 1c, mixtures of oxidizing substances with combustible substances are not to be accepted for carriage if they are capable of exploding on contact with a flame or are more sensitive to shock and to friction than dinitrobenzene.

1o Stabilized, aqueous solutions of hydrogen peroxide containing more than 60 per cent hydrogen peroxide, and stabilized hydrogen peroxide.

Note: 1. For aqueous solutions of hydrogen peroxide containing not more than 60 per cent hydrogen peroxide, see marginal 2801, 41°.

2. Aqueous solutions of hydrogen peroxide containing more than 60 per cent hydrogen peroxide, not stabilized, and hydrogen peroxide, not stabilized, are not to be accepted for carriage.

2o Totranitromethane, free from combustible impurities.

Note: Tetranitromethane not free from combustible impurities is not to be accepted for carriage.

3° Perchloric acid in aqueous solutions containing more than 50 per cent but not more than 72.5 per cent perchloric acid (HClO<sub>4</sub>).

See also marginal 2501a, under (a).

Note: Perchloric acid in aqueous solutions containing not more than 50 per cent perchloric acid (HClO<sub>4</sub>) in a substance of Class 8 (see marginal 2801, 4°). Aqueous solutions of perchloric acid containing more than 72.5 per cent perchloric acid are not to be accepted for carriage; the same applies to mixtures of perchloric acid with any liquid other than water.

4o (a) Chlorates; inorganic chlorate weed - killers consisting of mixtures of sodium chlorate, potassium chlorate

of calcium chlorate with a hygroscopic chloride (such as magnesium chloride or calcium chloride);

2478 Note: Ammonium chlorate is not to be accepted for carriage.

(b) perchlorates (with the exception of ammonium perchlorate, see 5°)

(c) sodium and potassium chlorites;

(d) mixtures of chlorates perchlorates and chlorites of (a), (b) and (c) with one another.

For (a), (b), (c) and (d), see also marginal 2501a, under (b).

5° Ammonium perchlorate. See also marginal 2501a, under (b).

2479 6° (a) Ammonium nitrate not containing combustible substances in a higher proportion than 0.4 per cent;

2480 Note: Ammonium nitrate containing more than 0.4 per cent combustible substances is not to be accepted for carriage unless it is a constituent of an explosive of 12° or 14o of marginal 2101.

(b) mixtures of ammonium nitrate with ammonium sulphate or ammonium phosphate containing more than 40 per cent nitrate but not more than 0.4 per cent combustible substances;

2481-2497 (c) mixtures of ammonium nitrate with an inert substance (e.g. infusorial earth, calcium carbonate, potassiumchloride) containing more than 65 per cent nitrate but not more than 0.4 per cent combustible substances.

2498 For (a), (b), see also marginal 2501a, under (b).

Note: 1. Mixtures of ammonium nitrate with ammonium sulphate or ammonium phosphate containing not more than 40 per cent nitrate, and mixtures of ammonium nitrate with an inert inorganic substance containing not more than 65 per cent nitrate, are not subject to the provisions of ADR.

2499 2. In the mixtures referred to under (c), only inorganic substances which are neither combustible nor oxidizing may be considered as inert.

3. Compound fertilizers in which the total content of nitrogen as nitrate and as ammonia does not exceed 14 per cent or in which the nitrogen content as nitrate does not exceed 7 per cent are not subject to the provisions of ADR.

2500 7° (a) Sodium nitrate;

(b) mixture of ammonium nitrate with nitrates of sodium, potassium, calcium or magnesium;

(c) barium nitrate, lead nitrate.

For (a), (b) and (c), see also marginal 2501a, under (b).

Note: 1. If they do not contain more than 10 per cent ammonium nitrate, mixtures of ammonium nitrate with calcium nitrate or with magnesium nitrate or with both are not subject to the provisions of ADR.

2. Empty textile bags which have contained sodium nitrate and have not been entirely freed from the nitrate impregnating them are articles of Class 4.3 (see marginal 2431, 13°).

8° Inorganic nitrites. See also marginal 2501a, under (b).

Note: Ammonium nitrite and mixtures of an inorganic nitrite with an ammonium salt are not to be accepted for carriage.

9° (a) Peroxides of alkali metals and mixtures containing peroxides of alkali metals which are not more dangerous than sodium peroxide;

(b) dioxides and other peroxides of alkaline - earth metals, e.g. barium dioxide;

(c) permanganates of sodium, potassium, calcium and barium.

For (a), (b) and (c), see also marginal 2501a, under (b).

Note: Ammonium permanganate, and mixtures of a permanganate with an ammonium salt, are not to be accepted for carriage.

10° Chromium trioxide (chromic anhydride; also called chromic acid).

See also marginal 2501a, under (b).

11° Empty packagings, uncleaned, and empty tanks, uncleaned, which have contained substances of Class 5.1.

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Note: Empty packagings and empty tanks which have contained a chlorate, a perchlorate, a chlorite (4° and 5°), an inorganic nitrite (8°) or substances of 9° and 10°, with residues from their previous contents adhering to the outside, are not to be accepted for carriage.

### Class 5.1

Substances handed over for carriage in conformity with the following provisions are subject neither to the provisions for this Class contained in this Annex nor to those contained in Annex B.

(a) substances of 3o, in quantities not exceeding 200 g per receptacle, on condition that they are packed in receptacles so closed as to be leak-proof and not capable of being attacked by the contents, and that receptacles are packed, not more than 10 per case, in a wooden case with inert absorbent cushioning materials;

(b) substances of 4°-10°, in quantities not exceeding 10 kg, packed not more than 2 kg per receptacle in receptacles so closed as to be leak-proof and not capable of being attacked by the contents, these receptacles being enclosed in strong, leak - proof packagings made of wood or sheet - metal and having leak - proof closures.

### 2. Provisions

#### A. Packages

##### 1. General conditions of packing

(1) Receptacles shall be so closed and arranged as to prevent any loss of the contents.

(2) The materials of which the packagings and their closures are made must not be liable to attack by the contents, or cause the contents to decompose, or form harmful or dangerous compounds therewith.

(3) Packagings, including their closures, must be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. In particular, where substances are in the liquid state, receptacles and their closures must, unless the section headed «Packing of a single substance» provides otherwise, be able to withstand any pressure which, the presence of air also being taken into account, may arise inside the receptacles in normal carriage. For this purpose a free space must be left, account being taken of the difference between the temperature of the substances at the time of filling and the highest mean temperature which they are likely to reach during carriage. Unless otherwise specified in the section entitled «Packing of a single substance», inner packagings may be enclosed in outer packagings, either singly or in groups.

(4) Bottles and other glass receptacles must be free from faults liable to impair their strength, in particular, internal stresses must have been suitably relieved. The walls must be not less than 3 mm thick in the case of receptacles weighing, with their contents, more than 35 kg and not less than 2 mm in the case of other receptacles.

The tightness of the closure system must be ensured by an additional device (cap, crown, seal, binding, etc.) capable of preventing any loosening of the closure system during carriage.

(5) When receptacles made of glass, porcelain, stoneware or similar materials are prescribed or allowed, they must be secured by cushioning materials in protective packagings. Cushioning materials must be incombustible (asbestos, glass wool, absorbent earth, infusorial earth, etc.) and incapable of forming dangerous compounds with the contents of the receptacles. If the contents are liquid, the cushioning materials shall also be absorbent and proportionate in quantity to the volume of the liquid; this interior absorbent layer must not, however, be less than 4 cm thick at any point.

lacking of a single substance

(1) Aqueous solutions of hydrogen peroxide, and hydrogen peroxide of 1o, shall be packed in drums or other

receptacles made of aluminium of at least 99.5 per cent purity or of special steel not liable to cause the hydrogen peroxide to decompose. These receptacles shall be fitted with means of handling; they must be able to remain upright in a stable fashion and must:

(a) be fitted in their upper part with a closing device ensuring equality of the internal and the atmospheric pressure; this closing device must in all circumstances prevent any escape of the liquid and any entry of foreign matter into the receptacle and must be protected by a vented cap; or

(b) be able to withstand an internal pressure of 2.5 kg/cm<sup>2</sup> and be fitted in the upper part with a safety device yielding when the excess of internal pressure is 1 kg/cm<sup>2</sup> at most.

(2) Receptacles shall not be filled beyond 90 per cent of their capacity.

(3) A package must not weigh more than 90 kg.

Tetranitromethane (2o) shall be contained in bottles made of glass, porcelain, stoneware or similar materials or of a suitable plastics material, with incombustible stoppers, placed inside a wooden case with complete sides; fragile receptacles shall be secured therein by absorbent - earth cushioning. Receptacles shall not be filled beyond 93 per cent of their capacity.

Perchloric acid in aqueous solutions (3o) shall be contained in glass receptacles, which shall be filled to not more than 93 per cent of their capacity. The receptacles shall be secured by absorbent and incombustible cushioning materials in incombustible protective packagings impermeable to liquids and capable of retaining the contents of the receptacles. The closure of the receptacles shall be protected by caps if the protective packagings are not completely closed.

Glass bottles closed by glass stoppers may also be secured by absorbent and incombustible cushioning materials in wooden cases with complete sides.

Packages containing fragile receptacles and carried otherwise than as a full load must not weigh more than 75 kg and shall be fitted with means of handling.

(1) Substances of 4° and 5° and solutions of substances of 4° shall be packed in receptacles made of glass, of a suitable plastics material, or of metal; solid substances of 4° (b) may also be enclosed in hardwood casks.

(2) Fragile receptacles and receptacles made of a plastics material must be secured by cushioning materials in wooden or metal protective packagings. They may also be secured separately by incombustible cushioning materials in non-fragile intermediate receptacles which must in turn be firmly placed or secured by cushioning materials in protective packagings. Each receptacle must contain not more than 5 kg of substance. In the case of receptacles whose contents are liquid, the cushioning materials must be absorbent.

(3) In the case of receptacles made of a plastics material and containing solutions of substances of 4o, the protective packagings may be dispensed with if the walls are not less than 4 mm thick at every point, the walls are strengthened by strong reinforcing rims, the ends are strengthened, the upper part is provided with two strong handholds, and the opening is fitted with a screw-threaded closure.

(4) Receptacles for liquids shall not be filled beyond 95 per cent of their capacity.

(5) Packages containing fragile receptacles or receptacles made of a plastics material [see (2) and (3)], if they contain liquids, and packages containing fragile receptacles or receptacles made of a plastic material [see (2)], if they contain only solid substances and are carried otherwise than as a full load, must not weigh more than 75 kg. Packages carried otherwise than as a full load shall be fitted with means of handling.

(6) Packages which can be rolled must not weigh more than 400 kg; if they weigh more than 275 kg they shall be fitted with rolling hoops.

(7) Receptacles containing solid chlorates other than those referred to under (8) must not contain any combustible material other than a small pad of waxed paper.

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(8) If the chlorate is in the form of tablets, with or without a suitable binder, and is packed in bottles containing not more than 200 g, a sufficient quantity of cotton-wool may be used to prevent excessive movement of the tablets in the bottle. The bottles shall be packed in fibreboard boxes placed in an intermediate packaging separate from the outer packaging. An intermediate packaging may not contain more than 1 kg or a package more than 6 kg of chlorate.

(1) Substances of 6°, 7°, and 8° shall be packed:

(a) in drums or cases; or

(b) in strong bags made of closely-woven fabric or of stout paper of at least five plies or, in quantities not exceeding 50 kg, in bags made of a suitable plastics material sufficiently thick and strong to prevent any loss of the contents.

If the substance is more hygroscopic than sodium nitrate, bags made of closely-woven fabric or of stout paper of five plies must be lined with a suitable plastics material or be rendered impermeable by suitable means.

Packages which can be rolled must not weigh more than 400 kg; if they weigh more than 275 kg they shall be fitted with rolling hoops.

(1) Substances of 9° (a) shall be packed:

(a) in steel drums; or

(b) in receptacles made of sheet-metal, lead-lined sheet-iron, or tinplate, secured in wooden packing cases having a metal lining rendered leak-proof, e.g. by soldering.

When carried as a full load, substances of 9°(a) may be packed in tin-plate receptacles placed solely in protective iron hampers.

(2) Receptacles containing substances of 9°(a) must be so closed and leak-proof as to prevent moisture from entering.

(3) Substances of 9°(b) and (c) shall be packed:

(a) in incombustible receptacles fitted with an incombustible hermetic closure. If the incombustible receptacles are fragile, each shall be secured separately by cushioning materials in a wooden case lined with stout paper; or

(b) in hardwood casks with closely-fitting stave, lined with stout paper.

(4) Packages containing fragile receptacles and carried otherwise than as a full load must not weigh more than 75 kg and shall be fitted with means of handling.

Packages capable of rolling must not weigh more than

400 kg; they must be fitted with rolling hoops if they weigh more than 275 kg.

(1) Chromium trioxide (10°) shall be packed;

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(a) in receptacles made of glass, porcelain, stoneware or similar materials, tightly stoppered, and secured in a wooden case by inert and absorbent cushioning materials; or

(b) in metal drums.

(2) Packages containing fragile receptacles carried otherwise than as a full load must not weigh more than 75 kg and shall be fitted with means of handling.

Packages capable of rolling must not weigh more than 400 kg; they must be fitted with rolling hoops if they weigh more than 275 kg.

3. Mixed packing

(1) Substances grouped under the same letter may be included in the same package. The inner packagings shall conform to what is prescribed for each substance, and the outer packaging shall be that laid down for the substances of the item number in question.

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(2) If smaller quantities are not prescribed in the section entitled «Packing of a single substance», substances of this Class, in quantities not exceeding 6 kg in the case of solids or 3 litres in the case of liquids for all of the substances listed under the same item number or the same letter, may be enclosed in the same package either with substances of another item number or of another letter of the same Class, or with dangerous substances belonging to other classes (if mixed packing is likewise allowed in the case of such substances), or with other goods, subject to the following special conditions.

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Class 5.1

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The inner packaging must satisfy the general and special conditions of packing. In addition, the general provisions of marginals 2001 (5) and 2002 (6) and (7)) must be observed.

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A package must not weigh more than 150 kg, or more than 75 kg if it contains fragile receptacles.

Special conditions:

Item No.	Description of substance	Maximum quantity		Special provisions
		per receptacle	per package	
1o	Hydrogen peroxide and aqueous solutions of hydrogen peroxide containing more than 60% hydrogen peroxide.	Mixed packing	not allowed.	
2o	Tetranitromethane			
3o	Perchloric acid			
4o	Solutions of substances of 4o			
4o(a)	Chlorates			Must not be packed together with weakly nitrated nitrocellulose, red phosphorus,
	-in fragile receptacles	1 kg	2.75 kg	
	-in other receptacles	5 kg	5 kg	bifluorides, liquid halogenated irritants, hydrochloric acid, sulphuric acid, chlorosulphonic acid, acetic acid, benzoic acid, salicylic acid, formic acid, nitric acid, free sulphonic acids, mixed nitrating acids, sulphur, hydrazine. Must be separated from uncombined carbon.

Item No.	Description of substance	Maximum quantity		Special provisions
		per receptacle	per package	
				(in any form), hypophosphites, ammonia and its compounds, triethanolamine, aniline, xylidine, toluidine, or inflammable liquids having a flash-point below 21 °C.
4o(b) and 5o	Perchlorates	5 kg	5 kg	Must not be packed together with weakly-nitrated nitrocellulose, red phosphorus, bibluorides, liquid halogenated irritants, hydrochloric acid, sulphuric acid, chlorosulphonic acid, nitric acid, mixed nitrating acids, aniline, pyridine, xylidine, toluidine, sulphur, hydrazine
4o(c) and 6o, 7o, 8o	All substances			Must not be packed together with weakly-nitrated nitrocellulose or red phosphorus.
9o(a) and (b)	Peroxides -in fragile receptacles -in other receptacles	500 g 5 kg	2.5 kg 5 kg	Same substances prohibited as in the case of perchlorates, and also: aluminium dust, powder or granules, acetic acid; aqueous liquids, inflammable liquids of Classes 3 and 6.1 substances of Class 4.1; metallic peroxides must not be packed in the same package with solutions of hydrogen peroxide. The limitation of 2.5 kg applies to peroxides of 9o(a) and (b) for all of these substances. The use of sawdust or other organic filling materials is prohibited.
9o(c)	Permanganates	5 kg	5 kg	Same substances prohibited as in the case of chlorates, and also: solutions of hydrogen peroxide, glycerine, glycols. Must be separated from the same substances as indicated in the case of chlorates.
10o	Chromic anhydride (chromic acid)	4.5 kg	4.5 kg	The use of sawdust or other organic filling materials is prohibited.

## Class 5.1

## 4. Marking and danger labels on packages (see Appendix A.9)

(1) Packages containing substances of Class 5.1 shall bear a label of model No. 3. However, packages containing substances of 1o to 5o or 8o to 10o shall bear two labels conforming to model No.3.

Packages containing substances of 3o shall in addition bear a label conforming to model No. 5.

(2) Packages containing fragile receptacles not visible from the outside shall bear a label conforming to model No. 9. If the fragile receptacles contain liquids, the packages shall in addition, except in the case of sealed ampoules, bear labels conforming to model No. 8; these labels shall be affixed high up on two opposite sides of cases or in an equivalent manner when other packagings are used.

(3) In the case of consignments carried as a full load, labels Nos. 3 and 5, as prescribed under (1), need not be affixed to the packages if the vehicle bears the marking prescribed in Annex B, marginal 10 500.

## B. Particular in the transport document

The description of the goods in the transport document must conform to one of the names underlined in marginal 2501; it must be underlined in red and followed by particulars of the Class, the item number (together with the letter, if any), and the initials «ADR» or «RID» [e.g. 5.1, 4o (a) ADR]

## C. Empty packagings

(1) Packagings and tanks of 11o must be closed in the same manner and leak-proof in the same degree as though they were full.

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(2) The description in the transport document must be: «Empty packaging, 5.1, 11°, ADR (or RID)». This description must be underlined in red.

(3) Empty textile bags, uncleaned, which have contained sodium nitrate [7o (a)] are subject to the provisions of Class 4.2 (see marginal 2441).

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2549CLASS 5.2  
ORGANIC PEROXIDES

## 1. List of substances

Among the substances and articles covered by the heading of Class 5.2, only those listed in marginal 2551 are to be accepted for carriage, and then only subject to the provisions of this Annex and of Annex B. These substances and articles to be accepted for carriage under certain conditions are to be considered as substances and articles of ADR.

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Note: Organic peroxides which may explode on contact with a flame or which are more sensitive to shock and to friction than dinitrobenzene are not to be accepted for carriage unless they are specifically listed in Class 1a (see marginal 2101, 10o and Appendix A.1, marginal 3112; also marginal 2551, Group E, below).

## Group A

1o Ditertiary butyl peroxide.

2o Tertiary butyl hydroperoxide with not less than 20 per cent ditertiary butyl peroxide and not less than 20 per cent phlegmatizer.

Note: Tertiary butyl hydroperoxide with not less than

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20 per cent ditertiary butyl peroxide but without phlegmatizer is listed under 31o.

3o Tertiary butyl peracetate with not less than 30 per cent phlegmatizer.

4o Tertiary butyl perbenzoate.

5o Tertiary butyl permaleate with not less than 50 per cent phlegmatizer.

6o Ditertiary butyl diperphtalate with not less than 50 per cent phlegmatizer.

7o 2,2-bis (tertiary butyl peroxy) butane with not less than 50 per cent phlegmatizer.

8o Benzoyl peroxide:

(a) with not less than 10 per cent water;

(b) with not less than 30 per cent phlegmatizer.

#### Class 5.2

Notes: 1. Benzoyl peroxide in the dry state or with less than 10 per cent water or less than 30 per cent phlegmatizer is a substance of Class 1a [see marginal 2101 10o (a)].

2. Benzoyl peroxide containing not less than 70 per cent dry and inert solids is not subject to the provisions of ADR.

9o Cyclohexanone peroxides [1-hydroxy-1-hydroperoxydicyclohexyl peroxide and bis (1-hydroxycyclohexyl) peroxide and mixtures of these two compounds]:

(a) with not less than 5 per cent water;

(b) with not less than 30 per cent phlegmatizer.

Notes: 1. Cyclohexanone peroxides and their mixtures in the dry state or with less than 5 per cent water or less than 30 per cent phlegmatizer are substances of Class 1a [see marginal 2101, 10o (b)].

2. Cyclohexanone peroxides and their mixtures containing not less than 70 per cent dry and inert solids are not subject to the provisions of ADR.

10o a, a - Dimethylbenzyl hydroperoxide (cumyl hydroperoxide) with a peroxide content not exceeding 95 per cent.

11o Dilauroyl peroxide.

12o 1, 2, 3, 4-Tetrahydro-1-naphthyl hydroperoxide.

13o 2,4-Dichlorobenzoyl peroxide:

(a) with not less than 10 per cent water;

(b) with not less than 30 per cent phlegmatizer.

14o p-Menthanyl hydroperoxide with a peroxide content not exceeding 95 per cent (remainder alcohols and ketones).

15o 2,6,6-Trimethyl norpinanyle hydroperoxide (pinanyle hydroperoxide; pinane hydroperoxide) with a peroxide content not exceeding 95 per cent (remainder: alcohols and ketones).

16o Di-(a, a - dimethylbenzyl) peroxide with a peroxide content not exceeding 95 per cent.

Note: Di-(a, oc-dimethylbenzyl)

Dicumyl peroxide containing 60 per cent or more dry and inert solids is not subject to the provisions of ADR.

#### Class 5.2

17o Parachlorobenzoyl peroxide:

(a) with not less than 10 per cent water;

(b) with not less than 30 per cent phlegmatizer.

Note: 1. Parachlorobenzoyl peroxide in the dry state or with less than 10 per cent water or less than 30 per cent phlegmatizer is a substance of Class 1a [see marginal 2101, 10o(c)].

2. Parachlorobenzoyl peroxide containing 70 per cent or more dry and inert solids is not subject to the provisions of ADR.

18o Di-isopropylbenzene hydroperoxide (isopropylcumyl hydroperoxide) with 45 per cent of a mixture of alcohol and ketone.

19o 4-Methylpentan-2-one peroxide (isobutylmethylketone peroxide) with not less than 40 per cent phlegmatizer.

20o Tertiary butyl (a, a-1-dimethylbenzyl) peroxide with not more than 95 per cent peroxide.

21o Diacetyl peroxide with not less than 75 per cent phlegmatizer.

22o Acetyl benzoyl peroxide with not less than 60 per cent phlegmatizer.

Note: re 1o to 22o. Substances which are inert to organic peroxides and have a flash-point not lower than 100°C and a boiling-point not lower than 150°C are deemed to be phlegmatizing substances. Substances of Group A may also be diluted with solvents which are inert to these substances.

#### Group B

30o Butanone peroxide (ethyl methyl ketone peroxide):

(a) with not less than 50 per cent phlegmatizer;

(b) in solutions containing not more than 12 per cent of this peroxide in solvents which are inert to it.

31o Tertiary butyl hydroperoxide:

(a) with not less than 20 per cent tertiary butyl peroxide, without phlegmatizer;

(b) in solutions containing not more than 12 per cent of this hydroperoxide in solvents which are inert to it.

#### Class 5.2

Note: re 30o and 31o. Substances which are inert to organic peroxides and have a flash-point not lower than 100°C and a boiling-point not lower than 150°C are deemed to be phlegmatizing substances.

#### Group C

35o Peracetic acid containing not more than 40 per cent peracetic acid and not less than 45 per cent acetic acid and not less than 10 per cent water.

Note: re Groups A, B and C. Mixtures of products listed in Groups A, and C are to be accepted for carriage subject to the conditions laid down for Group C if they contain peracetic acid, and in other cases subject to the conditions laid down for Group B.

#### Group D

40o Samples of phlegmatized organic peroxides not listed in Groups A, B or C, or of their solutions, are to be accepted in quantities not exceeding 1 kg per package on condition that their stability in storage is at least equal to that of the substances listed in Groups A and B.

#### Group E

Note: Group E comprises organic peroxides which decompose easily at normal temperatures and must therefore be carried only under conditions of adequate refrigeration. Although of an explosive nature as defined by the Note on Class 5.2, a few organic peroxides are included in Group E because they can be safely carried in a refrigerated state and in order to avoid any confusion regarding their handling.

45o Dioctanoyl peroxide (dicaprylyl peroxide) of technical purity.

46o Acetyl cyclohexane sulphonyl peroxide:

(a) containing not less than 30 per cent water;

(b) in solution with not less than 80 per cent solvent;

(c) in solution with not less than 70 per cent phlegmatizer.

47o Diisopropyl peroxydicarbonate:

(a) of technical purity;

(b) in solution with not less than 50 per cent phlegmatizer or solvent.

#### Class 5.2

48o Dipropionyl peroxide in solution with not less than 75 per cent solvent.

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49o Tertiary butyl perpivalate:

(a) of technical purity;

(b) in solution with not less than 25 per cent phlegmatizer or solvent.

50o Bis-(3,5,5-trimethylhexanoyl) peroxide in solution with not less than 20 per cent phlegmatizer.

51o Dipelargonyl peroxide of technical purity.

52o Tertiary butyl per-2-ethylhexanoate of technical purity.

53o Di-2-ethylhexyl-peroxydicarbonate in solution with not less than 55 per cent phlegmatizer or solvent.

54o Didecanyl peroxide of technical purity.

55o Tertiary butyl perisobutyrate in solution with not less than 25 per cent solvent.

Notes: 1. Substances which are inert to organic peroxides and have a flash-point not lower than 100°C and a boiling point not lower than 150°C are deemed to be phlegmatizing substances.

2. The solvents referred to are substances which are inert to organic peroxides and which also satisfy one of the following conditions:

(a) they are not inflammable and have a boiling point of not less than 85°C; or

(b) they are not inflammable and have a boiling point of less than 85°C but not less than 60°C, in which case hermetically closed containers must be used; or

(c) they have a flash-point of not less than 21°C and a boiling point of not less than 85°C; or

(d) they have a flash-point of less than 21°C but not less than 5°C and a boiling point of not less than 60°C, in which case hermetically closed containers must be used.

#### Class 5.2

##### Group F

99o Empty packagings, uncleaned, and empty tanks uncleaned, which have contained substances of Class 5.2.

#### 2. Provisions

##### A. Packages

##### 1. General conditions of packing

(1) The materials of which the packagings and their closures are made must not be liable to attack by the contents or form harmful or dangerous compounds there-with.

(2) Packagings, including their closures, must be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. Inner packagings shall be firmly secured in outer packagings. Unless otherwise specified in the section entitled «Packing of a single substance», inner packagings may be enclosed in outer packagings, either singly or in groups.

(3) Cushioning materials must not be readily inflammable; in addition they shall be suited to the nature of the contents and must not cause the peroxides to decompose.

##### 2. Packing of a single substance

##### a. Packing of substances of Group A

Receptacles shall be so closed and leak-proof as to prevent any loss of the contents.

(1) Substances of 1° to 7°, 8°, 9° (b) 10° to 12°, 13°(b), 14° to 16°, 17°(b) and 18° to 22° and their solutions must be packed:

(a) in hot-dipped tinned receptacles or in receptacles made of aluminium not less than 99.5 per cent pure; or

(b) in receptacles, made of a suitable plastics material, which shall be placed in protective packagings; or

(c) not more than 2 litres per bottle, in tightly-closing glass bottles which shall be secured by cushioning materials in a protective packaging so as to be protected against breakage.

(2) Substances of 1o to 3o, 5o to 7o, 8o (b), 9o (b), 10o to 12°, 13° (b), 16°, 18° and 20° may also be packed in hot-tipped galvanized receptacles.

(3) Substances of 8o (a), 9o (a), 13 (a) and 17o (a) shall be contained, not more than 5 kg per packaging, in water tight packaging placed in a wooden case.

(4) Pasty and solid peroxides may also be packed in bags, made of a suitable plastics material, placed in suitable protective packagings. The thickness of the packing material shall be sufficient to prevent any loss of the contents from the bags in normal carriage. Solid peroxides may be packed, not more than 1 kg per receptacle, in paraffin – waxed fibreboard receptacles placed in a wooden case; however, in the case of cyclohexanone peroxides of 9o (a) the contents of a receptacle shall be limited to 500 g.

(5) Substances of 10o and of 14o to 18o may also be packed in receptacles made of sheet – steel.

(6) with the exception of bags made of a suitable plastics material, receptacles containing liquid or pasty organic peroxides must not be filled beyond 93 per cent of their capacity.

(7) A package must not weigh more than 50 kg. Packages weighing more than 15 kg shall be fitted with means of handling.

##### b. Packing of substances of Group B

(1) Receptacles filled with substances of 30° (a) and 31° (a) shall be fitted with a venting device allowing compensation between the internal pressure and the atmospheric pressure and in all circumstances – even in the event of expansion of the liquid through heating – preventing the liquid from splashing out and impurities from entering the receptacle. For substances of 30o (b) and 31o (b), only receptacles so closed and leakproof as to prevent any loss of the contents shall be accepted.

(2) Packages shall be fitted with a base which keeps them securely upright without danger of falling.

(1) Substances of 30o (a) and 31o (a) shall be packed:

(a) in not – dipped tinned or hot – dipped galvanized receptacles or in receptacles made of aluminium not less than 99 – 5 per cent pure; or

(b) in receptacles, made of a suitable plastics material, placed in protective packagings. The strength of these receptacles shall be sufficient to prevent any loss of the contents in normal carriage; or

(c) not more than 2 litres per bottle, in glass bottles, which shall be secured by cushioning materials in protective packagings so as to be protected against breakage.

(2) Receptacles containing liquid or pasty organic peroxides must not be filled beyond 90 per cent of their capacity.

(3) A package must not weigh more than 40 kg. Packages weighing more than 15 kg shall be fitted with means of handling.

(4) Substances of 30o (b) and 31o (b) may be forwarded only in quantities not exceeding 5 kg in receptacles as specified in (1) but not equipped with a venting device (in glass bottles, only in quantities not exceeding 1.5 litre) The receptacles must not be filled beyond 75 per of their capacity.

##### c. Packing of substances of Group C

1. Substances of 35o and mixtures containing peracetic acid shall be packed, not more than 25 kg per receptacle, in thick walled glass receptacles, or in receptacles made of a suitable plastics material, fitted with a special closure made of a suitable plastics material, capable of being sealed, in communication with the atmosphere through an opening situated above the level of the liquid, and in all circumstances – even in the event of expansion of the liquid through heating – preventing the liquid from splashing out and impurities from entering the receptacle.

(2) Glass receptacles shall be firmly secured, by clean mica powder or glass wool used as cushioning materials, in protective packagings made of sheet – steel or of aluminium, capable of being closed, and fitted with means of handling and with a base which keeps them securely upright without risk of falling; the receptacles shall be secured even if the walls of the protective packagings are not complete. Receptacles made of a suitable plastics material

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must be placed in close - fitting protective packagings made of sheet - steel and capable of being closed.

d. Packing of substances of Group D

Substances of Group D shall be packed, in quantities not exceeding 1 kg per package, in hot - dipped tinned receptacles, or in receptacles made of aluminium not less than 99.5 per cent pure, or in bottles made of a suitable plastics material injection - moulded or blown and having a sufficient wall thickness, or in glass bottles placed in protective packagings made of sheet - steel, aluminium or wood. The glass bottles shall be firmly secured in the protective packagings by clean mica powder or glass wool used as cushioning materials. Solid compounds may also be packed in bags, made of a suitable plastics material of sufficient thickness, likewise placed in protective packagings made of sheet - steel, aluminium, or wood. If the peroxides give off gases at temperature lower than 40° C, the receptacles must satisfy the conditions of marginal 2555.

e. Packing of substances of Group E

1. Packages containing substances of Group E shall be fitted with a venting device allowing compensation between the internal pressure and the atmospheric pressure and in all circumstances - even in the event of expansion of the liquid through heating preventing the liquid from splashing out and impurities from entering the receptacle.

2. Receptacles containing liquid organic peroxides must not be filled beyond 95 per cent of their capacity.

1. Substances of 45o, 51o and 54o shall be packed, not more than 50 kg per receptacle or bag, in receptacles or bags, made of a suitable plastics material, which shall be placed in suitable protective packagings in quantities not exceeding 50 kg per packaging.

2. Substances of 46o (a) shall be packed, not more than 5 kg per bag, in bags made of a suitable plastics material, which shall be placed, not more than 20 kg packaging and either singly or in groups, in suitable protective packagings.

3. Substances of 47o (a) shall be packed.

a) not more than 1 kg per receptacle, in receptacles, made of a suitable plastics material;

b) not more than 3 kg per bowl, in bowls made of aluminium not less than 99.5 per cent pure, with plastics lids.

The protective packagings must not contain more than 10 kg of the substance.

4. Substances of 46o (b) and (c), 47o (b), 48o, 49o(b), 50o, 52o, 53o and 55o shall be packed, not more than 25 kg per receptacle, in receptacles made of a suitable plastics material, which shall be placed not more than 50 kg per packaging (but not more than 25 kg per packaging in the case of substances of 52o), in protective packagings.

5. Substances of 49o (a) shall be packed, not more than 10 kg per receptacles, in receptacles made of a suitable plastics material, which shall be placed, not more than 40 kg per packaging, in protective packagings.

6. Packages weighing more than 35 kg which contain substances of Group E shall be fitted with means of handling.

f. Packing of substances in small quantities.

Substances of 1° to 22°, 30° and 31°, forwarded in small quantities, may also be packed as follows:

a) Liquids

not more than 1 kg per package, in bottles, made of aluminium, a suitable plastics material, or glass, with stoppers, made of a suitable plastics material or with yoke or screw closures having, in either case, an elastic gasket. The bottles shall be secured, by clean mica powder or glass wool used as cushioning materials, in fibreboard or wooden boxes. The filling material must be sufficient in quantity to absorb the whole of the liquid. The bottles must not be filled beyond 75 per cent of their capacity;

b) pasty or powdered substances

not more than 1 kg per package, in aluminium boxes or in fibreboard or wooden boxes (the two latter being lined with aluminium or with a suitable plastics material) with

a strong closure. A free space of 10 per cent shall be left in the packagings.

3. Mixed packing

Substances of Class 5.2 may not be included in the same package either with other substances or articles of ADR or with other goods. Substances of Group C Must not be included in the same package with substances of Groups A, B or E.

4. Marking and danger labels on packages (see Appendix A. 9)

1. Every package containing substances of Class 5.2. shall bear a label conforming to model No 3.

Packages containing substances of 46o (a), 47o (a) and 49o (a) shall also bear a label conforming to model No 1.

2) Packages containing fragile receptacles not visible from the outside shall bear a label conforming to model No 9. If the fragile receptacles contain liquids, the packages shall in addition, except in the case of sealed ampoules, bear labels conforming to model No 8; packages containing substances of 30o, 31o, 35o, 40o and 45o to 55o shall also bear label conforming to model No 8; these labels shall be affixed high up on two opposite sides of cases or in an equivalent manner when other packagings are used.

B. Particulars in the transport document

The description of the goods in the transport document must conform to one of the names underlined in marginal 2551; it must be underlined in red and followed by particulars of the Class, the item number (together with the letter, if any), and the initials «ADR» or «RID» (e. g. 5.2., 8o (a) ADR).

C. Empty packagings

1. Receptacles and tanks of 99o must be closed in the same manner and leak - proof in the same degree as though they were full.

2. The description in the transport document must be «Empty receptacle, 5.2, 99o ADR (or RID)». This description must be underlined in red.

CLASS 6.1. TOXIC SUBSTANCES

1. List of substances

1. Among the substances and articles covered by the heading of Class 6.1, those which are listed in marginal 2601 or are covered by a collective heading of that marginal are subject to the provisions of this Annex and of Annex B. These substances and articles to be accepted for carriage under certain conditions are to be considered as substances and articles of ADR.

2. Substances of Class 6.1. which polymerize easily are not to be accepted for carriage unless the necessary precautions have been taken to prevent their polymerization during carriage.

3. The flash point referred to below shall be determined in the manner described in Appendix A.3.

A. Toxic substances having a flash - point below 21° C and a boiling point below 200° C

1. Hydrocyanic acid and inflammable volatile substances having a similar toxic effect, such as:

a) hydrocyanic acid containing not more than 3 per cent water (absorbed by an inert porous substance or in the liquid state), on condition that the filling of the receptacles was carried out less than one year previously;

Note: Hydrocyanic acid not satisfying these conditions is not to be accepted for carriage.

b) aqueous solutions of hydrocyanic acid containing not more than 20 per cent hydrocyanic acid (HCN).

Note: Solutions of hydrocyanic acid containing more than 20 per cent hydrocyanic acid (HCN) are not to be accepted for carriage.

2. Nitriles (organic cyanides), such as:

a) acrylonitrile;

b) acetonitrile (methyl cyanide);

c) isobutyronitrile (isobutyric nitrile).

3. Other nitrogenous organic substances, such as:

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ethyleneimine and propyleneimine containing not more than 0.003 per cent total chlorine, and their aqueous solutions; normal butyl isocyanate, tertiary butyl isocyanate, isobutyl isocyanate and isopropyl isocyanate.

Note: Ethyleneimine and propyleneimine of any other nature are not to be accepted for carriage.

4. Halogenated organic, substances such as:

- a) allyl chloride;
- b) methyl chloroformate;
- c) ethyl chloroformate.

5. Metal carbonyls, such as:

- a) nickel carbonyl (nickel tetracarbonyl 1);
- b) iron carbonyl (iron pentacarbonyl).

B. Toxic substances having a flash - point of 21° C or a over, and non - inflammable toxic substances, both having a boiling point below 200° C

11° Nitrogenous organic substances, such as:

- a) 2 - cyanopropan - 2 - 01 (acetone cyanohydrin);
- b) aniline

12° Halogenated organic substances, such as:

- a) 1 - chloro - 2, 3 - epoxypropane (epichlorohydrin);
- b) glycol chlorohydrin (2 - chloroethanol);
- c) acetylene tetrachloride (1, 1, 2, 2-tetrachloroethane);
- d) chloropicrin;

Note: Mixtures of chloropicrin with methyl chloride or methyl bromide are substances of Class 2 if the vapour pressure of the mixture at 50° C exceeds 3 Kg/cm<sup>2</sup> [see marginal 2201 4o (bt)].

e) trichloromethanesulphenyl chloride;

f) 2, 2-dichlorodiethyl ether, (chloroethyl ether, 2-chloroethyl ether.

13° Oxyrenated organic substances, such as:

- a) allyl alcohol;
- b) dimethyl sulphate;
- c) phenol.

14° Lead alkyls, such as tetraethyl lead, tetramethyl lead and mixtures of lead alkyls with halogenated organic compounds, e.g. ethyl fluid.

C. Toxic organic substances having a boiling point of 200° C or over.

21. Nitrogenous organic substances, such as:

- a) 2-bromophenylacetonitrile (bromobenzyl cyanide);
- b) phenylcarbylamine chloride;
- c) 2, 4-diisocyanatotoluene;
- d) allyl isothiocyanate;
- e) chloroanilines;
- f) mononitronilines and dinitroanilines;
- g) naphthylamines;
- h) 2, 4-diaminotoluene;
- i) dinitrobenzenes;
- k) chloronitrobenzenes;
- l) mononitrotoluenes;
- m) dinitrotoluenes;
- n) nitroxylens;
- o) toluidines;
- p) xylidines

22° Oxygenated organic substances not covered by 21o and 23o, such as:

- a) cresols;
- b) xylenols.

23° Halogenated organic substances not covered by 21o, 2601 such as:

- a) xylyl bromide;
- b) phenacyl chloride (ω-chloro aceto phenone);
- c) phenacyl bromide (ω-bromoacetophenone);
- d) 4-chloro aceto phenone (methyl p-chlorophenylketone);
- e) symmetrical dichloroacetone.

D. Inorganic substances which may release toxic gases on contact with acids (but see under E for silicon alloys).

31° Inorganic cyanides

- a) cyanides and complex cyanides in a solid form;

b) solutions of inorganic cyanides;

c) preparations of inorganic cyanides.

Note: Ferrocyanides and ferricyanides are not subject to the provisions of ADR.

32° The following azides:

- a) sodium azide;
- b) barium azide with not less than 50 per cent water or alcohols, and aqueous solutions of barium azide.

Note: Barium azide in the dry state or with less than 50 per cent water or alcohols is not to be accepted for carriage.

33. Zinc phosphide

Note: Zinc phosphide capable of spontaneous ignition or, under the effect of moisture, of releasing toxic gases is not to be accepted for carriage.

E. Silicon alloys capable of releasing toxic gases.

41° (a) Ferro - silicon and mangano - silicon with more than 30 per cent and less than 70 per cent silicon;

(b) ferro-silicon alloys with aluminium, manganese, calcium or more than one of these metals, with a total content of silicon and of elements other than iron and manganese greater than 30 per cent but less than 70 per cent, all the substances of 41° having been stored for not less than three days in a dry place open to the air.

Note: 1. Ferro-silicon and mangano-silicon briquettes, whatever their silicon content, are not subject to the provisions of ADR.

2. Substances of 41° are not subject to the provisions of ADR if they are not liable to release dangerous gases under the effect of moisture during carriage and the sender so certifies in the transport document.

3. Substances of 41° which have not been stored for not less than three days in a dry place open to the air are not to be accepted for carriage.

F. Other toxic inorganic substances.

51° Beryllium in powder form; beryllium compounds in powder form.

52° Arsenical compounds, such as:

- (a) oxides of arsenic;
- (b) sulphides of arsenic.

Note: With regard to arsenical substances and preparations used as pesticides, see under 81° (i), 82° (i) and 83° (i).

53° mercury compounds, such as:

Mercuric chloride (corrosive sublimate), except cinnabar and mercurous chloride (calomel).

Note: With regard to mercurial substances and preparations used as pesticides, see under 81° (f), 82° (f) and 83° (f).

54° Thallium compounds

Note: With regard to substances and preparations containing thallium and used as pesticides, see under 81° (h), 82° (h) and 83° (h).

G. Halogenated organic substances having a harmful or irritant effect.

61° Halogenated organic substances, volatile, inflammable or non-inflammable, having a flash-point of 21° C or over and a boiling point below 200° C, such as:

- (a) ethylene dibromide (symmetrical dibromoethane);
- (b) chloroacetone;
- (c) bromoacetone;
- (d) 1,2 -dibromobutan-3-one;
- (e) methyl chloroacetate;
- (f) ethyl chloroacetate;
- (g) methyl bromoacetate;
- (h) ethyl bromoacetate;
- (i) 1,1-dichloro- 1-nitroethane;
- (k) benzyl chloride;
- (l) 1-chloro- 1-nitropropane.

62° Halogenated organic substances of low volatility having a boiling point of 200° C or over and not covered by 23°, such as:

- (a) benzyl iodide;



(b) acetylene tetrabromide (1, 1, 2, 2-tetrabromoe-thane).

H. Inorganic substances having a harmful effect.

71° Barium compounds, such as barium oxide, barium hydroxide, barium sulphide and other barium salts (except barium sulphate and barium titanate).

Note: Barium chlorate, perchlorate, nitrate, nitrite, dioxide and permanganate are substances of Class 5.1 [see marginal 2501 under 4°(a) and (b), 7°(c), 8° and 9° (b) and (c)].

72° Lead compounds, such as lead oxides, lead salts including lead acetate, lead pigments (e.g. white lead and lead chromate), except lead titanate and lead sulphide (galena).

Note: Lead chlorate, lead perchlorate and lead nitrate are substances of Class 5.1 [see marginal 2501 4° (a) and (b) and 7° (c)].

73° Residues and wastes containing compounds of antimony or of lead or of both, e.g. ashes of lead or of antimony or of lead and antimony: lead sludges containing less than 3 per cent free acid.

Note: Lead sludges containing 3 per cent or more free acid are substances of Class 8 [see marginal 2801, 1° (e)].

74° Vanadium compounds in powder form, such as vanadium pentoxide and the vandates.

Note: Vanadium chlorate and vanadium perchlorate are substances of Class 5.1 [see marginal 2501, 4° (a) and (b)].

75° Antimony compounds, such as antimony oxides and antimony salts, except stibnite.

Note: Antimony chlorate and antimony perchlorate are substances of Class 5.1 [see marginal 2501, 4° (a) and (b)]. Antimony pentachloride, antimony trichloride and antimony pentafluoride are substances of Class 8 [see marginal 2801 11° (a), 12° and 15° (b)].

I. Substances and preparations used as pesticides

81° Substances and preparations presenting a risk of very severe poisoning:

(a) organo-phosphorus compounds, such as: azinphos-ethyl, azinphosmethyl, demeton-O+S, dimefox, endo-thion, HETP, mecarbam, methylparathion, mevinphos, parathion, phosphamidon, sulfotep and TEPP, and preparations containing more than 10 per cent of these substances.

(b) Halogenated organic compounds, such as: aldrin, dieldrin, heptachlor, and preparations containing more than 10 per cent of these substances.

(c) Nitrated organic compounds, such as: 4,6-dinitrope-nol, dinoseb, dinitrophenyl acetate, dinotro-o-cresol, and preparations containing more than 50 per cent of these substances.

(d) Carbamates and derivatives of urea, such as: ANTU, isolan, and preparations containing more than 25 per cent of these substances.

(e) Alkaloids, such as: nicotine, brucine, strychnine, or their salts, and preparations containing more than 10 per cent of these substances.

(f) Organic compounds of metals, such as:

1. organic mercurial compounds, and preparations containing more than 5 per cent of these substances;

2. trialkyl and triaryl compounds of tin, and preparations containing more than 25 per cent of these substances.

(g) Other organic compounds, such as: cumachlor, sodium fluoracetate, fluoracetamide, pindone, warfarin, and preparations containing more than 5 per cent of these substances.

(h) Inorganic compounds of metals, such as: thallium compounds, and preparations containing more than 10 per cent of these substances.

(i) Other inorganic compounds, such as: compounds of arsenic, and preparations containing more than 10 per cent of these substances.

82° Substances and preparations presenting a risk of severe poisoning:

(a) Organo-phosphorus compounds, such as:

1. demeton-O+S-methyl, dioxathion, ethion, fenthion,

phenkapton, thiometon, and preparations containing more than 25 per cent of these substances;

2. preparations of azinphos-ethyl, azinphos-methyl, demeton-O+S, dimefox, endo-thion, HETP, mecarbam, methylparathion, mevinphos, parathion, phosphamidon, sulfotep and TEPP, containing more than 2.5 per cent but not more than 10 per active substance.

(b) Halogenated organic compounds, such as:

1. toxaphene, pentachlorophenol, and preparations containing more than 20 per cent of these substances;

2. gamma-BHC (gammexane), DDT, and preparations containing more than 50 per cent of these substances.

(c) Preparations of nitrated organic compounds, such as:

1. preparations of 4,6-dinitrophenol, dnoseb, dinitro-phenyl acetate and dinitro-o-cresol, containing more than 10 per cent but not more than 50 per cent active substance;

2. preparations of binapacryl, containing more than 50 per cent active substance.

(d) Carbamates and derivatives of urea, such as:

1. dimethan, urbazid, and preparations containing more than 25 per cent of these substances;

2. preparations of ANTU and isolan, containing more than 5 per cent but not more than 25 per cent active substance.

(e) Preparations of alkaloids, such as: preparations of nicotine, brucine, and strychnine, or their salts, containing more than 2.5 per cent but not more than 10 per cent active substance.

(f) Preparations of organic compounds of metals, such as:

1. organic mercurial preparations, containing more than 1 per cent but not more than 5 per cent active substance;

2. preparations of trialkyl and triaryl compounds of tin, containing more than 5 per cent but not more than 25 per cent active substance.

(g) Preparations of other organic compounds, such as:

1. preparations of cumachlor, sodium fluoracetate, pindone and warfarin, containing more than 1 per cent but not more than 5 per cent active substance;

2. preparations of fluoracetamide, containing not more than 5 per cent active substance;

(h) Preparations of inorganic compounds of metals, such as: Preparation of thallium compounds, containing more than 2.5 per cent but not more than 10 per cent active substance.

(i) Preparations of other inorganic compounds, such as: Preparations of compounds of arsenic, containing more than 2.5 per cent but not more than 10 per cent active substance.

83° Harmful substances and preparations:

(a) Organo-phosphorus compounds, such as:

1. diazinon, dimethoate, trichlorfon, malathion, and preparation containing more than 5 per cent of these substances;

2. preparations of demeton-O+S-methyl, dioxathion, ethion, fenthion, phenkapton and thiometon, containing more than 2.5 per cent but not more than 25 per cent active substance;

3. preparations of azinphos-ethyl, azinphos-methyl, demeton-O+S, dimefox, endo-thion, HETP, mecarbam, methylparathion, mevinphos, parathion, phosphamidon, sulfotep and TEPP, containing not more than 2.5 per cent active substance.

(b) Preparations of halogenated organic compounds, such as:

1. preparations of toxaphene and pentachlorophenol, containing more than 5 per cent but not more than 20 per cent active substance;

2. preparations of gamma-BHC (gammexane) and DDT, containing more than 10 per cent but not more than 50 per cent active substance.

3. preparations of aldrin, dieldrin and heptachlor, containing more than 2.5 per cent but not more than 10 per cent active substance.

(c) Preparations of nitrated organic compounds, such as:

1. preparations of binapacryl, containing more than 10 per cent but not more than 50 per cent active substance;

2. preparations of 4,6 -dinitrophenol, dinoseb, dinitrophenyl acetate and dinitro-*o*-cresol, containing more than 2.5 per cent but not more than 10 per cent active substance.

(d) Preparations of carbamates and derivatives of urea, such as:

1. preparations of ANTU and isolan, containing more than 1 per cent but not more than 5 per cent active substance;

2. preparations of dimethan and urbazid, containing more than 2.5 per cent but not more than 25 per cent active substance.

(e) Preparations of alkaloids, such as: preparations of nicotine, brucine and strychnine, or their salts, containing not more than 2.5 per cent active substance.

(f) Preparations of organic compounds of metals, such as:

1. preparations of organic mercurial compounds, containing not more than 1 per cent active substance;

2. preparations of trialkyl and riaryl compounds of tin, containing more than 1 per cent but not more than 5 per cent active substance.

(g) Preparations of other organic compounds, such as:

preparations of cumachlor, sodium fluoracetate, pindone and warfarin, containing not more than 1 per cent active substance.

(h) Preparations of inorganic compounds of metals, such as:

preparations of thallium compounds, containing not more than 2.5 per cent active substance.

(i) Preparations of other inorganic compounds, such as:

preparations of compounds of arsenic, containing not more than 2.5 per cent active substance.

84° (a) cereal grains and seeds impregnated with one or more of the pesticides or other toxic substances of Class 6.1, used as pesticides;

(b) dressed seeds treated with pesticides or with other toxic substances of Class 6.1, but not used as pesticides.

K. Empty packagings:

91° Empty packagings, uncleaned, empty tanks, uncleaned, and empty bags, uncleaned, which have contained substances of 1°-5°, 11°-14°, 21°-23°, 31°-33°, 41°, 51°-54°, 81° and 82°.

92° Empty packagings, uncleaned, empty tanks, uncleaned, and empty bags, uncleaned, which have contained substances of 61°, 62°, 71°-75°, 83° and 84°.

Note: 91° and 92°. Empty packagings with residues from their previous contents adhering to the outside are not to be accepted for carriage.

#### Class 6.1

#### 2. Provisions

#### A. Packages

#### 1. General conditions of packing

(1) Packagings shall be so closed and arranged as to prevent any loss of the contents. For the special provision relating to substances of 41° see marginal 2618.

(2) The materials of which the packagings and their closures are made must not be liable to attack by the contents or form harmful or dangerous compounds therewith.

(3) Packagings, including their closures, must be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. In particular, where substances are in the liquid state or in solution, or have been wetted by a liquid, the receptacles and their closures must, unless the section headed «Packing of a single substance» provides otherwise, be able to withstand any pressure which, the presence of air also being taken into account, may arise inside the receptacles in normal carriage. For this purpose a free space must be left, account being taken of the difference between the temperature of the substances at the time of filling and the highest mean temperature which

they are likely to reach during carriage. Inner packagings shall be firmly secured in outer packagings. Unless otherwise specified in the section entitled «Packing of a single substance», inner packagings may be enclosed in outer packagings, either singly or in groups.

(4) Bottles and other glass receptacles must be free from faults liable to impair their strength; in particular, internal stresses must have been suitably relieved. The thickness of the walls must be not less than 3 mm in the case of receptacles which, with their contents, weigh more than 35 kg, and not less than 2 mm in the case of other receptacles.

The tightness of the closure system must be ensured by an additional device (cap, crown, seal, binding, etc.) capable of preventing any loosening of the closure system during carriage, unless the said closure comprises two plugs, one placed over other, one of them being screw-threaded.

(5) When receptacles made of glass, porcelain, stoneware or similar materials are prescribed or allowed, they must be secured by cushioning materials in protective packagings. Cushioning materials shall be suited to the nature of the contents; in particular, they shall be absorbent when the contents are liquid.

(6) When handed over for carriage, packages must not be contaminated on the outside by toxic substances.

#### 2. Packing of a single substance

(1) Hydrocyanic acid and inflammable volatile substances having a similar toxic effect [1° (a)] shall be packed:

(a) when completely absorbed by an inert porous material: in strong sheet-steel boxed, with a capacity of not more than 7.5 litres, entirely filled with the porous material, which must be of such a nature that it does not shake down or form dangerous spaces, even after prolonged use or under impact, at temperatures up to 50°C. The boxes must be able to withstand a pressure of 6 kg/cm<sup>2</sup> and must, when filled at 15°C, still be leak-proof at 50°C. The date of filling shall be stamped on the lid of each box. The boxes shall be placed in packing cases with sides not less than 18 mm thick in such a manner that they cannot come into contact with one another. The total capacity of the boxes in one packing case must not exceed 120 litres and the package must not weigh more than 120 kg;

(b) When liquid but not absorbed by a porous material: in carbon-steel receptacles. These shall conform to the spirit of the provisions relating to such receptacles in Class 2, marginals 2211, 2212(1), 2213, 2215 and 2218, with the following derogations and special requirements:

The internal pressure to be applied for the hydraulic pressure test must be 100 kg/cm<sup>2</sup>.

The pressure test shall be repeated every two years, when a meticulous inspection of the inside of the receptacle shall also be carried out and the receptacle's weight determined.

In addition to the marks prescribed in marginal 2218(1) (a)-(c) and (e)-(g), the receptacles must bear the date (month, year) of the most recent filling.

The maximum filling allowed for the receptacles is 0.55 kg liquid per litre of capacity.

(c) With regard to the particulars in the transport document, see marginal 2634(2).

(2) Aqueous solutions of hydrocyanic acid [1o (b)] shall be packed in flame-sealed glass ampoules containing not more than 50 g, or in glass-stoppered glass bottles so closed as to be leak-proof and containing not more than 250 g. The ampoules and bottles shall be secured by absorbent cushioning materials in soft-soldered tin-plate boxes or in protective cases with a soft-soldered tin-plate lining. A package comprising a tin-plate box must not weigh more than 15 kg or contain more than 3 kg hydrocyanic acid solution; a package comprising a case must not weigh more than 75 kg.

(1) Substances of 2o shall be packed:

(a) 1. in sheet-steel canisters with walls not less than 1mm thick and a capacity not exceeding 60 litres, the

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openings being closed two plugs, one placed over the other, one of them being screwthreaded. The sheet-steel canisters must have welded lengthwise seams, two reinforcing ribs in the walls, and a protective rim below the joint recessed at the bottom. Canisters with a capacity of 40 to 60 litres must have their bottoms welded on and be fitted with means of handling on the side; or

2. in all-welded steel drums with walls not less than 1.25 mm thick fitted with rolling hoops and reinforcing ribs and having the openings closed by two plugs, one placed over the other, one of them being screwthreaded;

(b) acrylonitrile may also be packed:

1. in aluminium bottles of a capacity not exceeding 2 litres, secured by infusorial-earth cushioning in sheet-metal receptacle whose lids shall be firmly stuck down by means of suitable adhesive strips. The sheet-metal receptacles shall be placed, with filling material, in wooden cases. A package must not weigh more than 75 kg; or

2. in non-returnable metal drums (new packagings intended to be use only once); these drums, whose walls shall not be less than 1.2 mm thick, shall be provided with a screw-threaded plug fitted with a gasket. The plug shall be situated on one of the ends be protected by the rim of the drum. The drums may have a body with ends recessed, the joints being strengthened by chimb reinforcements; if they do not possess rolling hoops they must be provided with reinforcing ribs. A package must not weigh more than 200 kg. Carriage in non-returnable drums shall take place only as a full load on open vehicles; or

3. in non-returnable steel drums (new packagings intended to be use only once) having sides made of sheet steel 1.24 mm thick, end made of sheet steel 1.5 mm thick, and a tare weight of 22.5 kg; the drums must be provided with reinforcing ribs. The body sea shall be welded and the ends shall be double-seamed by welting the body, with a polyethylene liner inserted. Two screw-plug closure units, one of 50.8 mm (2 ??) and one of 19.05 mm (3/4 ??) shall be double-seamed by welting to one of the ends, with a synthetic-rubber liner inserted. Thin sheet-steel caps shall placed over the closure units;

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(c) acetonitrile may also be packed in receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, of capacity not exceeding 1 litre, with the openings closed by two plugs, one placed over the other, one of them being screw - threaded. These receptacles shall be secured by absorbent cushioning materials in a wooden case or some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling.

(2) Receptacles containing acrylonitrile or acetonitrile must not be filled beyond 95 per cent, and receptacles containing isobutyronitrile not beyond 92 per cent, of their capacity.

(1) Substances of 3o shall be packed in receptacles made of sheet - steel of sufficient thickness, which shall be closed by a screw - threaded bung or plug rendered leak - proof both to liquid and to vapour by means of a suitable gasket. The receptacles must be capable of withstanding an internal pressure of 3 kg/cm<sup>2</sup>. Each receptacle shall be secured by absorbent cushioning materials in a strong and leak - proof protective metal packaging. The protective packaging shall be hermetically closed and its closure shall be secured against any inadvertent opening. The degree of filling shall not exceed 0.67 kg per litre of capacity of the receptacle.

(2) A package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling.

Substances of 4° shall be packed:

(a) in receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, of a capacity not exceeding 5 litres, with the openings closed by two plugs, one placed over the other, one of them being

screw - threaded. These receptacles shall be secured by absorbent cushioning materials in a wooden case or some other outer packaging of sufficient strength. The receptacles shall not be filled beyond 93 per cent of their capacity. Such a package must not weigh more than 75 kg. Package weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

(b) in flame - sealed glass ampoules containing not more than 100 g, which shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The ampoules must not be filled beyond 93 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

(c) in metal receptacles having, if necessary, a suitable lining, the receptacles having a capacity not exceeding 15 litres and having the openings closed by two plugs, one placed over the other, one of the being screw - threaded. These receptacles shall be secured by absorb cushioning materials in a wooden case or some other outer packaging sufficient strength. The receptacles must not be filled beyond 93 per cent of their capacity. Such a package must not weigh more than 100 kg; or

(d) in welded metal drums having, if necessary, a suitable lining, the drums having the openings closed by two plugs, one placed over the other, one of them being screw - threaded. The drums must not be filled beyond 93 per cent of their capacity. If, with their contents, they weigh more than 275 kg, they shall be equipped with rolling hoops;

(e) in receptacles made of strong black sheet - iron or tin - plate and hermetically closed. A tin - plate receptacle must not, with its contents, weigh more than 6 kg. These receptacles shall be secured by absorbent cushioning materials, either singly or in groups, in a wooden packing case. Such a package must not weigh more than 75 kg.

(1) Substances of 5o shall be packed in metal receptacles. The receptacles must be fitted with completely leak - proof closing devices, which shall be secured against mechanical damage by protective caps. Steel receptacles must have walls not less than 3 mm thick and receptacles made of other materials must have walls at least thick enough to ensure equivalent mechanical strength. A package must not contain more than 25 kg of liquid. The maximum filling allowed shall be 1 kg of liquid per litre of capacity.

(2) Receptacles shall be tested before being put into service for the first time. The test pressure to be applied for the hydraulic pressure test shall be not less than 10 kg/cm<sup>2</sup>. The pressure test shall be repeated every five years and shall include a meticulous inspection of the inside of the receptacle and a check of the tare weight. Metal receptacles shall bear the following particulars in clearly legible and indelible characters:

(a) the name of the product in full (the names of both substances may also be shown side by side);

(b) the name of the owner of the receptacle;

(c) the tare of the receptacle, including such fittings and accessories valves, protective caps, etc.;

(d) the date (month, year) of the acceptance test and the subsequent tests, and the expert's stamp;

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(e) the maximum permissible filling per receptacle in kg;  
(f) the internal pressure (test pressure) to be applied for the hydraulic pressure test.

(1) Substances of 11° (a) shall be packed:

(a) in sheet - steel canisters with walls not less than 1 mm thick and a capacity not exceeding 60 litres, the openings being closed by two plugs, one placed over the other, one of them being screw - threaded. The sheet - steel canister must have welded lengthwise seams, two reinforcing ribs in the walls, and a protective rim below the joint recessed at the bottom. Canisters with a capacity of 40 to 60 litres must have their bottoms welded on and be fitted with means of handling on the side; or

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(b) in all - welded steel drums, with walls not less than 1.25 mm thick, fitted with rolling hoops and reinforcing ribs and having the openings closed by two plugs, one placed over the other, one of them being screw - threaded.

(2) Substances of 11° (b) shall be packed:

(a) in hermetically - closed receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, of a capacity not exceeding 5 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

(b) in metal receptacles having, if necessary, a suitable lining, the receptacles having a capacity not exceeding 15 litres and having the openings closed by two plugs, one placed over the other, one of them being screw - threaded. These receptacles shall be secured by absorbent cushioning materials in a wooden case or some other outer packaging of sufficient strength. The receptacles must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg; or

(c) in hermetically - closed metal drums having, if necessary, a suitable lining. The drums must not be filled beyond 95 per cent of their capacity. If they weigh, with their contents, more than 275 kg they shall be fitted with rolling hoops; or

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(d) in hermetically - closed wooden casks of sufficient strength, with a suitable lining. Such a package must not weigh more than 250 kg.

(1) Substances of 12° (a) and (b) shall be packed:

(a) not more than 5 litres per bottle, in glass bottles placed separately with absorbent materials, in a strong tin - plate receptacle; in the case of 1 - chloro - 2, 3 - epoxypropane, black sheet - iron may be used instead of tin - plate. The receptacles shall be secured by absorbent cushioning materials in a wooden packing case. A package must not weigh more than 75 kg; or

(b) not more than 5 litres per receptacle, in receptacles, made of stout tin - plate, with leak - proof closures; in the case of 1 - chloro - 2, 3 - epoxypropane black sheet - iron may be used instead of tin - plate. The receptacles shall be secured by absorbent cushioning materials or wood - wool cushioning in a wooden packing case. A package must not weigh more than 75 kg; or

(c) in welded steel drums with the openings closed by two plugs, one placed over the other, one of them being screw - threaded, the drums being fitted with rolling hoops. In the case of glycol chlorohydrin (2 - chloroethanol) it is also permissible to use welded canisters with the openings closed by two plugs, one placed over the other, one of them being screw - threaded, the canisters being fitted with means of handling, being of sheet steel 1 mm thick galvanized on both sides, and having a capacity not exceeding 60 litres;

(d) the receptacles must not be filled beyond 93 per cent of their capacity.

(2) Substances of 12° (c) shall be packed:

(a) in hermetically - closed receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, of a capacity not exceeding 5 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

(b) in flame - sealed glass ampoules containing not more than 100 g, which shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The ampoule must

not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

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(c) in hermetically - closed canisters made of a suitable metal, welded or hard - soldered, having a capacity not exceeding 60 litres, and fitted with means of handling. The canisters must not be filled beyond 95 per cent of their capacity; or

(d) in hermetically - closed metal drums having, if necessary, a suitable inner lining. The drums must not be filled beyond 95 per cent of their capacity. If they weigh, with their contents, more than 275 kg, they shall be fitted with rolling hoops.

(3) Substances of 12° (d) and (e) shall be packed:

(a) in hermetically - closed receptacles made of glass, porcelain, stone - ware or similar materials, or of a suitable plastics material, of a capacity not exceeding 5 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other packaging of sufficient strength. The receptacles must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

(b) in flame sealed glass ampoules containing not more than 100 g, which shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The ampoules must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

(c) in hermetically - closed metal receptacles having, if necessary, a suitable lining, and having a capacity not exceeding 15 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg; or (d) in hermetically - closed metal drums having, if necessary, a suitable lining. The drums must not be filled beyond 95 per cent of their capacity. If they weigh, with their contents, more than 275 kg, they shall be fitted with rolling hoops.

(4) Substances of 12° (e) may also be packed in hermetically - closed canisters made of a suitable metal, welded or hard - soldered, having a capacity not exceeding 60 litres, and fitted with means of handling. The canisters must not be filled beyond 95 per cent of their capacity.

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(5) Substances of 12° (f) shall be packed:

(a) in hermetically - closed metal receptacles having, if necessary, a suitable lining, and having a capacity not exceeding 15 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles must not be filled beyond 93 per cent of their capacity. Such a package must not weigh more than 100 kg; or

(b) in hermetically - closed canisters made of a suitable metal, welded or hard - soldered, having a capacity not exceeding 60 litres, and fitted with means of handling. The canisters must not be filled beyond 93 per cent of their capacity; or

(c) in hermetically - closed metal drums having, if necessary, a suitable lining. The drums must not be filled beyond 93 per cent of their capacity. If they weigh, with their contents, more than 275 kg, they shall be fitted with rolling hoops.

(1) Substances of 13° (a) and (b) shall be packed:

(a) in flame - sealed glass ampoules or in hermetically - closed glass bottles for this purpose a stopper made of cork coated with paraffin wax, or ground - glass stopper,

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may be used. The ampoules and bootles must not be filled beyond 93 per cent of their capacity and must not weigh, with their contents, more than 3 kg. They shall be wrapped in corrugated fibreboard and secured by a sufficient quantity of inert and absorbent cushioning materials (infusorial earth or similar materials) in soft - soldered tin - plate boxes or in wooden cases lined with a tin - plate lining assembled by soft soldering. A package comprising a tin - plate box must not weigh more than 15 kg and a package comprising a wooden case not more than 75 kg; or

(b) in soldered or seamless sheet metal receptacles or in receptacles made of a suitable plastics material. These receptacles shall be hermetically - closed; they must not be filled beyond 93 per cent of their capacity and must not weigh, with their contents, more than 50 kg; if they are made of thin sheet - metal, e.g. tin - plate, they must not weigh, with their contents, more than 6 kg. The sheet - metal or plastics receptacles shall be secured by a sufficient quantity of inert and absorbent cushioning materials ((e.g. infusorial earth or similar materials) in protective receptacles fitted with means of handling. Such a package must not weigh more than 100 kg; or

(c) in hermetically - closed welded or seamless metal drums fitted with bands and rolling hoops and not filled beyond 93 per cent of their capacity.

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(2) Substances of 13° (c) shall be packed:

(a) in hermetically - closed receptacles made of glass, porcelain, stone - ware or similar materials, or of a suitable plastics material, which must not contain more than 5 kg each. Receptacles made of plastics material may, if forwarded as a full load, contain up to 10 kg of substance. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

(b) in hermetically - closed metal receptacles having, if necessary, a suitable lining and which must not contain more than 15 kg each. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 100 kg; or

(c) in hermetically - closed metal drums having, if necessary, a suitable lining. If the drums, with their contents, weigh more than 275 kg, they shall be fitted with rolling hoops; or

(d) in hermetically - closed wooden casks of sufficient strength, with a suitable lining. Such a package must not weigh more than 250 kg; or

(e) in bags made of a suitable plastics material, so closed as to be leak - proof, and placed in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg.

Substances of 14° shall be packed:

(a) in welded steel drums with openings closed by two plugs, one placed over the other, one of them being screw - threaded, the drums being fitted with rolling hoops. The drums must not be filled beyond 95 per cent of their capacity; or

(b) in receptacles made of strong black sheet - iron or of tin - plate and hermetically closed. A tin - plate receptacle must not, with its content, weigh more than 6 kg. These receptacles shall be secured by absorbent cushioning materials in a wooden packing case. Such a package must not weigh more than 75 kg.

(1) Substances of 21° (a), (b), (c) and (d), and liquids of 21° (e) and (f), shall be packed:

#### Class 6.1

(a) in hermetically - closed receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, of a capacity not exceeding 5 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles must not be filled beyond 95 per cent of their capacity. Such a

package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

(b) in flame - sealed glass ampoules containing not more than 100 g, which shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The ampoules must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling, or

(c) in hermetically - closed metal receptacles having, if necessary, a suitable lining, and having a capacity not exceeding 15 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg; or

(d) in hermetically - closed metal drums having, if necessary, a suitable lining. The drums must not be filled beyond 95 per cent of their capacity. If they weigh, with their contents, more than 275 kg, they shall be fitted with rolling hoops.

(2) Substances of 21° (b), (c) and liquids of 21° (e) and (f) may also be packed in hermetically - closed canisters made of a suitable metal, welded or hard - soldered, having a capacity not exceeding 60 litres, and fitted with means of handling. The canisters must not be filled beyond 95 per cent of their capacity.

(3) Substances of 21° (e) and (f) in the solid state, and substances of 21° (g), (h), (i) and (k), shall be packed:

(a) in hermetically - closed receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, which must not contain more than 5 kg each. Receptacles made of plastics material may, if forwarded as a full load, contain up to 10 kg of substance. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

(b) in hermetically - closed metal receptacles having, if necessary, a suitable lining and which must not contain more than 15 kg each. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 100 kg; or

(c) in hermetically - closed metal drums having, if necessary, a suitable lining. If the drums weigh, with their contents, more than 275 kg, they shall be fitted with rolling hoops.

(4) Substances of 21° (e) and (f) in the solid state, and substances of 21° (g) and (h), may also be packed:

(a) in bags made of a suitable plastics material, so closed as to be leakproof, and placed in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

(b) in hermetically - closed wooden casks of sufficient strength, with a suitable lining. Such a package must not weigh more than 250 kg.

(5) Substances of 21° (g) may also be packed in hermetically - closed receptacles, made of a suitable plastics material, of a capacity not exceeding 60 litres. These receptacles shall be placed singly and tightly in a protective packaging with complete sides, made of paperboard or of some other material of sufficient strength.

(6) Substances of 21° (l), (m), (n), (o) and (p) shall be packed:

(a) in hermetically - closed receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, of a capacity not exceeding 5 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 3, kg, other than those forwarded as a full

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load, shall be fitted with means of handling; or

(b) in flame - sealed glass ampoules containing not more than 100 g, which shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The ampoules must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

(c) in hermetically - closed metal receptacles having, if necessary, a suitable lining, and having a capacity not exceeding 15 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg; or

(d) in hermetically - closed canisters made of a suitable metal, welded or hard - soldered, having a capacity not exceeding 60 litres, and fitted with means of handling. The canisters must not be filled beyond 95 per cent of their capacity; or

(e) in hermetically - closed metal drums having, if necessary, a suitable lining. The drums must not be filled beyond 95 per cent of their capacity. If they weigh, with their contents, more than 275 kg, they shall be fitted with rolling hoops.

(7) 4 - nitrotoluene [21° (1)] may also be packed:

(a) in bags made of a suitable plastics material, so closed as to be leak - proof, and placed in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

(b) in hermetically - closed wooden casks of sufficient strength, with a suitable lining. Such a package must not weigh more than 250 kg; or

(c) in bags made of stout paper of four plies, lined with a bag made of a suitable plastics material, so closed as to be leak - proof. Such a package must not weigh more than 55 kg.

(8) Substances of 21° (o) in flakes may also be packed in bags made of stout paper of four plies, lined with a bag made of a suitable plastics material and so closed as to be leak - proof. Such a package must not weigh more than 55 kg.

Substances of 22° shall be packed:

(a) in hermetically - closed receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, which must not contain more than 5 kg each. Receptacles made of plastics material may, if forwarded as a full load, contain up to 10 kg of substance. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

(b) in hermetically-closed metal receptacles having, if necessary, a suitable lining and which must not contain more than 15 kg each. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 100 kg or

(c) in hermetically-closed metal drums having, if necessary, a suitable lining. If the drums, with their contents, weigh more than 275 kg, they shall be fitted with rolling hoops; or

(d) in hermetically-closed receptacles, made of a suitable plastics material, of a capacity not exceeding 60 litres. These receptacles shall be placed singly and tightly in a protective packaging with complete sides, made of paperboard or of some other material of sufficient strength; or

(e) in bags made of a suitable material, so closed as to be leak-proof, and placed in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

(f) in hermetically-closed wooden casks of sufficient

strength, with a suitable lining. Such a package must not weigh more than 250 kg.

(1) liquids of 23° shall be packed:

(a) in hermetically-closed receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, of a capacity not exceeding 5 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

(b) in flame-sealed glass ampoules containing not more than 100 g, which shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The ampoules must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

(c) in hermetically-closed metal receptacles having, if necessary, a suitable lining, and having a capacity not exceeding 15 litres. These receptacles shall be secured by absorbent cushioning material in a wooden case or in some other outer packaging of sufficient strength. The receptacles must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg; or

(d) in hermetically-closed metal drums having, if necessary, a suitable lining. The drums must not be filled beyond 95 per cent of their capacity. If they weigh, with their contents, more than 275 kg, they shall be fitted with rolling hoops.

(2) Solids of 23° shall be packed in the same way as substances of 22°.

(1) Substances of 31° (a) and solid preparations of 31° (c) shall be packed:

(a) in hermetically-closed receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, which must not contain more than 5 kg each. Receptacles made of plastics material may, if forwarded as a full load, contain up to 10 kg of substance. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

(b) in hermetically-closed metal receptacles having, if necessary, a suitable lining and which must not contain more than 15 kg each. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 100 kg; or

(c) in hermetically-closed metal drums having, if necessary, a suitable lining. If the drums, with their contents, weigh more than 275 kg, they shall be fitted with rolling hoops; or

(d) in hermetically-closed receptacles, made of a suitable plastics material of a capacity not exceeding 60 litres. These receptacles shall be placed singly and tightly in a protective packaging with complete sides, made of paperboard or of some other material of sufficient strength; or

(e) in hermetically-closed wooden casks of sufficient strength, with suitable lining. Such a package must not weigh more than 250 kg.

(2) Substances of 31° (b) and liquid preparations of 31° (c) shall be packed:

(a) in hermetically-closed receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, of a capacity not exceeding 5 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full

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load, shall be fitted with means of handling; or

(b) in flame-sealed glass ampoules containing not more than 100 g, which shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The ampoules must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

(c) in hermetically-closed metal receptacles having, if necessary, a suitable lining, and having a capacity not exceeding 15 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg; or

(d) in hermetically-closed canisters made of a suitable metal, welded or hard-soldered, having a capacity not exceeding 60 litres, and fitted with means of handling. The canisters must not be filled beyond 95 per cent of their capacity; or

(e) in hermetically-closed metal drums having, if necessary, a suitable lining. The drums must not be filled beyond 95 per cent of their capacity. If the drums, with their contents, weigh more than 275 kg, they shall be fitted with rolling hoops.

(1) Sodium azide [32°(a)] shall be packed in receptacles made of black sheet-iron or tin-plate.

(2) Substance of 32°(b) shall be packed in receptacles made of glass or of a suitable plastics material. A receptacle must not contain more than 10 kg of barium azide nor more than 20 litres of barium azide solution. The receptacles shall be secured separately, by absorbent cushioning materials, in case or in iron hampers with complete sides; the volume of the cushioning material must be at least equal to that of the content of the receptacle. Where hampers are used, the cushioning materials, if readily inflammable, shall be fireproofed sufficiently to prevent ignition on contact with a flame.

Zinc phosphide (33°) shall be packed in metal receptacles secured in wooden cases. A package must not weigh more than 75 kg.

Substances of 41° shall be enclosed in wooden or metal packaging which may be fitted with a device allowing gases to escape. Finely granulated substances may also be packed in bags.

Substances of 51° shall be packed:

(a) in hermetically-closed receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, which must not contain more than 5 kg each. Receptacles made of plastics material may, if forwarded as a full load, contain up to 10 kg of substance. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

(b) in hermetically-closed metal receptacles having, if necessary, a suitable lining, and which must not contain more than 15 kg each. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 100 kg; or

(c) in hermetically-closed metal drums having, if necessary, a suitable lining. If the drums, with their contents, weigh more than 275 kg, they shall be fitted with rolling hoops; or

(d) in hermetically-closed receptacles, made of a suitable plastics material, of a capacity not exceeding 60 litres. These receptacles shall be placed singly and tightly in a protective packaging with complete sides, made of paperboard or of some other material of sufficient strength; or

(e) in bags made of a suitable plastics material, so closed as to be leak-proof, which shall be placed in a wooden case or in some other outer packaging of sufficient

strength. Such a package must not weigh more than 75 kg; or

(f) in hermetically-closed wooden casks of sufficient strength, with a suitable lining. Such a package must not weigh more than 250 kg.

(1) Substances of 52° shall be packed:

(a) in hermetically-closed receptacles made of glass, porcelain, stoneware, or similar materials, or of a suitable plastics material, which must not contain more than 5 kg each; receptacles made plastics material may, if forwarded as a full load, contain up to 10 kg of substance. The receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

(b) in hermetically-closed metal receptacles having, if necessary, a suitable lining and which must not contain more than 15 kg each. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 100 kg; or

(c) in hermetically-closed metal drums having, if necessary, a suitable lining. If the drums, with their contents, weigh more than 275 kg, they shall be fitted with rolling hoops; or

(d) in hermetically-closed receptacles, made of a suitable plastics material, of a capacity not exceeding 60 litres. These receptacles shall be placed singly and tightly in a protective packaging with complete sides, made of paperboard or of some other material of sufficient strength; or

(e) in bags made of a suitable plastics material, so closed as to be leak-proof, which shall be placed in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

(f) in receptacles made of wood or paperboard, lined with a vapour-tight plastics material and hermetically closed. Such a package must not weigh more than 75 kg; or

(g) in hermetically-closed metal receptacles. Such a package must not weigh more than 75 kg.

(2) When forwarded as a full load, the substances may also be packed:

(a) in hermetically-closed wooden casks of sufficient strength, with a suitable lining. Such a package must not weigh more than 250 kg; or

(b) in bags made of stout paper of four plies, lined with a bag made of a suitable plastics material, so closed as to be leak-proof. Such a package must not weigh more than 55 kg.

(1) Solids of 53° shall be packed:

(a) not more than 10 kg per bag, in bags made of paper of two plies; or

(b) in bags made of a suitable plastics material; or

(c) in receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material; or

(d) in steel receptacles or in strong wooden casks or in wooden cases fitted with strengthening bands.

Re (a), (b) and (c): The receptacles and bags shall be secured by cushioning materials in wooden outer packagings.

(2) Liquids or substances in solution of 53° shall be packed:

(a) in receptacles made of glass, porcelain, stoneware or similar materials. These receptacles shall be secured by cushioning materials in protective packagings which, if not cases, shall be fitted with means of handling; or

(b) in metal receptacles.

(3) A package containing fragile receptacles or bags made of a plastics material must not weigh more than 75 kg.

Thallium compounds (54°) shall be packed:

(a) in hermetically-closed receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material which must not contain more than 5 kg each. Receptacles made of plastics material may, if forward-

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ded as a full load, contain up to 10 kg of substance. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

(b) in tin-plate receptacles; or

(c) in wooden cases fitted with strengthening bands; or

(d) in wooden cases fitted with iron hoops or strong wooden hoops.

(1) Substances of 61° and 62°, other than those of 61°(1), shall be packed:

(a) in hermetically-closed receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, of a capacity not exceeding five litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

(b) in flame-sealed glass ampoules containing not more than 100 g, which shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The ampoules must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

(c) in hermetically-closed metal receptacles having, if necessary, a suitable lining, and having a capacity not exceeding 15 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg; or

(d) in hermetically-closed canisters made of a suitable metal, welded or hard-soldered, having a capacity not exceeding 60 litres, and fitted with means of handling. The canisters must not be filled beyond 95 per cent of their capacity; or

(e) in hermetically-closed metal drums having, if necessary, a suitable lining. The drums must not be filled beyond 95 per cent of their capacity. If the drums, with their contents, weigh more than 275 kg, they shall be fitted with rolling hoops; or

(f) in hermetically-closed receptacles, made of a suitable plastics material, of a capacity not exceeding 60 litres. These receptacles shall be placed singly and tightly in a protective packaging with complete sides, made of paper-board or of some other material of sufficient strength. The receptacles must not be filled beyond 95 per cent of their capacity.

(2) Substances of 61° (1) shall be packed:

(a) in all-welded steel drums with walls not less than 1.25 mm thick, fitted with rolling hoops and reinforcing ribs and having the openings closed by two plugs, one placed over the other, one of them being screw-threaded; or

(b) in sheet-steel canisters with walls not less than 1 mm thick and a capacity not exceeding 60 litres, the openings being closed by two plugs, one placed over the other, one of them being screw-threaded. The sheet-steel canisters must have welded lengthwise seams, two reinforcing ribs in the walls, and a protective rim below the joint recessed at the bottom. Canisters with a capacity of 40 to 60 litres must have their bottoms welded on and be fitted with means of handling on the side; or

(c) in aluminium bottles of a capacity not exceeding 2 litres, secured by infusorial-earth cushioning in sheet-metal receptacles whose lids shall be firmly stuck down by means of suitable adhesive strips. The sheet-metal receptacles shall be placed, with filling materials, in wooden cases. A package must not weigh more than 75 kg; or

(d) in non-returnable metal drums (new packagings

intended to be used only once); these drums, whose walls shall be not less than 1.2 mm thick, shall be provided with a screw-threaded plug fitted with a gasket. The plug shall be situated in one of the ends of the drum and be protected by the rim. The drums may have a body with ends recessed, the joints being strengthened by climb reinforcements; if they do not possess rolling hoops they must be provided with reinforcing ribs. A package must not weigh more than 200 kg. Carriage in non-returnable drums shall take place only as a full load on open vehicles; or

(e) in non-returnable steel drums (new packagings intended to be used only once) having sides made of sheet steel 1.24 mm thick, ends made of sheet steel 1.5 mm thick, and a tare weight of 22.5 kg; the drums must be provided with reinforcing ribs. The body seam shall be welded and the ends shall be double-seamed by welting to the body, with a polyethylene liner inserted. Two screw-plug closure units, one of 50.8 mm (2) and one of 19.05 mm (3/4), shall be double-seamed by welting to one of the ends, with a synthetic-rubber liner inserted. Thin-sheet-steel caps shall be placed over the closure units.

(3) The receptacles referred to under (2)(2) to (e) must not be filled beyond 93 per cent of their capacity.

Substances of 71° shall be packed:

(a) in iron or wooden packagings; or

(b) in bags made of stout paper of at least two plies, or made of jute, lined with a bag made of a suitable plastics material, so closed as to be leak-proof.

(1) Substances of 72° and 73° shall be packed:

(a) in hermetically-closed receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, which must not contain more than 5 kg each. Receptacles made of plastics material may, if forwarded as a full load, contain up to 10 kg of substance. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

(b) in steel or wooden packagings; or

(c) in bags made of stout paper of at least 2 plies. However, bags for lead acetate must be made:

1. of hemp lined with a suitable plastics material or with stout crepe paper stuck on with bitumen; such a bag, with its contents, must not weigh more than 30 kg; or

2. of stout paper of at least two plies, lined with a bag made of suitable plastics material; such a bag, with its contents, must not weigh more than 30 kg; or

3. of stout paper of at least five plies, lined with a bag made of suitable plastics material; such a bag, with its contents, must not weigh more than 55 kg; or

4. of stout paper of at least three plies, placed in jute bags; such a bag, with its contents, must not weigh more than 55 kg; or

(d) in bags made of suitable plastics material, so closed as to be leak-proof, which shall be placed in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg.

(2) Substances of 72° may also be packed in receptacles made of tin-plate or of sheet-steel.

Substances of 74° and 75° shall be packed:

(a) in hermetically-closed receptacles made of glass, porcelain stoneware or similar materials, or of a suitable plastics material, which must not contain more than 5 kg each. Receptacles made of plastics material may, if forwarded as a full load, contain up to 10 kg of substance. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

(b) in steel or wooden packagings; or

(c) in bags made of stout paper of at least 2 plies, or in jute bags; or

(d) in receptacles made of tin-plate or sheet-steel.

Pesticides of 81° shall be packed:

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(a) in solid or paste form:

1. in hermetically-closed receptacles made of glass, porcelain stoneware or similar materials, or of a suitable plastics material, which must not contain more than 5 kg each. Receptacles made of plastics material may, if forwarded as a full load, contain up to 10 kg of substance. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

2. in hermetically-closed metal receptacles having, if necessary, a suitable lining and which must not contain more than 15 kg each. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 100 kg; or

#### Class 6.1

3. in hermetically - closed metal drums having, if necessary, a suitable lining. If the drums, with their contents, weigh more than 275 kg, they shall be fitted with rolling hoops;

4. in hermetically - closed receptacles, made of a suitable plastics material, of a capacity not exceeding 60 litres. These receptacles shall be placed singly and tightly in a protective packaging with complete sides, made of paperboard or of some other material of sufficient strength; or

5. in bags made of a suitable plastics material, so closed as to be leak-proof, which shall be placed in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

6. in receptacles made of wood or paperboard, lined with a vapour-tight plastics material and hermetically closed. Such a package must not weigh more than 75 kg; or

7. in hermetically-closed metal receptacles. Such a package must not weigh more than 75 kg;

8. arsenical compounds forwarded as a full load may also be packed in hermetically-closed wooden casks of sufficient strength, with a suitable lining. Such a package must not weigh more than 250 kg;

9. preparations may also be enclosed in packagings ready for use, which shall be firmly packed in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg;

(b) in liquid form:

1. in receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, of a capacity not exceeding 5 litres, with the opening closed by two plugs, one placed over the other, one of them being screw-threaded. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles must not be filled beyond 93 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

2. in flame-sealed glass ampoules containing not more than 50 g, which shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The ampoules must not be filled beyond 93 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

3. in metal receptacles having, if necessary, a suitable lining, the receptacles having a capacity not exceeding 15 litres and having the openings closed by two plugs, one placed over the other, one of them being screw-threaded. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles must not be filled beyond 93 per cent of their capacity. Such a package must not weigh more than 100 kg; or

4. in canisters made of a suitable metal, welded or hard-soldered, with walls not less than 0.5 mm thick and a capacity not exceeding 60 litres, the openings being closed by two plugs, one placed over the other, one of them being screw-threaded, the canisters being fitted with means of handling. The canisters must not be filled beyond 93 per cent of their capacity; or

5. in hermetically-closed metal drums having, if necessary, a suitable lining. If the drums, with their contents, weigh more than 275 kg, they shall be fitted with rolling hoops. The drums must not be filled beyond 93 per cent of their capacity; or

6. in receptacles made of a suitable plastics material, of a capacity not exceeding 60 litres, the openings being closed by two plugs, one placed over the other, one of them being screw-threaded. These receptacles shall be placed singly and tightly in a protective packaging with complete sides, made of paperboard or of some other material of sufficient strength. The receptacles must not be filled beyond 93 per cent of their capacity.

Pesticides of 82o shall be packed:

(a) in solid form:

1. in the same way as solids of 81o;

2. when forwarded as a full load, also in bags made of stout paper of four plies, lined with a bag made of a suitable plastics material, so closed as to be leak-proof. Such a package must not weigh more than 55 kg;

(b) in liquid form:

in the same way as liquids of 81o.

Pesticides of 83o shall be packed:

(a) in solid form:

1. in the same way as solids of 81o; or

2. in jute bags rendered impermeable to moisture by a lining made of a suitable material, stuck on with bitumen, or in jute bags lined with a bag made of a suitable plastics material, so closed as to be leak-proof. Such a package must not weigh more than 55 kg; or

3. in the case of preparations, and of other pesticides if they are forwarded as a full load, in bags made of stout paper of four plies, lined with a bag made of a suitable plastics material and hermetically closed. Such a package must not weigh more than 55 kg; or

4. in the case of solid arsenical compounds:

i. in double-walled wooden casks lined with stout paper; or

ii. in fibreboard boxes placed in a wooden case; or

iii. not more than 12.5 kg per bag, in double bags, made of stout paper or of a suitable plastics material, which shall be placed either in a wooden case lined with stout paper or tightly in a stout case made of double-faced corrugated fibreboard or of solid fibreboard of equivalent strength, the case being lined with stout paper. All joints and flaps shall be covered over with adhesive strips. A package comprising a fibreboard case must not weigh more than 30 kg.

5. in the case of arsenical compounds forwarded as a complete load:

i. in ordinary wooden packagings lined with stout paper; or

ii. not more than 25 kg per bag, in two-ply paper bags, or in bags made of a suitable plastics material, which shall be placed separately in bags made of jute or of a similar material lined with crepe paper; or

iii. in bags made of paper of at least three plies or in two-ply paper bags lined a bag made of a suitable plastics material. Such a package must not weigh more than 20 kg; or

iv. in two-ply paper bags or in bags made of a suitable plastic material, which shall be placed in four-ply paper bags. Such a package must not weigh more than 60 kg.

In cases as referred to under iii. and iv. above, each consignment must be accompanied by empty bags in the proportion of 1 for every 20 bags containing arsenical substances, these empty bags being intended to accommodate such quantity of substances as may escape from bags damaged during carriage.

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(b) in liquid form:

1. in the same way as liquids of 81<sup>o</sup>; or
2. in the case of preparations:

i. in hermetically-closed cylindrical receptacles made of glass, porcelain, stoneware or similar materials, of a capacity not exceeding 25 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg; or

ii. in hermetically-closed glass carboys, of a capacity not exceeding 25 litres, which shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength, or which shall be well secured in iron or wicker hampers. The carboys must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg; or

iii. in receptacles, made of a suitable plastics material, with walls not less than 4 mm thick and a capacity not exceeding 60 litres, the openings being closed by two plugs, one placed over the other, one of them being screw-threaded, the receptacles having to protective packaging if the competent authority of the country of departure so allows. The receptacles must not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg.

Substances of 84° shall be packed:

- (a) in the same way as solids of 81°; or
- (b) in the case of substances of 84° (a) very conspicuously

coloured, in bags made of paper of at least two plies, or of a suitable plastics material, which shall be placed in textile bags; or

(c) in the case of substances of 84°(b), in closely-woven jute bags.

### 3. Mixed packing

(1) Substances grouped under the same item number may be included in the same package. The inner packagings shall conform to what is prescribed for each substance, and the outer packaging shall be that laid down for the substances of the item number in question.

(2) If smaller quantities are not prescribed in the section headed «Packing of a single substance», substances of this Class, in quantities not exceeding 6 kg in the case of solids or 3 litres in the case of liquids for all of the substances listed under the same item number or the same letter, may be enclosed in the same package either with substances of another item number or of another letter of the same Class, or with dangerous substances belonging to other Classes (if mixed packing is likewise allowed in the case of such substances), or with other goods, subject to the following special conditions:

The inner packagings must satisfy the general and special conditions of packing. In addition, the general provisions of marginals 2001 (5) and 2002 (6) and (7) must be observed.

A package must not weigh more than 150 kg, or more than 75 kg if it contains fragile receptacles.

Special conditions:

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Item No	Description of Substance	Maximum quantity		Special provisions
		per receptacle	per package	
1°(a)	Hydrocyanic acid	mixed packing not allowed		
1°(b)	Solutions of hydrocyanic acid containing not more than 4% hydrocyanic acid (solutions containing more than 4% are prohibited)	1 litre	1 litre	Must not be packed together with any other acid
2°	Acrylonitrile, acetonitrile, isobutyronitrile	1 litre	1 litre	Must not be packed together with substances of Classes 5.1 and 8. Glass receptacles must be secured by cushioning materials in protective receptacles
5°(a)	Nickel carbonyl	mixed packing not allowed		
11°(a)	2-cyanopropan-2-ol	1 litre	1 litre	Must not be packed together with substances of Classes 5.1 and 8. Glass receptacles must be secured by cushioning materials in protective receptacles
13°(b)	Dimethyl sulphate	1 litre	3 litres	
31°(a)	Cyanides in a solid form			Must not be packed together with substances of an acid nature
	- in fragile receptacles	500g	500g	
	- in other receptacles	5 kg	5 kg	
31°(b)	Solutions of inorganic cyanides	1 litre	3 litres	
41°(b)	Ferro-silicon alloys with aluminium	2.5 kg	2.5 kg	

4. Marking and danger labels on packages (see Appendix A.9)

(1) Packages containing substances of 1° - 5°, 11° - 14°, 21° - 23°, 31° - 33°, 41°, 51° - 54°, 81° and 82° shall bear a label conforming to model No. 4; packages containing substances of 2°, 4°(a), 5° and 11°(a) shall bear, in addition a label conforming to model No. 2A. Packages containing substances of 61°, 62°, 71°-75°, 83° and 84° shall bear a label conforming to model No. 4A.

(2) Packages containing fragile receptacles not visible from the outside shall bear a label conforming to model No. 9. If the fragile receptacles contain liquids, the packages shall in addition, except in the case of sealed ampoules, bear labels conforming to model No. 8; these labels shall be affixed high up on two opposite sides of cases or in an equivalent manner when other packagings are used.

(3) In the case of consignments forwarded as a full load, labels Nos. 2A, 4 or 4A need not be affixed to the packages if the vehicle bears the marking prescribed in Annex B, marginal 10500.

#### B. Particulars in the transport document

(1) In the case of substances which are referred to by name in the list of substances (marginal 2601), the description of the goods in the transport document must conform to the name underlined in marginal 2601. The description of the goods must be underlined in red and followed by particulars of the Class, the item number (together with the letter, if any), and the initials «ADR» or «RID» [e.g. 6.1, 1o(a), ADR].

In the case of substances which are not referred to by name in the list of substances (marginal 2601), the trade name or the chemical name must be used. This description must be underlined in red and followed by particulars of the Class and item number (together with the letter, if any) of the substance presenting a comparable degree of danger, and the initials «ADR» [e.g. 6.1, 21°(m), ADR].

(2) In the case of hydrocyanic acid [1o(a)] the following must be certified in the transport document: «The nature of the goods, and the packaging, are in conformity with the provisions of ADR».

(3) In the case of substances of 41°, the following must be certified in the transport document: «Stored in the open air and in a dry place for not less than three days».

(4) In the case of consignments of substances which polymerize easily, the following must be certified in the transport document: «The necessary steps have been taken to prevent polymerization during carriage».

#### C. Empty packagings

(1) Bags of 91° and 92° must be packed in cases or in impermeable bags preventing any loss of substances.

(2) Other packagings and tanks of 91° and 92° must be closed the same manner and leak-proof in the same degree as though they were full.

(3) Packagings of 91° forwarded otherwise than as a full load, tanks, and packed bags of 91° shall bear labels conforming to model No. 4; packed bags of 92° shall bear labels conforming to model No. 4A (see Appendix A.9).

(4) The description in the transport document must be: «Empty packaging, 6.1, 91° (or 92°), ADR (or RID). This description must be underlined in red.

### CLASS 6.2 REPUGNANT SUBSTANCES AND SUBSTANCES LIABLE TO CAUSE INFECTION

#### 1. List of substances

Among the substances and articles covered by the heading of Class 6.2, only those listed in marginal 2651 are

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to be accepted for carriage, and then only subject to the provisions of this Annex and of Annex B. These substances and articles to be accepted for carriage under certain conditions are to be considered as substances and articles of ADR.

1° (a) Fresh tendons, clippings of fresh skins not limed or salted, trimmings from fresh tendons or from clippings of fresh skins; Note: Clippings of wet fresh skins, limed or salted, are not subject to the provisions of ADR.

(b) fresh horns, claws or hoofs not cleansed of bone and soft adhering parts, fresh bones not cleansed of flesh or other soft adhering parts;

(c) undressed pig's bristles and hair.

2° Fresh skins, unsalted or salted, from which effensive quantities of blood or brine drip.

Note: Properly salted skins containing only a small quantity of moisture are not subject to the provisions of ADR.

3° Cleaned or dried bones, cleaned or dried horns, claws or hoofs.

Note: Dry bones divested of fat, not giving off any putrid odour, are not subject to the provisions of ADR.

4° Fresh calf rennets, cleansed of all traces of edible matter.

Note: Dried calf rennets not giving of an offensive odour are not subject to the provisions of ADR.

5° Compressed residues arising from the manufacture of skin glue (calcareous residues, residues from the liming of skin clippings, or residues used as fertilizers).

6° Non-compressed residues arising from the manufacture of skin glue

7° Non-infected urine protected against decomposition.

8° Anatomical pieces, entrails and glands.

(a) non infected

(b) infected

9° Manure.

10° Excrement.

11° Other animal substances, repugnant or liable to cause infection, not already specifically mentioned in 1° to 10°.

12° Empty packagings and empty bags which have contained substances of 1° to 8°, 10° and 11°, and sheets which have been used to cover substances of Class 6.2.

Note: If uncleaned, these packagings, bags and sheets are not to be accepted for carriage.

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#### 2. Provisions

##### A. Packages

##### 1. General conditions of packing

(1) Packagings shall be so closed and leak-proof as to prevent any loss of the contents.

(2) Packagings, including their closures, must be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. In particular where substances are in the liquid state or are liable to ferment, receptacles and their closures must, unless the section headed «Packing of a single substance» provides otherwise, be able to withstand any pressure which, the presence of air also being taken into account, may arise inside the receptacles in normal carriage. For this purpose a free space must be left, account being taken of the difference between the temperature of the substances at the time of filling and the highest mean temperature which they are likely to reach during carriage.

(3) No trace of the contents must adhere to the outside of packages.

##### 2. Packing of a single substance

Substances of 1o shall be packed:

(a) if forwarded otherwise than as a full load:

1. in metal receptacles fitted with a safety closure capable of yielding to internal pressure, or in casks, small vats or cases; or

2. in the case of substances of 1o (c) in the dry state, also in bags, on condition that the bad odour can be removed by disinfection. In the case of substances not in the dry state, packing in bags is allowed only from 1 November to 15 April;

(b) if forwarded as a full load:

1. in the packagings specified in (a) 1. above; or

2. on condition that the bad odour can be removed by disinfection, in bags impregnated with suitable disinfectants.

Substances of 2° shall be packed:

(a) if forwarded otherwise than as a full load:

1. in casks, small vats or cases; or

2. during the months from November to February inclusive, in bags impregnated with suitable disinfectants, on condition that the bad odour can be removed by disinfection;

(b) if forwarded as a full load:

1. in the packagings specified in (a) 1. above; or

2. on condition that the bad odour be removed by disinfection, in bags impregnated with suitable disinfectants.

Substances of 3° shall be packed in casks, small vats, cases, metal receptacles or bags.

Substances of 4° shall be packed:

(a) if forwarded otherwise than as a full load:

in casks, small vats, cases, metal receptacles or bags;

(b) if forwarded as a full load: in any suitable packagings.

Substances of 5° and 6o shall be packed in casks, small vats, cases or metal receptacles.

Substances of 7° shall be packed in hermetically closed receptacles made of galvanized sheet-steel.

(1) Substances of 8° shall be packed in metal receptacles fitted with a safety closure capable of yielding to internal pressure, in casks or small vats; substances of 8o (a) may also be packed in cases.

(2) Substances of 8° may also be packed as follows:

(a) substances of 8° (a), in receptacles made of glass, porcelain, stoneware, metal or a suitable plastics material. These receptacles shall be placed, either singly or in groups, in a strong wooden case, with absorbent cushioning materials if the receptacles are fragile. If the substances to be carried are immersed in a preserving fluid, the absorbent materials shall be sufficient in quantity to absorb all the fluid. The preserving fluid must not be inflammable. Packages weighing more than 30 kg shall be fitted with means of handling;

(b) substances of 8° (b), in suitable receptacles placed with cushioning materials in a strong wooden case having a metal lining rendered leak-proof e.g. by soldering. Packages weighing more than 30 kg shall be fitted with means of handling;

Substances of 9° shall be forwarded only in bulk.

Substances of 10° shall be packed in receptacles made of sheet-metal.

Substances of 11° shall be packed in metal receptacles fitted with a safety closure capable of yielding to internal pressure, or in casks, small vats or cases.

### 3. Mixed packing

Substances listed under an item number of marginal 2651 may be included in the same package only with substances listed under the same item number, and then only on condition that the packagings prescribed in sections A.1 and 2 above are used.

### 4. Marking and danger labels on packages (see Appendix A.9)

Packages containing fragile receptacles not visible from the outside shall bear a label conforming to model No.9. If the fragile receptacles contain liquids, the packages shall in addition, except in the case of sealed ampoules, bear la-

bels conforming to model No.8; these labels shall be affixed high up on two opposite sides of cases or in an equivalent manner with other packagings are used.

### B. Particulars in the transport document

The description of the goods in the transport document must conform to one of the names underlined in marginal 2651. Where the name the substance is not indicated, the trade name must be used. The description of the goods must be underlined in red and followed by particulars of the Class, the item number (together with the letter, if any), and the initials «ADR» or †«RID» [d.g. 6.2, 1o (a), ADR].

### Empty packagings

(1) Articles of 12o shall be cleaned and treated with suitable disinfectants.

(2) The description in the transport document must be:

«Empty packaging (or empty bag, or sheet), 6.2, 12o, ADR (or RID)».

This description must be underlined in red.

## CLASS 7

### RADIOACTIVE SUBSTANCES

#### Introduction

#### (1) Scope

(a) Among the substances with a specific activity of more than 0.002 microcurie per gramme and articles containing such substances, only those indicated in the schedules of marginal 2703 are to be accepted for carriage and then only under the conditions set out in the appropriate schedules of the said marginal and in appendix A.6 (marginals 3600 to 3699).

(b) The substances and articles referred to in (a) are substances and articles of ADR

NOTE. Cardiac pacemakers containing radioactive substances, when they have been surgically implanted in medical patients, or radiopharmaceuticals being carried inside patients in the course of medical treatment, are not subject to ADR.

#### (2) Definitions and explanations

#### A<sub>1</sub> and A<sub>2</sub>

«A<sub>1</sub>» means the maximum activity of special form radioactive substances permitted in a Type A package. «A<sub>2</sub>» means the maximum activity of radioactive substances, other than special form radioactive substances, permitted in a Type A package. These values either are listed in Appendix A.6 table XXI or may be derived in accordance with the procedure described in marginals 3690 and 3691 of Appendix A.6.

#### Allowable number of packages

«Allowable number<sup>1</sup> of packages» means the maximum number of Fissile Class II or Fissile Class III packages which may be grouped together in one place during carriage or during transit storage.

\* 1) When the group is made up of packages of different designs, the maximum number of packages shall be such that the following formula is satisfied:

$$\frac{n_1}{N_1} + \frac{n_2}{N_2} + \frac{n_3}{N_3} + \dots \text{ shall not exceed } 1. \text{ In this formula,}$$

$$N_1 \quad N_2 \quad N_3$$

$n_1, n_2, n_3 \dots$  are the numbers of packages for which the corresponding allowable numbers are  $N_1, N_2, N_3 \dots$  respectively.

2665

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2667

-2672

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2700

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**Containment system**

«containment system» means the components of the packaging specified by designer as intended to retain the radioactive substance during carriage.

**Design**

«Desing» means the description of a special form substance, or of a package or a packaging of a particular kind, which enables it to be fully identified. The description may include specifications, engineering drawings, reports demonstrating compliance with regulatory requirements, and other relevant documentation.

**Fissile substances**

«Fissile substance» means plutonium-238, plutonium-239, plutonium-241, uranium-233, uranium-235, and all substances containing any of these radionuclides. Unirradiated natural and depleted uranium do not come under this definition.

**Low-level solid radioactive substances**

«Low-level solid radioactive substance» (LLS) means any of the following:

(a) Solids (e.g. consolidated wastes, activated substances) in which:

(i) the activity in normal carriage is and remains distributed throughout the solid or the collection of solids or is and remains uniformly distributed in a solid compact binding agent (such as concretes, bitumen, ceramic);

(ii) the activity is and remains insoluble so that even under loss of packaging the loss of radioactive substance per package resulting from the effects of wind, rain, etc., of from total immersion in water is limited to less than  $0.1 A_2$  in a period of one week; and

(iii) the activity averaged throughout the radioactive substance does not exceed  $2 \times 10^{-3} A_2/g$ .

(b) Articles of non-radioactive substance which are contaminated with a radioactive substance, provided that the radioactive contamination is in a non-readily-dispersible form and that the level of contamination averaged over  $1 m^2$  (or over the area of the surface if that area is less than  $1 m^2$ ) does not exceed

$20 \mu Ci/cm^2$  for beta and gamma emitters and the low-toxicity alpha emitters indicated in Table XIX of Appendix A.6; and  $2 \mu Ci/cm^2$  for other alpha emitters.

**Low specific activity substances (1)**

«Low specific activity substances (1)» (LSA) means any of the following:

(a) Uranium or thorium ores and physical or chemical concentrates of those ores:

(b) Unirradiated natural or depleted uranium or unirradiated natural thorium;

(c) Tritium oxide in aqueous solutions, provided that the concentration does not exceed  $10 Ci/litre$ ;

(d) Substances in which the activity is uniformly distributed and which if they were reduced to their minimum volume in conditions likely to be encountered in carriage, such as dissolution in water with subsequent recrystallization; precipitation; evaporation; combustion; abrasion; etc., would have an average specific activity of not more than  $10^{-4} A_2/g$ ;

(e) Articles on non-radioactive substance which are contaminated with a radioactive substance, provided that the non-fixed surface contamination does not exceed ten times the values in Table XIX of Appendix A.6 and that the contaminated article or the contamination on the article, if it was reduced to its minimum volume in conditions likely to be encountered in carriage, such as dissolution in water with subsequent recrystallization;

precipitation; evaporation; combustion; abrasion; etc., would have an average specific activity of not more than  $10^{-4} A_2/g$ .

**Low specific activity substances (II)**

«Low specific activity substances (II)» (LSA) means any of the following:

(a) Substances in which the activity in normal carriage is and remains uniformly distributed and in which the average specific activity does not exceed  $10^{-4} A_2/g$ ;

(b) Articles of non-radioactive substance which are contaminated with a radioactive substance, provided that the radioactive contamination is in a non-readily-dispersible form and that the level of contamination averaged over  $1 m^2$  (of over the area of the surface if that area is less than  $1 m^2$ ) does not exceed

$1 \mu Ci/cm^2$  for beta and gamma emitters and the low-toxicity alpha emitters indicated in Table XIX of Appendix A.6; and  $0.1 \mu Ci/cm^2$  for other alpha emitters.

**Maximum normal operating pressure**

«Maximum normal operating pressure» means the maximum pressure above atmospheric pressure at mean sea-level that would develop in the containment system in a period of one year in conditions of temperature and solar radiation corresponding to environmental conditions of transport in the absence of venting, external cooling by an ancillary system, or operational controls during carriage.

**Multilateral approval**

«Multilateral approval» means approval by the competent authority of the country of origin and by the competent authority of each country in whose territory the consignment is to be carried.

**Package**

«Type A package» means a type A packaging together with its limited radioactive contents. As the contents of a Type A package are limited to  $A_1$  or  $A_2$ , such a package does not require approval by the competent authority.

«Type B(U) package» means a Type B packaging, together with its radioactive contents, which since it is designed in accordance with specified design and containment criteria requires unilateral approval only of the package design and of any stowage provisions that may be necessary for heat dissipation.

«Type B(M) package» means a Type B packaging, together with its radioactive contents, which since its design fails to meet one or more of the specific additional design criteria for Type B(U) packages (see marginal 3603 of Appendix A.6) requires multilateral approval of the package design and, in certain circumstances, of the conditions of despatch.

**Packaging**

«Packaging» means the assembly of components necessary to ensure compliance with the packaging requirements of this Class. It may, in particular, consist of one or more receptacles, absorbent materials, spacing structures, radiation shielding, and devices for cooling, for absorbing mechanical shocks and for thermal insulation. These devices may include the vehicle with the tie-down system when these are intended to form an integral part of the packaging.

«Type A packaging» means a packaging which in normal carriage is able to prevent any loss or dispersal of the radioactive content and to retain its shielding function. The conditions of normal carriage shall be reproduced by the tests prescribed in marginal 3635 and 3636 of Appendix A.6, which tests the packaging shall be shown to have passed.

«Type B packaging» means a packaging which is able

to withstand not only the conditions of normal carriage, as a Type A packaging does, but also a transport accident. The conditions of such an accident shall be reproduced by the tests prescribed in marginals 3635 to 3637 of Appendix A.6, which tests the packaging, shall shown to have passed in the conditions likewise prescribed.

#### Radiation level

«Radiation level» means the corresponding radiation dose-equivalent rate expressed in millirem per hour. Radiation levels may be determined by instruments, combined with the use of conversion tables where necessary of by calculation. Measured or calculated neutron flux densities may be converted into radiation levels by using the data given in the following table.

Neutron flux densities to be regarded as equivalent to a radiation level of 1 mrem/h

Energy of neutron	Flux density equivalent to 1 mrem/h (n/cm <sup>2</sup> ·s)
Thermal	268
5 keV	228
20 keV	112
100 keV	32
500 keV	12
1 MeV	7.2
5 MeV	7.2
10 MeV	6.8

Note: Equivalent flux densities for energies between those listed above should be obtained by linear interpolation.

#### Radioactive contents

«Radioactive contents» means the radioactive substance together with any contaminated solids, liquids or gases in the package.

#### Special form radioactive substance

«Special form radioactive substance» means either a non-dispersible solid radioactive substance or a sealed capsule containing a radioactive substance. The sealed capsule shall be so constructed that it can be opened only by destroying it. The special form radioactive substance shall meet the following requirements:

- It shall have at least one dimension of not less than 5 mm; and
- It shall comply with the relevant test requirements specified in marginals 3640 to 3642 of Appendix A.6.

In general, the «special form» concept enables substances exhibiting a higher activity level to be included in a Type A package.

#### Specific activity

The «specific activity» of a radionuclide means that radionuclide's activity per unit mass. The specific activity of a substance in which the radionuclides are essentially uniformly distributed is that substance's activity per unit mass.

#### Transport index

The «transport index» of a package means:

- The number expressing the maximum radiation

level in millirem per hour at 1 m from the external surface of the package; or

(b) In the case of packages of Fissile Class II or Fissile Class III, the higher of the following numbers:

the number expressing the maximum radiation level as under (a) above; and the number obtained by dividing 50 by the allowable number of such packages.

The «transport index» of a container means either;

the sum of the transport indices of all packages within the container, except that for containers carrying Fissile Class III packages, the transport index shall be 50 unless the sum of the transport indices of the packages necessitates a higher figure.

or for containers not carrying Fissile Class II or III packages and under full load, the number expressing the maximum radiation level in mrem/h at 1 m from the external surface of the container multiplied by the value in the following table appropriate to the maximum cross-sectional area of the container.

#### Multiplication factors

Size of load	Multiplication factor
Measurement (cross-sectional area measurements of the load perpendicular to the direction of interest).	
1 m <sup>2</sup> and less	1
∅ 1 m <sup>2</sup> to 5 m <sup>2</sup>	3
∅ 5 m <sup>2</sup> to 20 m <sup>2</sup>	6
∅ 20 m <sup>2</sup> to 100 m <sup>2</sup>	19

(c) The figure expressing the transport index shall be rounded upwards to the first decimal place.

#### Uncompressed gas

«Uncompressed gas» means a gas at a pressure not exceeding the ambient atmospheric pressure at the time when the containment system is closed.

#### Unilateral approval

«Unilateral approval» means approval by the competent authority of the country of origin only. If the country of origin is not a party to ADR, the approval shall require validation by the competent authority of the first ADR country reached by the consignment.

#### Unirradiated uranium

«Unirradiated uranium» means uranium containing not more than 10<sup>-6</sup> g plutonium per g uranium-235 and a fission product activity of not more than 0.25 mCi per g uranium-235. 2700

#### Unirradiated thorium

«Unirradiated thorium» means thorium containing not more than 10<sup>-7</sup> g of uranium-233 per g of thorium-232.

#### Uranium; natural, depleted, enriched

«Natural uranium» means chemically-separated uranium with the naturally-occurring distribution of uranium isotopes (approximately 99.28 per cent uranium-238 and 0.72 per cent uranium-235). «Depleted uranium» means uranium containing less than 0.72 per cent uranium-235, the remainder being uranium-238. «Enriched uranium» means uranium containing more than 0.72 per cent uranium-235, the remainder being uranium-238. In all cases a very small amount of uranium-234 is present.

## (3) Prohibitions on mixed loading

Substances of class 7 contained in packages bearing a label conforming with models Nos. 6A, 6B or 6C shall not be loaded in the same vehicle together with substances and articles of Classes 1a (marginal 2101), 1b (marginal 2131) or 1c (marginal 2171) contained in packages bearing one or two labels conforming with model No. 1.

The substances and articles of this class contain one or more of the radionuclides referred to in chapter VI of Appendix A.6 (marginals 3690 and 3691).

The list hereunder specifies the different types of consignment:

1. Empty packages which have contained radioactive substances;

2. Articles manufactured from natural or depleted uranium or natural thorium;

3. Small quantities of radioactive substances;

4. Instruments and manufactured articles;

5. Low specific activity substances LSA (I)

6. Low specific activity substances LSA (II)

7. Low-level solid radioactive substances;

8. Radioactive substances in Type A packages;

9. Radioactive substances in Type B(U) packages;

10. Radioactive substances in Type B(M) packages;

11. Fissile substances;

12. Radioactive substances carried under special arrangement.

## 1. Substances

Empty packages: with have contained radioactive substances.

## 2. Packaging/Package

(a) Packaging shall be in accordance with the requirements given in marginal 3600 of Appendix A.6, and shall be securely closed and in good condition.

(b) Permitted internal contamination levels: not more than 100 times those levels set out in paragraph 5.

(c) Where an empty packaging includes natural or depleted uranium or natural thorium in its structure its surface shall be covered with a substantial, inactive sheath made of metal or some other resistant material.

## Schedule 1

Danger labels on package.

None

Note: Anty labe indicating a danger shall be covered or removed.

## 3. Packages maximum radiation level

0.5 mrem/h at the surface of the package.

## 4. Mixed packing

No provisions.

## 5. Contamination on packages

Non-fixed external contamination limits:

Beta/gamma/low-toxicity  
alpha emitters  $10^{-4}$  uCi/cm<sup>2</sup>

Natural/depleted uranium/  
natural thorium  $10^{-3}$  uCi/cm<sup>2</sup>

Other alpha emitters  $10^{-5}$  uCi/cm<sup>2</sup>

For full details, see marginal 3651 of Appendix A.6.

## 6. Marking on packages

(a) Packages shall be plainly and durably marked with the weight if over 50 kg.

(b) Any marking indicating a radioactive danger shall not be visible.

## 7. Transport documents

The transport document shall include the description «Radioactive substances (Empty packages), 7, schedule 1, ADR», with the name underlined in red.

## 8. Storage and despatch

No provisions.

## 9. Carriage of packages in vehicles and containers

No provisions.

## 10. Carriage in bulk in vehicles and containers

Not applicable.

## 11. Carriage in tank vehicles and tank containers

Not applicable.

## 12. Placards and labels on vehicles, tank vehicles, tank containers and containers

None.

## 13. Prohibitions on mixed loading

No provisions.

2701

## 14. Decontamination of vehicles, tank vehicles, tank containers and containers

No provisions.

2702

## 15. Other provisions

None.

## 1. Substances

Articles manufactured from natural or depleted uranium or natural thorium.

The outer surface of the uranium or thorium shall be covered by a substantial, inactive sheath made of metal or some other resistant material.

## Schedule 2

Danger labels on packages.

None.

NOTE: Such articles may for example be unused packagings intended for the transport of radioactive substances.

## 2. Packaging/Package

Packaging shall be in accordance with the requirements given in marginal 3600 of Appendix A.6.

## 3. Package maximum radiation level

0,5 mrem/h at the surface of the package.

## 4. Mixed packing

No provisions.

## 5. Contamination on packages

Non-fixed external contamination limits:

Beta/gamma/low-toxicity  
alpha emitters  $10^{-4}$  uCi/cm<sup>2</sup>

Natural/depleted uranium/  
natural thorium  $10^{-3}$  uCi/cm<sup>2</sup>

Other alpha emitters  $10^{-5}$  uCi/cm<sup>2</sup>

For full details see marginal 3651 of Appendix A.6.

## 6. Marking on packages

None.

## 7. Transport documents

The transport document shall include the description «Radioactive substances (Manufactured articles), 7, schedule 2, ADR», with the name underlined in red.

## 8. Storage and despatch

No provisions.

## 9. Carriage of packages in vehicles and containers

No provisions.

## 10. Carriage in bulk in vehicles and containers

Not applicable.

## 11. Carriage in tank vehicles and tank containers

Not applicable.

## 12. Placards and labels on vehicles, tank vehicles, tank containers and containers

None.

## 13. Prohibitions on mixed loading

No provisions.

## 14. Decontamination of vehicles, tank vehicles, tank containers and containers

No provisions.

## 15. Other provisions

None.

## 1. Substances

Small quantities of radioactive substances in amounts which do not exceed those given in the table below and which do not contain more than 15 g of uranium-235.

## Schedule 3

Danger labels on packages.

None (but see paragraph 15).

Nature of substances	Package limits
Solids and gases	
Special form	10 <sup>-3</sup> A1
Other forms	10 <sup>-3</sup> A2
Tritium	20 Ci*
Liquids	
Tritium oxide in aqueous solutions	
less than 0.1 Ci/l	1000 Ci
between 0.1 Ci/l and 1.0 Ci/l	100 Ci
greater than 1.0 Ci/l	1 Ci
Other liquids	10 <sup>-4</sup> A2

For mixtures of radionuclides, see marginal 3691 of Appendix A.6.

## 2. Packaging/Package

(a) Packaging shall be in accordance with the requirements given in marginal 3600 of Appendix A.6.

(b) During transport there shall be no leakage of radioactive substances.

## 3. Package maximum radiation level

0.5 mrem/h at the surface of the package.

## 4. Mixed packing

No provisions.

## 5. Contamination on packages

Non-fixed external contamination limits:

Beta/gamma/low-toxicity alpha emitters	10 <sup>-4</sup> uCi/cm <sup>2</sup>
Natural/depleted uranium/natural thorium	10 <sup>-3</sup> uCi/cm <sup>2</sup>
Other alpha emitters	10 <sup>-5</sup> uCi/cm <sup>2</sup>

For full details, see marginal 3651 of Appendix A.6.

## 6. Marking on packages

The outermost surface of the containment system shall be marked «RADIOACTIVE» as a warning on opening the package.

## 7. Transport documents

The transport document shall include the description «Radioactive substances (Small quantities), 7, schedule 3, ADR», with the name underlined in red.

## 8. Storage and despatch

No provisions.

## 9. Carriage of packages in vehicles and containers

No provisions.

## 10. Carriage in bulk in vehicles and containers

Not permitted.

## 11. Carriage in tank vehicles and tank containers

Not permitted.

## 12. Placards and labels on vehicles tank vehicles, tank containers and containers

None.

## 13. Prohibitions on mixed loading

No provisions.

## 14. Decontamination of vehicles, tank vehicles, tank containers and containers

See marginal 3695 (3) of Appendix A.6.

## 15. Other provisions

(a) Accident provisions - see marginal 3695 (1) of Appendix A.6.

(b) Decontamination in storage - see marginal 3695 (2) of Appendix A.6.

(c) Radioactive substances which possess other hazardous properties shall also comply with the provisions of the appropriate class.

\* The values for tritium also apply to tritium in activated luminous paint and tritium adsorbed on solid carriers.

## 1. Substances

Instruments and Manufactured articles such as clocks, electronic tubes or apparatus, having radioactive substances as a component part, whose activity does not exceed the amounts given in the table below and which do not contain more than 15 g. of uranium-235.

Nature of substances	Item limits	Package limits
Solids		
Special form	10 <sup>-2</sup> A <sup>1</sup>	A <sup>1</sup>
Other forms	10 <sup>-2</sup> A <sup>2</sup>	A <sup>2</sup>
Liquids	10 <sup>-3</sup> A <sup>2</sup>	10 <sup>-1</sup> A <sup>2</sup>
Gases		
Tritium	20 Ci*	200 Ci*
Special form	10 <sup>-3</sup> A <sup>1</sup>	10 <sup>-2</sup> A <sup>1</sup>
Other forms	10 <sup>-3</sup> A <sup>2</sup>	10 <sup>-2</sup> A <sup>2</sup>

For mixtures of radionuclides, see marginal 3691 of Appendix A.6.

## 2. Packaging/Package

(a) Packaging shall be in accordance with the requirements given in marginal 3600 of Appendix A.6.

(b) The instruments and articles shall be securely packed.

## 3. Package maximum radiation level

0.5 mrem/h at the surface of the package and 10 mrem/h at 10 cm from any point on the external surface of any unpacked instrument or article.

## 4. Mixed packing

No provisions.

## 5. Contamination on packages

Non-fixed external contamination limits:

Beta/gamma/ low-toxicity alpha emitters	10 <sup>-4</sup> uCi/cm <sup>2</sup>
Natural/depleted uranium/natural thorium	10 <sup>-3</sup> uCi/cm <sup>2</sup>
Other alpha emitters	10 <sup>-5</sup> uCi/cm <sup>2</sup>

For full details, see marginal 3651 of Appendix A.6.

## 6. Marking on packages

Each instrument or article (except radioluminescent timepieces or devices) shall bear the marking «RADIOACTIVE».

## 7. Transport Documents

The transport document shall include the description «Radioactive substances (Instruments) or (Manufactured articles), 7, schedule 4, ADR», with the name underlined in red.

## 8. Storage and despatch

No provisions.

## 9. Carriage of packages in vehicles and containers

No provisions.

## 10. Carriage in bulk vehicles and containers

Not applicable.

## 11. Carriage in tank vehicles and tank containers

Not applicable.

## 12. Placards and Labels on vehicles tank vehicles, tank containers and containers

None.

## 13. Prohibitions on mixed loading

No provisions.

## 14. Decontamination of vehicles, tank vehicles, tank containers and containers

See marginal 3695 (3) of Appendix A.6.

## 15. Other provisions

(a) Accident provisions - see marginal 3695 (1) of Appendix A.6.

(b) Decontamination in storage - see marginal 3695 (2) of Appendix A.6.

\* The values for tritium also apply to tritium in activated luminous paint and tritium adsorbed on solid carriers.



Class 7

1. Substances

Low specific activity substances LSA(I), belonging to one of the following groups as defined fully in marginal 2700(2):

- (i) uranium or thorium ores or concentrates (sub-papa (a) of definition)
- (ii) unirradiated natural or depleted uranium or unirradiated natural thorium (sub-papa (b) of definition)
- (iii) tritium oxide in aqueous solutions - concentration 10 Ci/l or less. (sub-para (c) of definition)
- (iv) substances with uniform activity under minimum volume conditions of not more than 10-4 A2/g (sub-para (d) of definition).
- (v) Non-radioactive articles contaminated to not more than 10 times the package limits set in para 5 below and so that the specific activity under minimum volume conditions never exceeds 10-4 A2/g (sub-para (e) of definition).

Schedule 5

Danger labels on packages (see Appendix A.9).

Unless transported as a full load, labels to models 6A, 6B or 6C shall be affixed externally to two opposite sides, see marginals 3653 to 3655 of Appendix A.6 for package category. The contents shall be described on the labels as «Radioactive LSA». Subsidiary labelling:

- (i) for thorium nitrate and uranium nitrate - model No. 3 labels are required.
- (ii) for uranium hexafluoride - model No. 4 labels are required.

If fissile substances are present the requirements of schedule II shall be met in addition to the requirements of this schedule.

2. Packaging/Package

Packages transported other than as full load-packaging shall be in accordance with the requirements of marginal 3600, marginal 3650 to 3655 and marginal 3656(1) to (4) of Appendix A.6.

Substances of paragraph 1(ii) above in massive solid form shall be packed so as to prevent abrasion, and in other solid forms shall be contained in a substantial sheath.

3. Package maximum radiation level

200 mrem/h at the surface of the package and 10 mrem/h at 1 metre from that surface (see marginals 3653 to 3655 of Appendix A.6).

Except in the case of a full load when the limit is 1,000 mrem/h at the surface of the package and may exceed 10 mrem/h at 1 metre from that surface (see marginal 3659(7) of Appendix A.6).

4. Mixed packing

See marginal 3650 of Appendix A.6.

5. Contamination on packages

(a) Non-fixed external contamination limits for packages carried other than full load.

Beta/gamma/low-toxicity alpha emitters  $10^{-4} \mu\text{Ci}/\text{cm}^2$   
 Natural/depleted uranium/natural thorium  $10^{-3} \mu\text{Ci}/\text{cm}^2$

Other alpha emitters  $10^{-5} \mu\text{Ci}/\text{cm}^2$

For full details, see marginal 3651 of Appendix A.6.

(b) For packages carried in a full load - No provisions.

6. Marking on packages

Packages transported as full load - stencilled or otherwise marked «RADIOACTIVE LSA».

Package transported other than full load - plainly and durably marked with the weight if over 50 kg.

7. Transport documents

The transport document shall include the description «Radioactive substances (Low specific activity LSA (I)), 7,

schedule 5, ADR», with the name underline in red, and the details specified in marginals 3680 and 3681 of Appendix A.6.

8. Storage and despatch

(a) Storage and segregation from other dangerous goods - see marginal 3658 (1) Appendix A.6.

(b) Storage and segregation from packages labelled «FOTO» - see marginal 240000 of Appendix B.4 for segregation table.

(c) Total transport index limitation for storage, no limit except in the case Fissile Class II or III packages, see marginal 3658 (2) to (5) of Appendix.

9. Carriage of packages in vehicles and containers

(a) Segregation from packages labelled «FOTO» - see marginal 240001 of Appendix B.4 for segregation Table.

(b) Total transport index limitation - 50. This limit does not apply to a load, provided that if Fissile Class II or III packages are present the allowable number is not exceeded, (see marginal 3659(5) of Appendix A.6).

(c) Maximum radiation levels for vehicles and large containers in the case of a full load

200 mrem/h at surface

10 mrem/h at 2 metres from surface

(see marginal 3659(1) of Appendix A.7)

Also, for vehicles - 2 mrem/h in any normally occupied position - see marginal 3659(8) of Appendix A.6.

(d) Packages not in conformity with the requirements of marginal 3600 shall be transported as full load, and the limits in the following table shall not be exceeded:

Nature of substances	Vehicle or large container activity limit
Solids	No limit
Tritium oxide in aqueous solutions	50,000 Ci
Other liquids and gases	100 x A <sub>2</sub>

10. Carriage in bulk in vehicles and containers

Permitted under full load provided that, after loading, external surfaces of vehicles are carefully cleaned by the consignor and provided that no leakage can occur under normal transport. Quantity limits as in the table in paragraph 9 above.

11. Carriage in tank-vehicles and tank-containers

(a) Carriage in tank-vehicles: permitted for liquids or solids other than uranium hexafluoride and substances liable to spontaneous ignition (see Appendix A.6, marginal 3660);

(b) Carriage in tank-containers: permitted for liquids or solids, including natural or depleted uranium hexafluoride (see Appendix A.6, marginal 3661).

12. Placards and labels on vehicles, tank vehicles, tank containers and containers (see Appendices A.9 and B.4)

Containers - labels to models 6A, 6B or 6C on all four sides. Vehicles and large containers - placards to model in Appendix B.4 marginal 240 010 on each lateral side and on rear wall of vehicle (see marginals 3659(6) and 71 500).

Subsidiary labelling

(i) for thorium nitrate and uranium nitrate - model No. 3 labels are required

(ii) for uranium hexafluoride - model No. 4 labels are required.

13. Prohibitions on mixed loading

See marginal 2700(3).

14. Decontaminated of vehicles, tank vehicles, tank containers and containers

(a) For full load consignments, after unloading, vehicles to be decontaminated by the consignee to the levels in Table XIX of Appendix A.6 unless to be used for carrying

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the same substances. See also marginal 3695(4) of Appendix A.6.

(b) For non-full load consignments, see marginal 3695(3) of Appendix A.6.

#### 15. Other provisions

(a) Accident provisions - see marginal 3695(1) of Appendix A.6.

(b) Decontamination in storage - see marginal 3695(2) of Appendix A.6.

#### 1. Substances

Low specific activity substances LSA(II) belonging to either of the following groups as defined fully in marginal 2700(2):

(i) substances with uniform activity of not more than  $10^{-4}$  A2/g. (sub-para (a) of definition).

(ii) non-radioactive articles contaminated non-dispersibly to a level not exceeding  $1 \mu\text{Ci}/\text{cm}^2$  for beta and gamma emitters and low toxicity alpha emitters, or  $0.1 \mu\text{Ci}/\text{cm}^2$  for other alpha emitters (sub-para (b) of definition).

If fissile substances are present the requirements of schedule 11 shall be met in addition to the requirements of this schedule.

#### 2. Packaging/Package

Packaging shall be in accordance with the requirements of marginal 3600, marginal 3650 and marginal 3651 of Appendix A.6.

#### 3. Package maximum radiation level

Closed vehicles under conditions of marginal 3659(7) (a) of Appendix A.6 - 1000 mrem/h at the surface of the package and may exceed 10 mrem/h at one metre from that surface. All other vehicles not under the conditions of marginal 3659 (7)(a) of Appendix A.6 - 200 mrem/h at the surface of the package and 10 mrem/h at one metre from that surface.

#### 4. Mixed packing

See marginal 3650 of Appendix A.6.

#### 5. Contamination on packages

Non-fixed external contamination limits:

Beta/gamma/low toxicity alpha emitters	$10^{-4}$ UCi/cm <sup>2</sup>
Natural/depleted uranium/natural thorium	$10^{-3}$ UCi/cm <sup>2</sup>
Other alpha emitters	$10^{-5}$ UCi/cm <sup>2</sup>

For full details, see marginal 3651 of Appendix A.6

#### Schedule 6

##### Danger labels on packages

None required unless fissile substances are present (see Schedule 11).

#### 6. Marking on packages

Packages shall be stencilled or otherwise marked «RA-DIOACTIVE LSA».

#### 7. Transport documents

The transport document shall include the description «Radioactive substances (Low specific activity LSA (II)), 7, schedule 6, ADR, with the name underlined in red, and the details specified in marginals 3680 and 3681 of Appendix A.6.

#### 8. Storage and despatch

Only under full load

#### 9. Carriage of packages in vehicles and containers

(a) Carriage only by full load

(b) If the consignment includes Fissile Class II or III packages the allowable number shall not be exceeded. (see Schedule 11).

(c) Maximum radiation levels for vehicles and large containers

200 mrem/h at surface

10 mrem/h at 2 metres from surface (see marginal 3659(7) of Appendix A.6)

Also, for vehicles - 2 mrem/h in any normally occupied position - (see marginal 3659(8) of Appendix A.6)

(d) The limits in the following table shall not be exceeded:

Nature of substances	Vehicle or large container activity limit
Solids	No limit
Tritium iodide in aqueous solutions	50000 Ci
Other liquids and gases	$100 \times A_2$

#### 10. Carriage in bulk in vehicles and containers

Not permitted.

#### 11. Carriage in tank vehicles and tank containers

Not permitted.

12. Placards and labels on vehicles, tank vehicles, tank containers and containers (see Appendices A.9 and B.4) Containers - labels to 6A, 6B or 6C on all four sides.

Vehicles and large containers - placards to model in Appendix B.4, marginal 240 010 on each lateral side and on rear wall or vehicle (see marginals 3659(6) and 71 500).

#### 13. Prohibitions on mixed loading

See marginal 2700(3).

#### 14. Decontamination of vehicles, tank vehicles, tank containers and containers

See marginal 36953(3) and (4) or Appendix A.6.

#### 15. Other provisions

Accident provisions - see marginal 3695 (1) of Appendix A.6.

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#### 1. Substances

Low level solid radioactive substances LLS belonging to either of the following groups as defined fully in marginal 2700(2):

(i) substances with uniform activity of not more than  $2 \times 10^{-3}$  A2/g. (sub para (a) of definition).

(ii) non-radioactive articles contaminated to a level not exceeding  $20 \text{ UCi}/\text{cm}^2$  for beta and gamma emitters and low toxicity alpha emitters or  $2 \text{ UCi}/\text{cm}^2$  for other alpha emitters. (sub-para (b) of definition).

If fissile substances are present the requirements of schedule 11 shall be met in addition to the requirements of this schedule.

#### 2. Packaging/Package

(a) Packaging shall be in accordance with the requirements of marginals 3600 and 3650 of Appendix A.6 and shall be capable of withstanding the tests set out in marginal 3635(4) and (5) of Appendix A.6.

(b) Under the conditions of the tests set out in (a) there shall be

(i) no loss or dispersal of the radioactive contents

(ii) no increase of the maximum radiation level recorded or calculated at the external surface for the condition before the test.

#### 3. Package maximum radiation level

Closed vehicles under conditions of marginal 3659(7) (a) of Appendix A.6 - 1000 mrem/h at the surface of the package and may exceed 10 mrem/h at one metre from that surface. All other vehicles not under the conditions of marginal 3659(7) (a) of Appendix A.6 - 200 mrem/h at the surface of the package and 10 mrem/h at one metre from that surface.

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## 4. Mixed packing

See marginal 3650 of Appendix A.6.

## Schedule 7

## Danger labels on packages

None required unless fissile substances are present. (see schedule 11).

## 5. Contamination on packages

No provisions.

## 6. Marking on packages

Packages shall be stencilled or otherwise marked «RA-DIOACTIVE LLS».

## 7. Transport documents

The transport document shall include the description «Radioactive substances (Low - level solid (LLS), 7, schedule 7, ADR», with the name underlined in red, and the details specified in marginals 3680 and 3681 of Appendix A.6.

## 8. Storage and despatch

Only under full load.

## 9. Carriage of packages in vehicles and containers

## (a) Carriage only by full load

(b) If the consignment contains Fissile Class II or III packages the allowable number shall not be exceeded (see schedule 11).

(c) Maximum radiation levels for vehicles and large containers.

200 mrem/h at surface

10 mrem/h at 2 metres from surface

see marginal 3659(7) of Appendix A.6.

Also, for vehicles - 2 mrem/h in any normally occupied position - see marginal 3659(8) of Appendix A.6.

## 10. Carriage in bulk in vehicles and containers,

Not permitted.

## 11. Carriage in tank vehicles and tank containers

Not applicable.

## 12. Placards and labels on vehicles, tank vehicles, tank containers and containers (see Appendices A.9 and B.4)

Containers - labels to model 6A, 6B or 6C on all four sides.

Vehicles and large containers - placards to model in Appendix B.4, marginal 240 010 on each lateral side and on rear wall of vehicle (see marginals 3659(6) and 71 500).

## 13. Prohibitions on mixed loading

See marginal 2700(3).

## 14. Decontamination of vehicles, tank vehicles, tank containers and containers

After unloading, vehicles to be decontaminated by the consignee to the level set in table XIX of Appendix A.6 unless to be used for carrying the same substances. See also marginal 3695(3) and of Appendix A.6.

## 15. Other provisions

Accident provisions - see marginal 3695 (1) of Appendix A.6.

## Schedule 8

## Danger labels on packages (see Appendix A.9)

Labels to models 6A, 6B or 6C shall be affixed externally to two opposite sides, see marginals 3653 to 3655 of Appendix A. 6 for package category.

## 1. Substances

Radioactive substances in Type A packages up to an activity per package of  $A_2$  or  $A_1$  if in special form.

If fissile substances are present the requirements of schedule 11 shall be met in addition to the requirements of this schedule.

## 2. Packaging/Package

Type A, in accordance with the design requirements given in marginals 3600 and 3601 of Appendix A.6.

## 3. Package maximum radiation level

200 mrem/h at the surface of the package and 10 mrem/h at 1 metre from that surface (see marginals 3653 to 3655 of Appendix A.6).

except in the case of a full load, when the limit is 1000 mrem/h at the surface of the package and may exceed 10 mrem/h at 1 metre from that surface (see marginal 3659 (7) of Appendix A?6).

## 4. Mixed packing

See Marginal 3650 of Appendix A.6.

## 5. Contamination on packages

Non - fixed external contamination limits:

Beta/gamma/ low - toxicity alpha emitters  $10^{-4} \mu\text{Ci}/\text{cm}^2$

Natural/depleted uranium/natural thorium  $10^{-3} \mu\text{Ci}/\text{cm}^2$

Other alpha emitters  $10^{-5} \mu\text{Ci}/\text{cm}^2$

For full details, see marginal 3651 or Appendix A.6

## 6. Marking on packages

Packages shall be plainly and durably marked externally with

I. «Type A»

II. the weight of the package, if over 50 kg.

## 7. Transport Documents

a) For a summary of the approval and notification requirements - see marginal 2704.

b) The transport document should include the description «Radioactive substances in Type A packages, 7, schedule 8, ADR», with the name underlined in red, and the details specified in marginals 3680 and 3681 of Appendix A.6.

c) Where advantage is taken of the increased activity per package permitted if the substance is in special form, the unilateral special form design approval certificate shall be in the consignor's possession before the first shipment (see marginal 3671 of Appendix A.6).

## 8. Storage and despatch

a) Storage and segregation from other dangerous goods - see marginal 3658 (1) of Appendix A.6.

b) Storage and segregation from packages labelled «FOTO»

- see marginal 240 001 of Appendix B. 4 for segregation table.

c) Total transport index limitation for storage - 50 per group with 6 metres between groups

- see marginal 3658 (2) to (5) of Appendix A.6.

## 9. Carriage of packages in vehicles and containers

a) Segregation from packages labelled «FOTO»

- see marginal 240 001 of Appendix B.4 for segregation tables.

b) Total transport index limitation - 50. This limitation does not apply to a full load, provided that if Fissile Class II or III packages are present the allowable number is not exceeded. See marginal 3659 (5) of Appendix A.6.

c) Maximum radiation level for vehicles and large containers in the case of a full load.

200mrem/h at surface

10 mrem/h at 2 metres from surface

(See marginal 3659 (7) of Appendix A.6) Also, for vehicles - 2 mrem/h in any normally occupied position - see marginal 3659 (8) of Appendix A.6.

## 10. Carriage in bulk in vehicles and containers

Not applicable.

## 11. Carriage in tank vehicles and tank containers

Not applicable.

12. Placards and labels on vehicles, tank vehicles, tank containers and containers (see Appendices A.9 and B.4) Containers – labels to model 6A, 6B or 6C on all four sides. Vehicles and large containers – placards to model in Appendix B.4, Marginal 240 1010 each lateral side and on rear wall of vehicle (see marginal 3659 (6) and 71 500).

## 13. Prohibition on mixed loading

See marginal 2700 (3).

14. Decontamination of vehicles, tank vehicles, tank containers and containers

See marginal 3695 (3) of Appendix A.6.

## 15. Other provisions

(a) Accident provisions – see marginal 3695 (1) of Appendix A.6.

(b) Decontamination in storage – see marginal 3695 (2) of Appendix A.6.

## Schedule 9

Danger labels on packages (see Appendix A.9)

Labels to models 6A, 6B or 6C shall be affixed externally two opposite sides, see marginals 3653 to 3655 of Appendix A.6 for packages category.

## 1. Substances

Radioactive substances in Type R (U)

Packages

No limit on the quantity per package except as prescribed in the approval certificates. If fissile substances are present, the requirements of schedule 11 shall be met in addition to the requirements of this schedule.

## 2. Packaging/Package

Type B (U), in accordance with the design requirements given in marginals 3600 to 3603 of Appendix A.6 requiring competent authority unilateral approval, see marginal 3672 of Appendix A.6.

## 3. Package maximum radiation level

200 mrem/h at the surface of the package and 10 mrem/h at 1 metre from that surface. (see Marginals 3653 to 3655 of Appendix A.6).

except in the case of a full load, when the limit is 1000 mrem/h at the surface of the package and may exceed 10 mrem/h at 1 metre from that surface (see marginal 3659 (7) of Appendix A.6).

## 4. Mixed packing

See Marginal 3650 of Appendix A.6.

## 5. Contamination on packages

Non – fixed external contamination limits:

Beta/gamma/ low – toxicity alpha emitters  $10^{-4}$  Ci/cm<sup>2</sup>

Natural/depleted uranium/natural thorium  $10^{-3}$  Ci/cm<sup>2</sup>

Other alpha emitters  $10^{-5}$  Ci/cm<sup>2</sup>

For full details, see marginal 3651 or Appendix A.6

## 6. Marking on packages

Packages shall be plainly and durably marked externally with:

a) «TYPE B (U)».

b) competent authority identification mark.

c) the weight if over 50 kg.

d) the trefoil symbol embossed or stamped on the outermost fire and water – resistant receptacle.

## 7. Transport Documents

a) For a summary of the approval and notification requirements, see marginal 2704.

b) The transport document shall include the description

«Radioactive substances in Type B (U) packages, 7, schedule 9, ADR», with the name underlined in red, and the details specified in marginals 3680 and 3681 of Appendix A.6.

c) Unilateral package design approval certificate is required, see marginal 3672 of Appendix A.6.

d) Before the shipment of any package the consignor shall be in possession of all relevant approval certificates.

e) Before the first shipment of a particular design of package, if the activity is greater than  $3 \times 10^3$  A<sub>2</sub> or  $3 \times 10^3$  A<sub>1</sub> as appropriate, or  $3 \times 10^4$  Ci whichever is the lower, the consignor shall ensure that copies of the competent authority approval certificates have been supplied to the competent authorities of countries affected by the movement, see marginal 3682 (1) of Appendix A.6.

f) Prior to each shipment where the activity is greater than  $3 \times 10^3$  A<sub>2</sub> or  $3 \times 10^3$  A<sub>1</sub> as appropriate, or  $3 \times 10^4$  Ci whichever is the lower, the consignor shall notify the competent authorities of all countries affected by the movement, preferably fifteen days in advance as detailed in marginal 3682 of Appendix A.6.

g) Where advantage is taken of the increased activity per package permitted because the substance is in special form, see paras. (e) and (f) above, a unilateral special form design approval certificate is required (see marginal 3671 of Appendix A.6).

## 8. Storage and despatch

a) Any instructions in the competent authority approval certificate shall be observed.

b) Storage and segregation from other dangerous goods – see marginal 3658 (1) of Appendix A.6.

c) Storage and segregation from packages labelled «FOTO» – see marginal 240 001 Appendix B.4 for segregation table.

d) Total transport index limitation for storage – 50 per group with 6 metres between groups marginal 3658 (2) to (5) of Appendix A.6.

e) The consignor shall have complied with the pre-use and pre-shipment requirements of marginal 3643 and 3644 of Appendix A.6.

use an pre – shipment requirements of marginals 3643 and 3644 of Appendix A.6.

f) The temperature of the accessible surfaces of the package shall not exceed 50° in the shade unless transport is under full load conditions, in which case the limit is 82° C (see marginals 3602 (3) (b) and 3603 (8) of Appendix A.6).

g) If the average surface heat flux from a package exceeds 15W/m<sup>2</sup> then the package shall be transported as a full load.

## 9. Carriage of packages in vehicles and containers

a) Segregation from package labelled «FOTO» see marginal 240.001 of Appendix B.4 for segregation table.

b) Total transport index limitation – 50. This limitation does not apply to a full load, provided that if Fissile Class II or III packages are present the allowable number is not exceeded. See marginal 3659 (5) of Appendix A.6.

c) Maximum radiation levels for vehicles and large containers in the case of a full load.

200 mrem/h at surface

10 mrem/h at 2 metres from surface

See marginal 3659 (7) of Appendix A.6. Also for vehicles – 2 mrem/h in any normally occupied position – see marginal 3659 (8) of Appendix A.6.

10. Carriage in bulk in vehicles and containers

Not applicable.

11. Carriage in tank vehicles and tank containers

Not applicable.

12. Placards and labels on vehicles, tank vehicles, tank containers and containers (see Appendices A.9 and B.4). Containers – Labels to model 6A, 6B or 6C on all four sides.

Vehicles and large containers – placards to model in Appendix B.4 marginal 240 10 on each lateral side and on rear wall of vehicle (see marginals 3659 (6) and 71 500).

### 13. Prohibition on mixed loading

See marginal 2700 (3)

14. Decontamination of vehicles, tank vehicles, tank containers and containers

See marginal 3695 (3) of Appendix A.6.

### 15. Other provisions

a) Accident provisions – see marginal 3695 (1) of Appendix A.6.

b) Decontamination in storage – see marginal 3695 (2) of Appendix A.6.

## Schedule 10

Danger labels on packages (see Appendix A.9)

Labels to models 6A, 6B or 6C shall be affixed externally two opposite sides, see marginals 3653 to 3655 of Appendix A.6 for package category.

### 1. Substances

Radioactive substances in Type B (M)

Packages

that is a Type B package design which fails to meet one or more of the specific additional requirements for Type B (U) packages (see marginal 3603 of Appendix A.6). No limit on the quantity per package except as prescribed in the approval certificate. If fissile substances are present, the requirements of schedule 11 shall be met in addition to the requirements of this schedule.

#### 2. Packaging/Package

Type B (M), in accordance with the design requirements given in marginal 3604 of Appendix A.6 requiring competent authority multilateral approval, see marginal 3673 of Appendix A.6.

#### 3. Package maximum radiation level

200 mrem/h at the surface of the package and 10 mrem/h at 1 metre from that surface. (see Marginals 3653 to 3655 of Appendix A.6).

except in the case of a full load, when the limit is 1000 mrem/h at the surface of the package and may exceed 10 mrem/h at 1 metre from that surface (see marginal 3659 (7) of Appendix A.6).

#### 4. Mixed packing

See Marginal 3650 of Appendix A.6.

#### 5. Contamination on packages

Non – fixed external contamination limits:

Beta/gamma/ low – toxicity alpha emitters  $10^{-4} \mu\text{Ci}/\text{cm}^2$

Natural/depleted uranium/natural thorium  $10^{-3} \mu\text{Ci}/\text{cm}^2$

Other alpha emitters  $10^{-5} \mu\text{Ci}/\text{cm}^2$

For full details, see marginal 3651 or Appendix A.6

#### 6. Marking on packages

Packages shall be plainly and durably marked externally with:

I) «Type B (M)»

II) competent authority identification mark

III) the weight of the package if over 50 kg

IV) the trefoil symbol embossed or stamped on the outermost fire and water – resistant receptacle.

#### 7. Transport Documents

a) For a summary of the approval and notification requirements, see marginal 2704.

b) The transport document shall include the description «Radioactive substances in Type B (M) packages, 7, schedule 10, ADR», with the name underlined in red, and the details specified in marginals 3680 and 3681 of Appendix A.6.

c) Multilateral package design approval certificates are required, see marginal 3673 of Appendix A.6.

d) If the package is designed to allow for continuous venting or if the total activity of the contents exceed  $3 \times 10^3 \text{ A}_2$  or  $3 \times 10^3 \text{ A}_1$  as appropriate, or  $3 \times 10^4 \text{ Ci}$  whichever is the lower, multilateral shipment certificates are required unless a competent authority authorizes transport by a specific provision in its package design certificate, see marginal 3675 of Appendix A.6.

e) Where advantage is taken of the increased activity per package permitted if the substance is in special form, see para. (d) above, a unilateral special form design approval certificate is required (see marginal 3671 of Appendix A.6).

f) Prior to each shipment the consignor shall notify the competent authorities of all countries affected by the movement preferably fifteen days in advance as detailed in marginal 3682 (2) to (4) of Appendix A.6.

g) Before the shipment of any package, the consignor shall be in possession of all relevant approval certificates.

#### 8. Storage and despatch

a) Any instructions in the competent authority approval certificates shall be observed.

b) Storage and segregation from other dangerous goods – see marginal 3658 (1) of Appendix A.6.

c) Storage and segregation from package labelled «FOTO» – see marginal 240 001 Appendix B4 for segregation table.

d) Total transport index limitation for storage – 50 per group with 6 metres between groups – see marginal 3658 (2) to (5) of Appendix A.6.

e) The consignor shall have complied with the pre – use and pre – shipment requirements of marginals 3643 and 3644 of Appendix A.6.

f) If the surface temperature of the package exceed  $50^\circ \text{C}$  in the shade the package shall be transported as a full load – see marginal 3602 (4) (b) of Appendix A.6.

g) If the average surface heat flux from a package exceeds  $15 \text{ W}/\text{m}^2$ , then the package shall be transported as a full load.

h) Packages specially designed to allow continuous venting – see marginal 3604 (2) of Appendix A.6. shall only be transported under full load.

#### 9. Carriage of packages in vehicles and containers

a) Segregation from packages labelled «FOTO» – see marginal 240 001 of Appendix B4 for segregation table.

b) Total transport index limitation – 50. This limitation does not apply to a full load, provided that if fissile class II or III packages are present the allowable number is not exceeded – see marginal 3659 (5) of Appendix A.6.

c) Maximum radiation levels for vehicles and large containers in the case of a full load.

200 mrem/h at surface

10 mrem/h at 2m from surface

see marginal 3659 (7) of Appendix A.6. Also, for vehicles 2 mrem/h in any normally occupied position – see marginal 3659 (8) of Appendix A.6.

#### 10. Carriage in bulk in vehicles and containers.

Not applicable.

#### 11. Carriage in tank vehicles and tank containers.

Not applicable.

12. Placards and labels on vehicles, tank vehicles, tank containers and containers

(see Appendix A9 and B4)

Containers - labels to model 6A, 6B or 6C on all four sides.

Vehicles and large containers - placards to model in Appendix B4 marginal 24 010 on each lateral side and on rear wall of vehicle (see marginals 3659(6) and 71 500).

### 13. Prohibition on mixed loading

See marginal 2700 (3).

14. Decontamination of vehicles, tank vehicles, tank co-

containers and containers.

See marginal 3695(3) of Appendix A.6.

#### 15. Other provisions

(a) Accident provisions - see marginal 3695 (1) of Appendix A.6.

(b) Decontamination in storage - see marginal 3695(2) of Appendix A.6.

### Schedule 11

Danger labels on packages (see Appendix A9)

Fissile Class I - labels to models 6A, 6B or 6C.

Fissile Class II - labels models 6B or 6C

Fissile Class III - labels to model 6C only. Labels be affixed externally to two opposite sides, see marginals 3653 to 3655 of Appendix A6 for package category.

#### 1. Substances

Fissile substances that is uranium - 233, uranium - 235, plutonium - 238, plutonium - 239, plutonium - 241, or any substance containing any of the foregoing, except unirradiated natural and depleted uranium.

Fissile substances shall also be consigned in full compliance with the requirements of one of the other schedules, as appropriate to the radioactivity.

#### 2. Packaging/Package

(a) The following substances specified fully in marginal 3610 of Appendix A6 are exempt from the special packaging requirements of this schedule:

(i) Fissile substances in quantity not exceeding 15 g.

(ii) Natural or depleted uranium irradiated in a thermal reactor.

(iii) Dilute hydrogenous solutions in limited concentrations and quantities.

(iv) Enriched uranium with not more than 1 per cent of uranium - 235, which should not form a lattice arrangement if metal or oxide.

(v) Substances distributed at not more than 5 g per 10 litre volume.

(vi) Plutonium where less than 1 kg per package and where not more than 20 per cent by mass consists of plutonium - 239 or 241.

(vii) Enriched uranyl nitrate solution containing uranium with not more than 2 per cent uranium - 235.

(b) Otherwise, packages shall be in accordance with the design requirements of Fissile Class I, II or III given in marginals 3611 to 3624 of Appendix A6 and have competent authority approval, where necessary, as detailed in marginal 3674 of Appendix A6.

#### 3. Package maximum radiation level

See appropriate schedule.

#### 4. Mixed packing

See marginal 3650 of Appendix A6

#### 5. Contamination on packages

See appropriate schedule.

#### 6. Marking on packages

See appropriate schedule.

#### 7. Transport documents

(a) For a summary of the approval and notification requirements - see marginal 2704.

(b) The transport document shall include the details specified in the schedule appropriate to the nature of the contents with the word «Fissile» prefixed to the description and underlined in red.

(c) Unilateral or multilateral package design approval certificates may be required, see marginal 3674 of Appendix A6.

(d) Fissile Class II package designs complying with mar-

ginal 3620 of Appendix A6 shall have multilateral shipment approval certificates. Such a package design requires no prior notification unless specified in the competent authority's shipment approval.

(e) Fissile Class III package designs shall have multilateral shipment approval certificates unless a competent authority authorizes transport by a specific provision in its package design certificate, see marginal 3675 of Appendix A6.

(f) Prior to each shipment of a Fissile Class III package which requires multilateral package design approval, see marginal 3674 of Appendix A6 the consignor shall notify the competent authorities of all countries affected by the movement preferably fifteen days in advance as detailed in marginal 3682 (2) to (4) of Appendix A6.

(g) Before the shipment of any package the consignor shall be in possession of any relevant approval certificates.

#### 8. Storage and despatch

(a) Any instructions in the competent authority approval certificates must be observed.

(b) Total transport index limitation for storage - 50 per group with 6 metres between groups - see marginal 3658 (2) to (5) of Appendix A6.

(c) The consignor shall have complied with the pre - use requirements of marginal 3643 of Appendix A6.

#### 9. Carriage of packages in vehicles and containers

(a) Any instruction in the competent authority approval certificates shall be observed.

(b) Total transport index limitation - 50. This limitation does not apply to a full load, provided that if Fissile Class II or III packages are present the allowable number is not exceeded. See marginal 3659(5) of Appendix A6.

#### 10. Carriage in bulk in vehicles and containers

(a) No restrictions for fissile material up to 15 g total or for solutions within certain concentration and quantity limits, see paragraph 2 (a) (i), (iii) and (vii) and marginal 3610 of Appendix A6.

(b) Not applicable for Fissile Class I or II packages.

(c) Permitted under Fissile Class III only if so specified in the competent authority certificate.

#### 11. Carriage in tank vehicles and tank containers

Not applicable.

#### 12. Placards and labels on vehicles, tank vehicles, tank containers and containers

(see Appendices A9 and B.4)

Containers - labels to models 6A, 6B or 6C on all four sides.

Vehicles and large containers - placards to model in Appendix B4 marginal 240 010 on each lateral side and on rear wall of vehicle (see marginals 3659 (6) and 71 500).

#### 13. Prohibitions on mixed loading

See marginal 2700 (3)

#### 14. Decontamination of vehicles, tank vehicles, tank containers and containers

See appropriate schedule.

#### 15. Other provisions

Accident provisions - see marginal 3695 (1) of Appendix A6.

### Schedule 12

#### 1. Substances

Danger labels on packages

(see Appendix A9)

Labels in conformity with model no. 6C shall be affixed externally to two opposite sides unless otherwise prescribed in the competent authority certificate. See marginal 3655(1) of Appendix A6.

Radioactive substances carried under special arrangement

If it is not possible to comply with the package design or shipment requirements, consignments shall be transported under a special arrangement which will ensure that the over - all safety level

is no less than it would have been had all the applicable requirements been met.

See marginal 3676 of Appendix A6.

NOTE For a summary of the approval and notification requirements, see marginal 2704.

Summary of approvals and prior notification requirements  
(a) Approval of special form substances, and package designs

Subject of approval	Competent authority whose approval is required
1 Special form substance excepting those items specified in Schedules 3 and 4.	Country of origin
2 Type A, LSA and LLS.	None unless contents are fissile and not exempted from the fissile requirements under marginal 3610 of Appendix A6: Country of origin
3 Type B (U)	Country of origin
3 Type B (M)	Country of origin and all countries en route
5 Fissile packages Package designs complying with marginal 3620, 3623 or 3624 of Appendix A6	None
Package designs complying with marginal 3616 or 3622 of Appendix A6	Country of origin
All other package designs	Country of origin and all countries en route

Note: «Country of origin» refers to the country where the design originated. Packages in the fissile classes also fall into one or other of package design categories 2, 3 or 4 above and the relevant provisions also apply to them.

2. Type B (U)	None	Country of origin and all countries en route when contents exceed $3 \times 10^3 A_1$ or $3 \times 10^3 A_2$ , as appropriate or $3 \times 10^4 C_1$ whichever is lower.
3. Type B(M) - Continuously venting	Country of origin and all countries en route.	Country of origin and all countries en route.
4. Type B(M) - Not continuously venting	Country of origin and all countries en route when contents exceed $3 \times 10^3 A_1$ or $3 \times 10^3 A_2$ , as appropriate or $3 \times 10^4 C_1$ whichever is lower.	Country of origin and all countries en route.
5. Fissile packages		
Fissile Class I	None	None
Fissile Class II	Packages complying with marginal 3620 of Appendix A6 only: Country of origin and all countries en route.	None unless specified in the competent authority shipment approval
Fissile Class III	Country of origin and all countries en route.	Country of origin and all countries en route.
6. Packages subject to transport under special arrangements	Country of origin and all countries en route.	Country of origin and all countries en route.
<p>Note: Before shipping a Type B(U) package the contents of which exceed <math>3 \times 10^3 A_1</math> or <math>3 \times 10^3 A_2</math>, as appropriate, or <math>3 \times 10^4 C_1</math> whichever is lower, for the first time, the consignor shall ensure that copies of each applicable competent authority certificate applying to the design have been submitted to the competent authority of those countries in whose territory it is to be transported. Country of origin refers to the country where the shipment originated.</p>		
<p>Packages in the fissile classes also fall into one or other of the other headings of this Table and the relevant provisions also apply to them.</p>		

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(b) Approval of shipments and prior notification

Package	Competent authority whose approval is required for each shipment	Prior notification of each shipment
1. Type A, LSA and LIS	None	None

CLASS 8 CORROSIVE SUBSTANCES

1. List of substances

Among the substances and articles covered by the heading of Class 8 those which are listed in marginal 2801 or are covered by a collective heading of that marginal are subject to the provisions of this Annex and of Annex B. These substances and articles to be accepted for carriage under certain conditions are to be considered as substances and articles of ADR.

## A. Acid substances

## (a) Inorganic acids

## 1° Sulphuric acid:

(a) sulphuric acid containing more than 95 per cent pure acid ( $H_2SO_4$ ), and oleum (fuming sulphuric acid);

(b) sulphuric acid containing more than 75 per cent but not more than 85 per cent pure acid ( $H_2SO_4$ );

(c) sulphuric acid containing not more than 75 per cent pure acid ( $H_2SO_4$ );

(d) waste sulphuric acid, completely denitrated;

Note: Incompletely denitrated waste sulphuric acid is not to be accepted for carriage.

(e) lead sludge containing sulphuric acid;

Note: Lead sludge containing less than 3 per cent free acid is a substance of Class 6.1 (see marginal 2601, 73°).

(f) storage batteries filled with sulphuric acid.

For (a) to (d), see also marginal 2801a, under (a).

## 2° Nitric acid:

(a) nitric acid containing more than 70 per cent pure acid ( $HNO_3$ );

(b) nitric acid containing more than 55 per cent but not more than 70 per cent pure acid ( $HNO_3$ );

(c) nitric acid containing not more than 55 per cent pure acid ( $HNO_3$ ).

For (a) to (c), see also marginal 2501a, under (a) and (b).

## 3° Mixed nitrating acids (sulphuric and nitric acids):

(a) mixed nitrating acids containing more than 30 per cent pure nitric acid ( $HNO_3$ );

(b) mixed nitrating acids containing not more than 30 per cent pure nitric acid ( $HNO_3$ );

Note: For waste mixed nitrating acids, see 1o (d).

For (a) and (b) see also marginal 2801a, under 3a) and (b).

4° Perchloric acid in aqueous solutions containing not more than 50 per cent pure acid ( $HClO_4$ ). See also marginal 2801a under (a).

Note: Aqueous solutions of perchloric acid containing more than 50 per cent but not more than 72.5 per cent pure acid ( $HClO_4$ ) are substances of Class 5.1 (see marginal 2501, 3°). Solutions containing more than 72.5 per cent pure acid are not to be accepted for carriage; the same applies to mixtures of perchloric acid with any liquid other than water.

5° Solutions of hydrochloric acid, solutions of hydrobromic acid, solutions of hydroiodic acid, and mixtures of sulphuric acid and hydrochloric acid. See also marginal 2801a, under (a).

Notes: 1. Mixtures of nitric acid with hydrochloric acid are not to be accepted for carriage.

2. Liquefied anhydrous hydrobromic acid and liquefied hydrochloric acid are substances of Class 2 (see marginal 2201, 3° (at) and 5° (at)).

6° Hydrogen fluoride (anhydrous hydrofluoric acid) and aqueous solutions of hydrofluoric acid:

(a) hydrogen fluoride (anhydrous hydrofluoric acid);

(b) aqueous solutions of hydrofluoric acid containing more than 85 per cent hydrogen fluoride;

(c) aqueous solutions of hydrofluoric acid containing more than 60 per cent but not more than 85 per cent hydrogen fluoride;

(d) aqueous solutions of hydrofluoric acid containing not more than 60 per cent hydrogen fluoride.

For (c) and (d), see also marginal 2801a under (a).

7° Fluoboric acid [aqueous solutions containing not more than 78 per cent pure acid ( $HBF_4$ )]. See also marginal 2801a under (a).

Note: Solutions of fluoboric acid containing more than 78 per cent pure acid ( $HBF_4$ ) are not to be accepted for carriage.

8° Fluosilicic acid [hydrofluosilicic acid ( $H_2SiF_6$ )]. See also marginal 2801a, under (a).

9° Stabilized sulphur trioxide. See also marginal 2801a, under (a) and (c).

Note: Unstabilized sulphur trioxide is not to be accepted for carriage.

(b) Inorganic halides, acid salts and similar halogenated substances.

11° Liquid halides and similar halogenated substances (except compounds of fluorine) which, in contact with moist air or water, give off acid fumes, such as:

(a) antimony pentachloride ( $SbCl_5$ ), chlorosulphonic acid

[ $SO_2(OH)Cl$ ], disulphur dichloride (stabilized) ( $S_2Cl_2$ ), chromyl chloride (chromium oxychloride) ( $CrO_2Cl_2$ ), phosphoryl chloride (phosphorus oxychloride) ( $POCl_3$ ), phosphorus trichloride ( $PCl_3$ ), silicon tetrachloride ( $SiCl_4$ ), sulphuryl chloride ( $SO_2Cl_2$ ), thionyl chloride ( $SOCl_2$ ), titanium tetrachloride ( $TiCl_4$ ) and stannic chloride ( $SnCl_4$ );

Note: Unstabilized disulphur dichloride is not to be accepted for carriage.

(b) phosphorus tribromide ( $PBr_3$ ), pyrosulphuryl chloride ( $S_2O_5Cl_2$ ) and thiophosphoryl chloride ( $PSCl_3$ ).

For (a) and (b), see also marginal 2801a, under (a).

12° Solid halides and similar halogenated substances (except compounds of fluorine) which, in contact with moist air or water, give off acid fumes, such as:

aluminium chloride (anhydrous) ( $AlCl_3$ ), antimony trichloride

(technical) ( $SbCl_3$ ), phosphorus pentachloride ( $PCl_5$ ) and zinc chloride ( $ZnCl_2$ ).

See also marginal 2801a, under (a) and (d).

Note: Non-anhydrous aluminium chloride is not to be accepted for carriage.

13° Bisulphates. See also marginal 2801a, under (a).

Note: Bisulphates are not subject to the provisions of ADR if the sender certifies in the transport document that the products are free from free sulphuric acid and are dry.

14° Bromine. See also marginal 2801a, under (a).

15° The following compounds of fluorine:

(a) difluorides;

(b) ammonium fluoride, chromic fluoride, antimony pentafluoride;

(c) boron trifluoride-acetic acid complex, boron trifluoridepropionic acid complex;

(d) bromine trifluoride ( $BrF_3$ ), bromine pentafluoride ( $BrF_5$ ).

For (a) to (d), see also marginal 2801a, under (a).

(c) Organic substances:

21° The following acids:

(a) chloroacetic acids:

1. monochloroacetic and trichloroacetic acids (solid);

2. dichloroacetic acid (liquid) and mixtures of chloroacetic acids;

(b) formic acid containing not less than 70 per cent pure acid;

(c) glacial acetic acid and its aqueous solutions containing more than 80 per cent pure acid;

(d) propionic acid containing more than 80 per cent pure acid;

(e) acetic anhydride.

For (a) to (e), see also marginal 2801a, under (a).

22° Liquid acid halides, such as:

acetyl chloride and benzoyl chloride. See also marginal 2801a, under (a).

23° Alkyl and aryl chlorosilanes:

(a) alkyl chlorosilanes and aryl chlorosilanes having a point below 21°C;

(b) alkyl chlorosilanes and aryl chlorosilanes having a point of 21°C or above;



Note: Substances of this item number which give off inflammable gases on contact with water, are not to be accepted for carriage.

For (a) and (b), see also marginal 2801a, under (a).

B. Substances of basic character.

31° (a) Sodium hydroxide and potassium hydroxide (caustic soda, caustic potash), in lumps, in flakes or in powder form: See also marginal 2801a, under (a);

(b) Sodium hydroxide filled in the molten state.

32° Sodium hydroxide and potassium hydroxide in solutions (soda lye, potash lye), also in mixtures (caustic lyes), alkaline solutions of phenol, cresols and xylenols, alkaline residues from oil refineries.

See also marginal 2801a, under (a).

33° Storage batteries filled with alkaline solutions. See also marginal 2801a, under (e).

34° Hydrazine in aqueous solutions containing not more than per cent hydrazine ( $N_2H_4$ ). See also marginal 2801a, under (a).

Note: Aqueous solutions containing more than 72 per cent hydrazine ( $N_2H_4$ ) are not to be accepted for carriage.

35° Alkyl and aryl amines and polyamines, such as: 1,2-diaminoethane (ethylenediamine), hexamethylene-diamine, triethylenetetramine.

See also marginal 2801a, under (a).

36° Sodium sulphide containing not more than 70 per cent  $Na_2S$ .

Note: Sodium sulphide containing more than 70 per cent  $Na_2S$  is not to be accepted for carriage.

37° Hypochlorite solutions:

(a) hypochlorite solutions containing more than 50 g available chlorine per litre;

(b) hypochlorite solutions containing not more than 50 g available chlorine per litre.

For (a) and (b), see also marginal 2801a, under (a).

C. Other corrosive substances.

41° Solutions of hydrogen peroxide:

(a) aqueous solutions of hydrogen peroxide containing more than 40 per cent but not more than 60 per cent hydrogen peroxide;

(b) aqueous solutions of hydrogen peroxide containing more than 6 per cent but not more than 40 per cent hydrogen peroxide.

For (a) and (b), see also marginal 2801a, under (a).

Note: Hydrogen peroxide and its aqueous solutions containing more than 60 per cent hydrogen peroxide are substances of Class 5.1 (see marginal 2501, 1°).

D. Empty receptacles and empty tanks

51° Empty packagings, uncleaned, and empty tanks, uncleaned, except those which have contained substances of 13° and 36°.

Substances handed over for carriage in conformity with the following provisions are not subject to the provisions relating to this Class contained in this Annex or in Annex B:

(a) substances of 1° (a) to (d), 2° (b) and (c), 3° (b), 4°, 5°, 6° (c) and (d), 7° to 9°, 11° to 15°, 21° to 23°, 31° (a), 32°, 34°, 35°, 37° and 41° in quantities not exceeding 1 kg for each substance, on condition that they are packed in leak-proof receptacles incapable of being attacked by the contents and that these receptacles are packed with care in strong, leak-proof wooden packagings with leak-proof closures;

(b) substances of 2° (a) and 3° (a), in quantities not exceeding 200 g for each substance, on condition that they are packed in leak-proof receptacles incapable of being attacked by the contents and that these receptacles are secured, not more than 10 per cent, in wooden cases with inert absorbent cushioning materials;

(c) sulphur trioxide (9°), whether or not mixed with a small quantity of phosphoric acid, on condition that it is packed in strong sheet-metal boxes weighing not more than

15 kg, hermetically closed and fitted with a handle;

(d) phosphorus pentachloride (12°) compressed into blocks weighing not more than 10 kg each, on condition that these blocks are packed in welded and air-tight sheet-metal boxes placed, either singly or in groups, in a crate, a case or a container;

(e) metal-cased storage batteries filled with an alkaline solution (33°), on condition that they are so closed as to prevent leakage of the solution and are protected against short circuits.

## 2. Provisions

### A. Packages

#### 1. General conditions of packing

(1) Packagings shall be so closed and arranged as to prevent any loss of the contents. For the special provision relating to storage batteries [1° (f) and 33°], see marginal 2804 and 2816; for hypochlorite solutions of 37° and hydrogen peroxide of 41°, see marginals 2820 and 2821 respectively.

(2) The materials of which the packagings and their closures are made must not be liable to attack by the contents, or cause the contents to decompose, or form harmful or dangerous compounds therewith.

(3) Packagings, including their closures, must be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. In particular, where substances are in the liquid state or in solution, receptacles and their closures must, unless the section headed «Packing of a single substance or of articles of the same kind» provides otherwise, be able to withstand any pressure which, the presence of air also being taken into account, may arise inside the receptacles in normal carriage. For this purpose a free space must be left, account being taken of the difference between the temperature of the substances at the time of filling and the highest mean temperature which they are likely to reach during carriage. Inner packagings shall be firmly secured in outer packagings. Unless otherwise specified in the section entitled «Packing of a single substance or of articles of the same kind», inner packagings may be enclosed in outer packagings, either singly or in groups.

(4) Bottles and other glass receptacles must be free from faults liable to impair their strength; in particular, internal stresses must have been suitably relieved. The walls must be not less than 3 mm thick in the case of receptacles weighing, with their contents, more than 35 kg and not less than 2 mm in the case of other receptacles.

The tightness of the closure system must be ensured by an additional device (cap, crown, seal, binding, etc.) capable of preventing any loosening of the closure system during carriage.

(5) When receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, are prescribed or allowed, they must, in the absence of any provision to the contrary, be provided with protective packagings. Receptacles made of glass, porcelain, stoneware or similar materials shall be carefully secured therein by cushioning materials. Cushioning materials shall be suited to the nature of the contents.

#### 2. Packing of a single substance or of articles of the same kind

(1) Substances of 1° (a) to (c) and 2° to 5° shall be packed:

(a) in hermetically closed receptacles made of glass, porcelain, stoneware or similar material, or of a suitable plastics material, of a capacity not exceeding 5 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or other outer packaging of sufficient strength. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than

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50 kg, other those forwarded as a full load, shall be fitted with means of handling; or

(b) in hermetically closed cylindrical receptacles made of glass, porcelain, stoneware or similar material. These receptacles shall be secured by absorbent cushioning materials in a wooden case or other outer packaging of sufficient strength. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg; or

(c) in hermetically closed glass carboys, which shall be secured by absorbent cushioning materials in a wooden case or other outer packaging of sufficient strength, or firmly fixed in iron or wicker hampers. The carboys shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg.

(2) Substances of 1° (a) to (c), 2° and 3° may also be packed in hermetically closed metal drums having a suitable lining in the case of substance of 1° (b), (c), (d) and (e) and a lining only if necessary in the case of substances of 2° and 3°. The drums shall not be filled beyond 95 per cent of their capacity. If, with their contents, they weigh more than 275 kg shall be fitted with rolling hoops.

(3) Substances of 1° (a) to (e), 2° and 5° may also be packed in hermetically closed receptacles, made of a suitable plastics material, of a capacity not exceeding 60 litres. These receptacles shall be placed singly and tightly in a protective packaging with complete sides, made of paper-board or of some material of sufficient strength. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg.

(4) Substances of 5° may also be packed in hermetically closed receptacles, made of a suitable plastics material, of a capacity not exceeding 60 litres, with walls of sufficient thickness, which shall be not less than 4 mm in the case of receptacles of 50 litres, or over; the openings shall be closed by two plugs, one placed over the other, one of them being screw-threaded. These receptacles need have no protective packaging if the competent authority of the country of departure so allows. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg.

(5) In the case of substances of 2° (a), 3° (a) and 4°, the absorbent cushioning materials must be incombustible; in the case of substances of 2° (b), they shall be fire-resistant.

Storage batteries filled with sulphuric acid [1°(f)] shall be secured in battery cases. The batteries shall be protected against short circuits and be secured by absorbent cushioning materials in a wooden packing case. Packing cases shall be fitted with means of handling.

Nevertheless, if the storage batteries are made of a shock-resistant material and their upper part is so designed that the acid cannot splash out in dangerous quantities, the batteries need not be packed, but they must be protected against any short circuits sliding, falling or damage, and be fitted with means of handling. No dangerous quantities of acid must appear on the outside of packages.

Similarly, storage batteries forming part of the equipment of vehicles need not have special packaging if the vehicles are loaded upright on their wheels and secured against falling.

(1) Substances of 6° (c) and (d), 7° and 8° shall be packed.

(a) in hermetically closed metal receptacles, with a suitable lining if necessary, of a capacity not exceeding 15 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles shall not be filled beyond 90 per cent of their capacity. Such a package must not weigh more than 100 kg; or

(b) in hermetically closed metal drums, with a suitable lining if necessary. The drums shall not be filled beyond 90 per cent of their capacity. If, with their contents, they weigh more than 275 kg, they shall be fitted with rolling hoops; or

(c) in hermetically closed receptacles, made of a suitable

plastics material, of a capacity not exceeding 60 litres. These receptacles shall be placed singly and tightly in a protective packaging with complete sides, made of paper-board or of some other material of sufficient strength. The receptacles shall not be filled beyond 90 per cent of their capacity. Such a package must not weigh more than 100 kg.

(2) Substances of 6°, (a) and (b), shall be packed in receptacles made of carbon steel of suitable alloy steel. The receptacles must be able to withstand a test pressure of 10 kg/cm<sup>2</sup>. The following kinds of receptacle shall be accepted:

(a) cylinders with a capacity not exceeding 150 litres;

(b) cylindrical receptacles equipped with rolling hoops and having a capacity of not less than 100 litres and not more than 1,000 litres.

At the test pressure, the stress in the metal at the most severely point of the receptacle shall not exceed three-quarters of the yield stress. By "yield stress" is meant the stress at which a permanent elongation of 2% (i.e. 0.2 per cent) of the gauge length on the test-piece has been produced. In addition, the material used for the receptacles must have adequate impact strength down to a temperature of -20°C.

The receptacles must be of seamless construction or welded. For welded receptacles, a steel of fully satisfactory weldability must be used. Welded receptacles are to be accepted only on condition that the manufacturer guarantees the workmanship of the welding and that the competent authority of the country of origin has given its approval.

The wall thickness of the receptacles must not be less than 3 mm.

Openings for filling and discharging receptacles shall be fitted with flap valves or needle-valves. Valves (cocks) of other types may however be accepted if they present equivalent guarantees of safety and have been approved in the country of origin. Nevertheless, whatever the type of valve adopted, its system of attachment shall be strong and such that its satisfactory condition can be verified easily before each filling.

Apart from a manhole, which if provided shall be closed by an effective closure, receptacles shall not be equipped with more than two openings, for filling and discharge.

Valves (cocks) shall be protected by caps having vents. Valves placed inside the neck of the receptacles and protected by a screw-threaded plug, and receptacles carried packed in protective cases, shall not require a cap.

Receptacles shall be subjected, under the supervision of an expert approved by the competent authority, to a hydraulic pressure test at an internal pressure of not less than 10 kg/cm<sup>2</sup> before being placed in service, and subsequently to the following periodic tests:

The pressure test shall be repeated every eight years and shall be accompanied by an internal inspection of the receptacles and a check of their equipment. In addition, the resistance of the receptacles to corrosion shall be checked by means of suitable instruments (e.g. by ultrasound), and the condition of the equipment verified, every two years.

Receptacles shall bear in clearly legible and durable characters:

(a) the name of the substance in full, the name or mark of the maker and the manufacturer's identification number of the receptacle;

(b) the tare of the receptacle, including fittings other than the protective cap;

(c) the test pressure, the date (month, year) of the most recent test undergone and the stamp of the expert who carried out the test and inspections;

(d) the capacity and permissible maximum load of the receptacle.

The permissible maximum weight shall be 0.84 kg per litre of capacity.

(1) Sulphur trioxide (9°) shall be packed:

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(a) in soldered receptacles made of black sheet-iron or tin-plate, or in hermetically closed bottles made of black sheet-iron, tin-plate or copper; or

(b) in flame-sealed glass receptacles, or in hermetically closed receptacles made of porcelain, stoneware or similar materials; or

(c) in steel drums which have been pressure-tested at 1.5 kg/cm<sup>2</sup>.

(2) The receptacles referred to in (a) and (b) above shall be secured by incombustible and absorbent cushioning materials in packagings made of wood, black sheet-iron or tin-plate.

Substances of 11° shall be packed:

(a) in hermetically closed receptacles made of glass, porcelain, stoneware or similar material, or of a suitable plastics material, of a capacity not exceeding 5 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

(b) in hermetically closed metal drums, with a suitable lining if necessary. The drums shall not be filled beyond 95 per cent of their capacity. If, with their contents, they weigh more than 275 kg, they shall be fitted with rolling hoops; or

(c) in hermetically closed receptacles, made of a suitable plastics material, of a capacity not exceeding 60 litres. These receptacles shall be placed singly and tightly in a protective packaging with complete sides, made of paperboard or of some other material of sufficient strength. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg; or

(d) in hermetically closed glass carboys, which shall be secured by absorbent cushioning material in a wooden case or in some other outer packaging of sufficient strength. The carboys shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg.

Substances of 12o shall be packed:

(a) in hermetically closed receptacles made of glass, porcelain, stone-ware or similar material, or of a suitable plastics material, which must not contain more than 5 kg of substance each. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

(b) in hermetically closed metal receptacles, with a suitable lining if necessary, which must not contain more than 15 kg of substance each. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 100 kg; or

(c) in hermetically closed metal drums, with a suitable lining if necessary. If the drums, with their contents, weigh more than 275 kg, they shall be fitted with rolling hoops; or

(d) in hermetically closed receptacles, made of a suitable plastics material, of a capacity not exceeding 60 litres. These receptacles shall be placed singly and tightly in a protective packaging with complete sides, made of paperboard or of some other material of sufficient strength. Such a package must not weigh more than 100 kg; or

(e) in hermetically closed wooden casks of sufficient strength, with a suitable lining. Such a package must not weigh more than 250 kg;

(f) zinc chloride may also be packed in hermetically closed bags, made of a suitable plastics material, which shall be placed in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg.

substances of 13° and 15° shall be packed:

(a) in hermetically closed receptacles made of glass, porcelain, stoneware or similar material, or of a suitable plastics material, which must not contain more than 5 kg of substance each; however, glass receptacles are not accepted for fluoride of 15o. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

(b) in hermetically closed metal receptacles, with a lead lining if necessary, which must not contain more than 15 kg of substance each. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 100 kg; or

(c) in hermetically closed metal drums, with a lead lining if necessary. If the drums, with their contents, weigh more than 275 kg, they shall be fitted with rolling hoops; or

(d) in hermetically closed receptacles, made of a suitable plastics material, of a capacity not exceeding 60 litres. These receptacles shall be placed singly and tightly in a protective packaging with complete sides, made of paperboard or of some other material of sufficient strength. Such a package must not weigh more than 100 kg; or

(e) in hermetically closed bags, made of a suitable plastics material, which shall be placed in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

(f) in hermetically closed wooden casks of sufficient strength, with a suitable lining. Such a package must not weigh more than 250 kg; or

(g) in stout paper bags of four plies, lined with a hermetically closed bag made of a suitable plastics material. Such a package must not weigh more than 55 kg.

(1) Bromine (14o) shall be packed in suitable receptacles containing not more than 7.5 kg of substance per receptacle.

(2) Bromine containing less than 0.005 per cent water, or between 0.005 per cent and 0.2 per cent water provided that in the latter case measures are taken to prevent corrosion of the lining of the receptacles, may also be carried in receptacles satisfying the following conditions:

(a) the receptacles shall be made of steel and be equipped with a leak-proof lining made of lead or of some other material affording equivalent protection, and with hermetic closures; receptacles made of monel metal or nickel, or equipped with a nickel lining, shall also be permitted;

(b) their capacity must not exceed 1250 litres;

(c) the receptacles shall not be filled beyond 92 per cent of their capacity or beyond 2.86 kg per litre of capacity;

(d) the receptacles shall be welded and designed for a pressure of not less than 21 kg/cm<sup>2</sup>.

The materials and workmanship must in other respects meet the requirements of marginals 2211 (1) and (2) (b). The initial test of unlined steel receptacles shall be subject to the provisions of marginals 2215 (1) and 2216 (1), A and B.

(e) the closing devices must project as little as possible from the receptacle and be fitted with a protective cap. The closing devices and the cap shall be fitted with gaskets made of a material not capable of being attacked by bromine. The closing devices must be in the upper part of the receptacles, so that they can in no case be in permanent contact with the liquid;

(f) the lead lining must be leak-proof and be not less than 3 mm thick. If some other material is used, it must provide protection equivalent to that provided by lead;

(g) the receptacles must be provided with fittings enabling them to stand stably upright, and with lifting attachments (rings, flanges, etc.) at the top, which must be tested at twice the working load.

(3) Receptacles in conformity with (2) above shall, before being put into service, be subjected to a tightness test at a pressure of 2 kg/cm<sup>2</sup>. The tightness test shall be

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repeated every two years and shall be accompanied by an internal inspection of the receptacle and a check of its tare. This test and this inspection shall be supervised by an expert approved by the competent authority.

(4) The receptacles must bear, in clearly legible and indelible characters:

(a) the name or mark of the maker and the number of the receptacle;

(b) the word «Bromine»;

(c) the tare of the receptacle and its maximum weight when filled;

(d) the date (month and year) of the last test undergone;

(e) the stamp of the expert who carried out the test and the inspections.

(1) Substances of 21o (a) 1 shall be packed:

(a) in hermetically closed receptacles made of glass, porcelain, stone-ware or similar material, or of a suitable plastics material, which must not contain more than 5 kg of substance each. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

(b) in hermetically closed metal receptacles, with a suitable lining if necessary, which must not contain more than 15 kg of substance each. These receptacles shall be secured with cushioning material in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 100 kg; or

(c) in hermetically closed metal drums, with a suitable lining if necessary. If the drums, with their contents, weigh more than 275 kg, they shall be fitted with rolling hoops; or

(d) in hermetically closed receptacles, made of a suitable plastics material, of a capacity not exceeding 60 litres. These receptacles shall be placed singly and tightly in a protective packaging with complete sides, made of paper board or of some other material of sufficient strength. Such a package must not weigh more than 100 kg; or

(e) in hermetically closed bags, made of a suitable plastics material, which shall be placed in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

(f) in hermetically closed wooden casks of sufficient strength, with a suitable lining. Such a package must not weigh more than 250 kg; or

(g) in stout paper bags of four plies, lined with a hermetically closed bag made of a suitable plastics material. Such a package must not weigh more than 55 kg; or

(h) in jute bags rendered moisture-proof by a lining made of a suitable material, coated with bitumen, or in jute bags lined with a hermetically closed bag made of a suitable plastics material. Such a package must not weigh more than 55 kg.

(2) Substances of 21° (a)2., (b), (c), (d) and (e) shall be packed:

(a) in hermetically closed receptacles made of glass, porcelain, stone-ware or similar material, or of a suitable plastics material, of a capacity not exceeding 5 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

(b) in hermetically closed glass carboys, which shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The carboys shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg; or

(c) in hermetically closed metal receptacles, with a suitable lining if necessary, of a capacity not exceeding 15 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles

shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg; or

(d) in hermetically closed canisters made of a suitable metal, welded or hard-soldered, of a capacity not exceeding 60 litres and fitted with means of handling. The canisters shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg; or

(e) in hermetically closed metal drums, with a suitable lining if necessary. The drums shall not be filled beyond 95 per cent of their capacity. If, with their contents, they weigh more than 275 kg, they shall be fitted with rolling hoops; or

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(f) in hermetically closed receptacles made of a suitable plastics material, of a capacity not exceeding 60 litres. These receptacles shall be placed singly and tightly in a protective packaging with complete sides, made of paper-board or of some other material of sufficient strength. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg; or

(g) in hermetically closed receptacles, made of a suitable plastics material, of a capacity not exceeding 60 litres, with walls of sufficient thickness, which shall be not less than 4 mm in the case of receptacles of 50 litres or over; the openings shall be closed by two plugs, one placed over the other, one of them being screw-threaded. These receptacles need have no protective packaging if the competent authority of the country of departure so allows. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg.

Substances of 22o shall be packed:

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(a) in hermetically closed receptacles made of glass, porcelain, stone-ware or similar material, or of a suitable plastics material, of a capacity not exceeding 5 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

(b) in hermetically closed metal drums, with a suitable lining if necessary. The drums shall not be filled beyond 95 per cent of their capacity. If, with their contents, they weigh more than 275 kg, they shall be fitted with rolling hoops; or

(c) in hermetically closed receptacles, made of a suitable plastics material, of a capacity not exceeding 60 litres. These receptacles shall be placed singly and tightly in a protective packaging with complete sides, made of paper-board or of some other material of sufficient strength. Receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg; or

(d) in hermetically closed glass carboys, which shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The carboys shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg.

(1) Substances of 23o shall be packed:

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(a) in hermetically closed receptacles made of glass, porcelain, stoneware or similar material, or of a suitable plastics material, of a capacity not exceeding 5 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, except those forwarded as a full load, shall be fitted with means of handling; or

(b) in hermetically closed metal receptacles, with a

suitable lining if necessary, of a capacity not exceeding 15 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg; or

(c) in hermetically closed metal drums, with a suitable lining if necessary. Drums intended to hold substance of 23° (a) must satisfy the requirements of Appendix A.5. the drums shall not be filled beyond 95 per cent of their capacity. If, with their contents, they weigh more than 275 kg, they shall be fitted with rolling hoops.

(2) Substances of 23° (b) may also be packed:

(a) in hermetically closed canisters made of a suitable metal, welded or hard-soldered, of a capacity not exceeding 60 litres and fitted with means of handling. The canisters shall not be filled beyond 95 per cent of their capacity. Such package must not weigh more than 75 kg; or

(b) in hermetically closed receptacles, made of a suitable plastics material, of a capacity not exceeding 60 litres, with walls of sufficient thickness, which shall be not less than 4 mm in the case of receptacles of 50 litres or over; the openings shall be closed by two plugs, one placed over the other, one of them being screwthreaded. These receptacles need have no protective packaging if the competent authority of the country of departure so allows. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg.

(1) Substances of 31o (a) shall be packed:

(a) in hermetically closed receptacles made of glass, porcelain, stone-ware or similar material, or of a suitable plastics material, which must not contain more than 5 kg of substance each. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

(b) in hermetically closed metal receptacles, with a suitable lining if necessary, which must not contain more than 15 kg of substance each. These receptacles shall be secured by cushioning materials in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 100 kg; or

(c) in hermetically closed metal drums, with a suitable lining if necessary. If the drums, with their contents, weigh more than 275 kg, they shall be fitted with rolling hoops; or

(d) in hermetically closed receptacles, made of a suitable plastics material, of a capacity not exceeding 60 litres. These receptacles shall be placed singly and tightly in a protective packaging with complete sides, made of paperboard or of some other material of sufficient strength. Such a package must not weigh more than 100 kg; or

(e) in hermetically closed bags, made of a suitable plastics material, which shall be placed in a wooden case or in some other outer packaging of sufficient strength. Such a package must not weigh more than 75 kg; or

(f) in jute bags rendered moisture-proof by a lining made of a suitable material, coated with bitumen, or in jute bags lined with a hermetically closed bag made of a suitable plastics material. Such a package must not weigh more than 55 kg.

(2) Substances of 31° (a) in flakes or in powdered form may also be packed in stout paper bags of four plies, lined with a hermetically closed bag made of a suitable plastics material. Such a package must not weigh more than 55 kg.

(3) Sodium hydroxide of 31o (b) filled in a molten state shall be contained in steel drums with walls not less than 0.5 mm thick. The drums, with their contents, must not weigh more than 450 kg.

Substances of 32° shall be packed:

(a) in hermetically closed receptacles made of glass,

porcelain, stoneware of similar material, or of a suitable plastics material, of a capacity not exceeding 5 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

(b) in hermetically closed metal receptacles, with a suitable lining if necessary, of a capacity not exceeding 15 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg; or

(c) in hermetically closed canisters made of a suitable metal, welded or hard-soldered, of a capacity not exceeding 60 litres, and fitted with means of handling. The canisters shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg; or

(d) in hermetically closed metal drums, with a suitable lining if necessary. The drums shall not be filled beyond 95 per cent of their capacity. If, with their contents, they weigh more than 275 kg, they shall be fitted with rolling hoops; or

(e) in hermetically closed receptacles, made of a suitable plastics material, of a capacity not exceeding 60 litres. These receptacles shall be placed singly and tightly in a protective packaging with complete sides, made of paperboard or of some other material of sufficient strength. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg; or

(f) in hermetically closed receptacles, made of a suitable plastics material, of a capacity not exceeding 60 litres and with walls of sufficient thickness, which shall be not less than 4 mm in the case of receptacles of 50 litres or over; the openings shall be closed by two plugs, one placed over the other, one of them being screw-threaded. These receptacles need have no protective packaging if the competent authority of the country of departure so allows. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg; or

(g) in hermetically closed cylindrical receptacles made of glass, porcelain, stoneware of similar material, of a capacity not exceeding 20 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg; or

(h) in hermetically closed glass carboys, which shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength, or be firmly fixed in iron or wicker hampers. The carboys shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg.

Storage batteries filled with alkaline solutions (33o) shall be made of metal and the upper part shall be so designed that the lye cannot splash out in dangerous quantities. The batteries shall be protected against short-circuits and be packed in a wooden packing case.

(I) Hydrazine (34°) shall be packed:

(a) in hermetically closed glass receptacles, of a capacity not exceeding 5 litres, which shall be secured by suitable cushioning materials in boxes placed in a wooden case; or

(b) in receptacles made of aluminium not less than 99.5 per cent pure or of stainless steel or of lead-lined iron; or

(c) in receptacles, made of a suitable plastics material, fitted with a screw closure and having a capacity not exceeding 65 litres, placed singly in suitable protective packagings or secured in groups by suitable cushioning

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materials in suitable protective packagings; a package must not weigh more than 100 kg, or more than 50 kg if the protective packaging consists of a fibreboard case; or

(d) in drums, made of a suitable plastics material, of a capacity not exceeding 220 litres and with walls not less than 1.5 mm thick, placed singly in drums fitted with rolling hoops.

(2) No receptacle shall be filled beyond 93 per cent of its capacity. The receptacles under (b), (c) and (d) shall be pressure-tested at 1 kg/cm<sup>2</sup>.

;Substances of 350 shall be packed:

(a) in hermetically closed receptacles made of glass, porcelain, stoneware or similar material, or of a suitable plastics material, of a capacity not exceeding 5 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling; or

(b) in hermetically closed metal receptacles, with a suitable lining if necessary, of a capacity not exceeding 15 litres. These receptacles shall be secured by absorbent cushioning materials in a wooden case or in some other outer packaging of sufficient strength. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg; or

(c) in hermetically closed canisters made of a suitable metal, welded or hard-soldered, of a capacity not exceeding 60 litres, and fitted with means of handling. The canisters shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 75 kg; or

(d) in hermetically closed metal drums, with a suitable lining if necessary. The drums shall not be filled beyond 95 per cent of their capacity. If with their contents, they weigh more than 275 kg, they shall be fitted with rolling hoops; or

(e) in hermetically closed receptacles, made of a suitable plastics material, of a capacity not exceeding 60 litres. These receptacles shall be placed singly and tightly in a protective packaging with complete sides, made of paper-board or of some other material of sufficient strength. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg; or

(f) in hermetically closed receptacles, made of a suitable plastics material, of a capacity not exceeding 60 litres, with walls of sufficient thickness, which shall be not less than 4 mm in the case of receptacles of 50 litres or over; the openings shall be closed by two plugs, one placed over the other, one of them being screw-threaded. These receptacles need have no protective packaging if the competent authority of the country of departure so allows. The receptacles shall not be filled beyond 95 per cent of their capacity. Such a package must not weigh more than 100 kg.

(1) Sodium sulphide (36°) shall be packed:

(a) in lead-proof iron receptacles; or

(b) in quantities not exceeding 5 kg, also in receptacles, made of glass or of a suitable plastics material, which shall be secured in strong wooden receptacles, glass receptacles being secured therein by cushioning materials.

(2) Sodium sulphide in solid form may also be enclosed in other leak-proof receptacles. If carried as a full load, it may also be packed:

(a) in stout paper bags of five plies, so closed as to be leak-proof and lined with a bag made of a suitable plastics material; or

(b) in bags made of a suitable plastics material equal in strength to the paper bags.

Packages made up of bags must not weigh more than 55 kg.

(1) Hypochlorite solutions (37°) shall be packed:

(a) in receptacles made of glass, porcelain, stoneware or similar material, or of a suitable plastics material, secured in protective packagings; fragile receptacles shall be secured therein by cushioning materials; or

(b) in metal drums, suitably lined.

(2) In the case of hypochlorite solutions of 37° (a), the receptacles or drums shall be so designed as to allow gases to escape, or shall be fitted with pressure-relief valves.

(1) Aqueous solutions of hydrogen peroxide containing more than 40 per cent but not more than 60 per cent hydrogen peroxide [41° (a)] shall be contained:

(a) in receptacles, which must be able to stand stably upright, made of aluminium not less than 99.5 per cent pure or of a special steel not liable to cause the hydrogen peroxide to decompose. The capacity of these receptacles must not exceed 200 litres; or

(b) in receptacles, made of glass, porcelain, stoneware and suitable plastics material, of a capacity not exceeding 20 litres. Each receptacle shall be secured by absorbent, incombustible and inert cushioning materials in a sheet-steel packaging with complete sides, lined with suitable materials. This packaging shall be placed in a wooden packing case with a sloping protective cover.

For closure and degree of filling, see under (3).

(2) Aqueous solutions of hydrogen peroxide containing more than 6 per cent but not more than 40 per cent hydrogen peroxide [41° (b)] shall be contained in receptacles made of glass, porcelain, stoneware, aluminium not less than 99.5 per cent pure, special steel not liable to cause the hydrogen peroxide to decompose, or a suitable plastics material.

Receptacles of a capacity not exceeding 3 litres shall be secured by cushioning materials in wooden cases; if the receptacles contain aqueous solutions of hydrogen peroxide containing more than 35 per cent hydrogen peroxide, the cushioning materials must be suitable fire-proofed. A package must not weigh more than 35 kg.

If the receptacles have a capacity of more than 3 litres they must satisfy the following conditions:

(a) receptacles made of aluminium or of special steel must be able to stand stably upright. A package must not weigh more than 250 kg;

(b) receptacles made of glass, porcelain, stoneware or a suitable plastics material shall be placed in suitable strong protective packagings which will keep them securely upright; the packagings shall be fitted with means of handling. Inner receptacles other than those made of a plastics material shall be secured in outer packagings by cushioning materials. Where receptacles contain aqueous solutions of hydrogen peroxide containing more than 35 per cent but not more than 40 per cent hydrogen peroxide, the cushioning materials shall be suitably fire-proofed. A package of this kind must not weigh more than 90 kg; however, it may weigh up to 110 kg if the protective packagings are, in addition, packed in a case or crate;

(c) aqueous solutions of hydrogen peroxide containing more than 6 per cent but not more than 40 per cent hydrogen peroxide may also be contained, without protective packagings, in receptacles made of a suitable plastics material, provided that the thickness of the walls (including areas reserved for labelling is not at any point less than 4 mm, the walls are protected by strong ribs, and the ends are reinforced. The receptacles shall be fitted with means of handling. The capacity must not exceed 60 litres.

For closure and degree of filling, see under (3).

(3) Receptacles of a capacity not exceeding 3 litres may have a hermetic closure. In such cases the receptacles shall be filled with a weight of solution which, expressed in grammes, is equal to not more than two-thirds of the figure expressing the capacity of the receptacle in cm<sup>3</sup>.

Receptacles of a capacity exceeding 3 litres shall be fitted with a special closure preventing excess internal pressure, leakage of the liquid, and the entry of foreign

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matter into the receptacle. Where receptacles are packed separately, the outer packaging shall be fitted with a cover which, while protecting the closure, makes it possible to verify that the closure is directed upwards. These receptacles may not be filled beyond 95 per cent of their capacity.

### 3. Mixed packing

(1) Substances grouped under the same item number may be included in the same package. The inner packagings shall conform to what is prescribed for each substance, and the outer packaging shall be that laid down for the substances of the item number in question.

(2) If smaller quantities are not prescribed in the section entitled «Packing of a single substance or of articles of the same kind» and no special conditions are laid down below, substances of this Class, in quantities not exceeding 6 kg in the case of solids or 3 litres in the case of liquids for all of

the substances listed under the same item number or the same letter, may be enclosed in the same package either with substances of another item number or of another letter of the same Class, or with substances or articles belonging to other Classes (if mixed packing is likewise allowed in the case of such substances or articles), or with other goods, subject to the following special conditions.

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The inner packagings must satisfy the general and special conditions of packing. In addition, the general provisions of marginals 2001 (5) and 2002 (6) and (7) must be observed.

Mixed packing of an acid substance with a basic substance in the same package is not allowed if both substances are contained in fragile receptacles.

A package must not weigh more than 150 kg, or more than 75 kg if it contains fragile receptacles.

Item-No.	Description of substances	Maximum quantity		Special provisions
		per receptacle	per package	
1°(a)	Oleum	3 litres	12 litres	Must not be packed together with chlorates, permanganates, solutions of hydrogen peroxide, perchlorates, peroxides or hydramine. The limitation of 18 litres applies to sulphuric, nitric and hydrochloric acids, and mixed nitrating acids, for all of these substances. If the package contains an acid subject to a limitation of 12 litres, this limitation must be applied.
1° (a) (b), (c)	Sulphuric acid other than oleum	3 litres	16 litres	
	2° (a) Nitric acid containing more than 70% pure acid	3 litres	12 litres	Must not be packed together with formic acid, trichloroamine, aniline, xylydine, toluene, chlorates, permanganates, inflammable liquids with a flash-point below 21° C, solutions of hydrogen peroxide, perchlorates, peroxides, hydrozinc, glycerine, glycols. Only inert filling materials must be used.
2° (b) and	Nitric acid containing not more than 70% pure acid	3 litres	18 litres	
3°	Mixed nitrating acids	3 litres	18 litres	
4°	Perchloric acid	Mixed packing not allowed		
5°	Hydrochloric acid	5 litres	18 litres	Must not be packed together with chlorates, permanganates, perchlorates peroxides (other than solutions of hydrogen peroxide).
6°	Solutions of hydrofluoric acid	1 litre	10 litres	
11° (a)	Disulphur dichloride	500 g	500 g	
11° (a)	Antimony pentachloride Chlorosulphanic chloride Sulphuryl acid Thionylchloride Titanium tetrachloride Stannic chloride	2.5 kg	5 kg	Must not be packed together with substances of 360 of Class 8 or with substances of Class 5.1; must be protected against penetration of moisture
12°	Antimony trichloride			
14°	Bromine - in fragile receptacles - in other receptacles	500 g 1 kg	500 g 3 kg	
15° (a)	Difluorides	5 kg	15 kg	Must not be packed together with substances of Classes 4.2, 4.3 and 5.1, or with nitric acid or mixed nitrating acids.

21° (b)	Nitric acid	5 litres	15 litres	Must not be packed together with chlorates, permanganates solutions of hydrogen peroxide, nitric acid, mixed nitrating acids.
21° (c)	Acetic acid	5 litres	15 litres	Must not be packed together with chloride or permanganates.
34°	Hydramine	5.5 kg	5.5 kg	Must not be packed together with sulphuric acid, chlorosulphonic acid, nitric acid, mixed nitrating acids, chlorates, permanganates, sulphur, solutions of hydrogen peroxide, perchlorates and peroxides. Must be kept separate from caustic alkaline substances and strong oxidizing agents.
36°	Sodium sulphide containing not more than 70% Na <sub>2</sub> S	2.5 kg	15 kg	Must not be packed together with acid substances.
41° (a)	Solutions of hydrogen peroxide containing more than 35% hydrogen peroxide	Mixed packing not allowed		
41° (b)	Solutions of hydrogen peroxide containing more than 15% but not more than 35% hydrogen peroxide  - in fragile receptacles - in other receptacles	1 litres 3 litres	3 litres 12 litres	Must not be packed together with sulphuric acid, chlorosulphonic acid, formic acid, nitric acid, mixed nitrating acids, triethanolamine, aniline, xylydine, toluidine, permanganates, inflammable liquids with a flash-point below 21° C, metallic peroxides, hydrazine.
	Solutions of hydrogen peroxide containing more than 6% but not more than 15% hydrogen peroxide	3 litres	12 litres	Only inorganic filling materials must be used.

#### 4. Marking and danger labels on packages (see Appendix A.9)

Cases containing storage batteries (1° (f) and 33°) shall be legibly and indelibly marked: «Storage batteries». This inscription shall be in an official language of the country of departure and also, if that language is not English or French, or German, in English, French or German, unless otherwise provided in agreements, if any, concluded between the countries concerned in the transport operation.

(1) Packages containing substances of 1° to 7°, 9°, 11°, 12°, 14°, 15°, 22°, 31°, 35°, or 41° (a) shall bear a label conforming to model No. 5.

However, if liquids of 1° (a) to (e), 2° to 5°, 11°, 22° or 32° are packed in receptacles made of glass, porcelain, stoneware or similar material, of a capacity exceeding 5 litres, the packages shall bear two labels conforming to model No. 5.

(2) Packages containing fragile receptacles not visible from the outside shall bear labels conforming to model No. 9. If the fragile receptacles contain liquids, the packages shall in addition, except in the case of sealed ampoules, bear labels conforming to model No. 8; these labels shall be affixed high up on two opposite sides of cases or in an equivalent manner when other packagings are used.

(3) Every case containing storage batteries [1° (f) and 33°], and packages weighing not more than 75 kg containing substances of 1° to 7°, 9°, 11°, 21°, 31° to 35° and 37°, shall, in addition, bear on two opposite sides labels conforming to model No. 8.

(4) In the case of consignments carried as a full load, label No. 5, as prescribed under (1), need not be affixed to

2823 the packages if the vehicle bears the marking prescribed in Annex B, marginal 10500.

#### B. Particulars in the transport document

(1) The description of the goods in the transport document

must conform to one of the names underlined in marginal 2801. Where the name of the substance is not indicated in the case of 11°, 12°, 13°, 15°, 22° and 35°, the trade name must be used. The description of the goods must be underlined in red and followed by particulars of the Class, the item number (together with the letter, if any), and the initials «ADR» or «RID» [e.g. 8.1 (a), ADR].

(2) In the case of bromine containing 0.005 per cent to 0.2 per cent water, carried in receptacles in conformity with marginal 2810 (2), the following must be certified in the transport document: «Steps have been taken to prevent corrosion of the lining of the receptacles».

#### C. Empty packagings

(1) Receptacles and tanks of 5 l must be closed in the same manner and leak-proof in the same degree as though they were full.

(2) The description of the goods in the transport document must be: «Empty receptacle, 8, 5 l, ADR (or RID)». This description must be underlined in red.

(3) Uncleaned receptacles which have contained substances of 6° or bromine (14°) shall bear a label conforming to model No. 5 (Appendix A.9). They must have to traces of acid or bromine on the outside.

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## FOREWORD

The text below comprises, in addition to the Agreement itself and the Protocol of signature, the annexes in the form in which they entered into force on 29 July 1968 as well as the amendments there to up to 1 October 1978.

Part III  
APPENDICES

## APPENDIX A.1

## A. Stability and safety conditions relating to explosive substances, inflammable solids and organic peroxides

The conditions of stability set out below are the standard minima defining the stability required of substances to be accepted for carriage. These substances may be handed over for carriage only if they fully conform to the following requirements.

Re marginal 2101, 1°, marginal 2171, 4° and marginal 2401, 7° (a): Nitrocellulose heated for half an hour at 132° C must not give off visible yellowish-brown nitrous fumes. The ignition temperature must be above 180° C. Pyroxylin thread must satisfy the same conditions of stability as nitrocellulose. See marginals 3150, 3151(a) and 3153.

Re marginal 2101, 3°, 4° and 5°, and marginal 2401, 7° (b) and (c):

1. Nitrocellulose powders not containing nitroglycerine;  
plasticized nitrocellulose:

3 g of powder or of plasticized nitrocellulose, heated for one hour at 132° C, must not give off visible yellowish-brown nitrous fumes. The ignition temperature must be above 170° C.

2. Nitrocellulose powders containing nitroglycerine:  
1 g of powder heated for one hour at 110° C must not give off visible yellowish-brown nitrous fumes. The ignition temperature must be above 160° C.

with regard to 1. and 2., see marginals 3150, 3151(b) and 3153.

Re marginal 2101, 6°, 7°, 8° (a) and (b) and 9° (a), (b) and (c):

1. Trinitrotoluene (Tolite), mixtures termed liquid trinitrotoluene and trinitroanisole (6°), hexyl (hexanitrodiphenylamine) and picric acid [7°(a)], pentolites (mixtures of pentaerythritol tetranitrate and trinitrotoluene) and hexolites (mixtures of trimethylene-trinitramine and trinitrotoluene) [7°(b)], phlegmatized penthrite and phlegmatized hexogen [7°(c)], trinitroresorcinol [8° (a)], tetryl (trinitrophenylmethylnitramine) [8° (b)], penthrite (pentaerythritol tetranitrate) and hexogen (trimethylene-trinitramine) [9° (a)], pentolites (mixtures of penthrite and trinitrotoluene) and hexolites (mixtures of hexogen and trinitrotoluene) [9° (b)] and mixtures of penthrite or

hexogen with wax, paraffin wax or substances similar to wax or paraffin wax [9° (c)], heated for 3 hours at a temperature of 90° C, must not give off visible yellowish-brown nitrous fumes. See marginals 3150 and 3152 (a).

2. Organic nitro-compounds mentioned under 8° other than trinitroresorcinol and tetryl (trinitrophenylmethylnitramine), heated for 48 hours at a temperature of 75° C, must not give off visible yellowish-brown nitrous fumes. See marginals 3150 and 3152 (b).

3. Organic nitro-compounds mentioned under 8° must not be more sensitive to ignition, shock or friction than: trinitroresorcinol, if they are soluble in water; tetryl (trinitrophenylmethylnitramine), if they are insoluble in water.

See marginals 3150, 3152, 3154, 3155 and 3156.

Re marginal 2101, 11° (a) and (b):

1. Black powder [11° (a)] must not be more sensitive to flame-ignition, impact or friction than the finest sporting powder having the following composition: 75 per cent potassium nitrate, 10 per cent sulphur and 15 per cent black alder charcoal. See marginals 3150, 3154, 3155 and 3156.

2. Slow mining powders similar to black powder [11° (b)] must not be more sensitive to flame-ignition, impact or friction than the standard explosive having the following composition:

75 per cent potassium nitrate, 10 per cent sulphur and 15 per cent lignite. See marginals 3150, 3154, 3155 and 3156.

Re marginal 2101, 12°: Nitrate explosives in powder form [12° (a)], and explosives not containing inorganic nitrates, in powder form [12° (b)]; must be capable of being stored for 48 hours at 75° C without giving off visible yellowish-brown nitrous fumes. Before and after storing they must not be more sensitive to flame-ignition, impact or friction than the standard explosive having the following composition:

80 per cent ammonium nitrate, 12 per cent trinitrotoluene, 6 per cent nitroglycerine and 2 per cent wood flour. See marginals 3150, 3152 (b), 3154 (a) and (b), 3155 and 3156.

A sample of the standard explosive referred to above is held at the disposal of the Contracting States by Laboratoire du Centre d'etudes et recherches des charbonnages de France (CERCHAR), Boite postale No. 2, 80550 Verneuil-en-Halatte, France.

Re marginal 2101, 13°: Chlorate and perchlorate explosives must not contain any ammonium salt. They must not be more sensitive to flame ignition, impact or friction than a chlorate explosive having the following composition: 80 per cent potassium chlorate, 10 per cent dinitrotoluene, 5 per cent trinitrotoluene, 4 per cent castor oil and 1 per cent wood flour. See marginals 3150, 3154, 3155 and 3156.

Re marginal 2101, 14° (a) and (b): Explosives of 14° (a) and (b) must not be more sensitive to flame-ignition, impact or friction than blasting gelatine containing 93 per cent nitroglycerine or guhr dynamite containing not more than 75 per cent nitroglycerine. They must satisfy the exudation test of marginal 3158. See marginals 3150, 3154 (b), 3155 and 3156.

Re marginal 2101, 14° (c): Explosives of 14° (c) must be capable of being stored for 48 hours at 75° C without giving off visible yellowish-brown nitrous fumes. Before and after storing they must not be more sensitive to flame-ignition, impact or friction than the standard explosive having the following composition: 37.7 per cent nitroglycol or nitroglycerine or a mixture of the two, 1.8 per cent guncotton, 4 per cent trinitrotoluene, 52.5 per cent ammonium nitrate and 4 per cent wood flour. See marginals 3150, 3152 (b), 3154 (a), (b), (c) and (d), 3155 and 3156.

3104

3105

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3107

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3101

3102

3103

Re marginal 2131, 1° (b): The explosive substance must not be more sensitive to flame-ignition, impact or friction than tetryl. See marginals 3150, 3154, 3155 and 3156.

Re marginal 2131, 1° (c): The explosive substance must not be more sensitive to flame-ignition, impact or friction than penthrite. See marginals 3150, 3154, 3155 and 3156.

Re marginal 2131, 5° (d): The transmission charge must not be more sensitive to flame-ignition, impact or friction than tetryl. See marginals 3150, 3154, 3155 and 3156.

Re marginal 2170 (2) (d): The explosive charge, after having been stored for four weeks at 50° C, must show no signs of deterioration due to insufficient stability. See marginals 3150 and 3157.

Re marginal 2551, 1° to 50°: The substances shall be subjected to the test described in marginals 3154, 3155 and 3156.

#### B. Rules for tests

1) The test procedures set out below are to be applied when differences of opinion arise as to the acceptability of substances for carriage by road.

2) If other methods or test procedures are used to verify the conditions of stability prescribed above in this Appendix, those methods must lead to the same findings as could be reached by the methods specified below.

3) In carrying out the stability tests by heating described below, the temperature of the oven containing the sample under test must not deviate by more than 2° C from the prescribed temperature; the prescribed duration of a 30-minute or 60 minute test must be observed to within two minutes, that of a 48-hour test to within one hour, and that of a 4-week test to within 24 hours.

The oven must be such that the required temperature is restored not more than five minutes after insertion of the sample.

4) Before undergoing the tests prescribed in marginals 3151, 3152, 3153, 3154, 3155 and 3156, the samples must be dried for not less than 15 hours at the ambient temperature in a vacuum desiccator containing fused and granulated calcium chloride, the sample substance being spread in a thin layer; for this purpose, substances which are neither in powder form nor fibrous shall be ground, or grated, or cut into small pieces. The pressure in the desiccator must be brought below 50 mm of mercury.

5) (a) Before being dried as prescribed in paragraph 4) above, substances of marginal 2101, 1° (except those containing paraffin wax or a similar substance), 2°, 9° (a) and (b), and those of marginal 2401, 7° (b), shall undergo preliminary drying in a well-ventilated drying oven, with its temperature set at 70° C, until the loss of weight per quarter-hour is less than 0.3 per cent of the original weight.

b) For substances of marginal 2101, 1° (when they contain paraffin wax or a similar substance), 7° (c) and 9° (c), the preliminary drying must be carried out as prescribed in sub-paragraph (a) above, except that the temperature of the oven shall be set at between 40° and 45° C.

6) Nitrocellulose of marginal 2401, 7° (a) shall first undergo preliminary drying as prescribed in paragraph (5) (a) above; drying shall then be completed by keeping the nitrocellulose for at least 15 hours over concentrated sulphuric acid in a desiccator.

Test of chemical stability under heat  
Re marginals 3101 and 3102

3108

a) Test of substances listed in marginal 3101.

1) In each of two glass test tubes having the following dimensions:

length .....	350 mm
internal diameter .....	16 mm
thickness of wall .....	1.5mm

3109

is placed 1 g of substance dried over calcium chloride (if necessary the drying must be carried out after reducing the substance to pieces weighing not more than 0.05 g. each). Both test tubes, completely covered with loose-

3110

fitting closures, are then so placed in an oven that at least four-fifths of their length is visible, and are kept at a constant temperature of 132° C for 30 minutes. It is observed whether nitrous gases in the form of yellowish-brown fumes clearly visible against a white background are given off during this time.

3111

2) In the absence of such fumes the substance is deemed to be stable.

b) Test of powders listed in marginal 3102.

3112

1) Nitrocellulose powders not containing nitroglycerine, whether gelatinized or not, and plasticized nitrocellulose: 3 g of powder are placed in glass test tubes, similar to those referred to in a), which are then placed in an oven kept at a constant temperature of 132° C.

3113

-3149

2) Nitrocellulose powders containing nitroglycerine: 1 g of powder is placed in glass test tubes, similar to those referred to in a), which are then placed in an oven kept at a constant temperature of 110° C.

3150

3) The test tubes containing the powders referred to in (1) and (2) are kept in the oven for one hour. During this time no nitrous gases must be visible. Observation and appraisal as in (a).

Re marginals 3103 and 3105

3151

a) Test of substances listed in marginal 3103, 1.

1) Two samples of explosive each weighing 10 g are placed in cylindrical weighing bottles having an internal diameter of 3 cm and a height of 5 cm to the underside of the cover; the bottles are then firmly closed with their covers and heated for three hours at a constant temperature of 90° C in an oven in which they are clearly visible.

2) During this time no nitrous gases must be visible. Observation and appraisal as under marginal 3151 (a).

b) Test of substances listed in marginals 3103, 2. and 3105.

1) Two samples of explosive each weighing 10 g are placed in cylindrical weighing bottles having an internal diameter of 3 cm and a height of 5 cm to the underside of the cover; the bottles are then firmly closed with their covers and heated for 48 hours at a constant temperature of 75° C in an oven in which they are clearly visible.

2) During this time no nitrous gases must be visible. Observation and appraisal as under marginal 3151 (a). Ignition temperature (see marginals 3101 and 3102)

3152

3153

1) The ignition temperature is determined by heating 0.2 g of substance enclosed in a glass test tube immersed in a Wood's alloy bath. The test tube is placed in the bath when the latter has reached 100° C. The temperature of the bath is then progressively increased by 5° C per minute.

2) The test tubes must have the following dimensions:

length .....	125 mm
internal diameter .....	15 mm
thickness of wall .....	0.5mm

and must be immersed to a depth of 20 mm.

3) The test must be repeated three times, the temperature at which ignition of the substance occurs, i.e., slow or rapid combustion, deflagration or detonation, being noted each time.

4) The lowest temperature recorded in the three tests is the ignition temperature.

3154

Test of sensitivity to red heat and to flame-ignition (see marginals 3103 to 3110).

a) Test in red-hot hemispherical iron crucible (see marginals 3103 to 3106 and 3108 to 3110).

1) Quantities of the explosive to be examined increasing from 0.5 g to 10 g are thrown into a red-hot hemispherical iron crucible 1 mm thick and 120 mm in diameter.

The results of the test are to be classified as follows:

1. Ignition with slow combustion (explosives with an ammonium nitrate base);
2. Ignition with rapid combustion (chlorase explosives);
3. Ignition with violent combustion and deflagration (black powder),
4. detonation (fulminate of mercury).

(2) The effect on the sequence of events of the amount of explosive used should be taken into account.

(3) The explosive to be examined must not show any fundamental difference from the standard explosive.

(4) The iron crucibles must be carefully cleaned before each test and replaced at frequent intervals.

(b) Test of Case of ignition (see marginals 3103 to 3110).

(1) The explosive to be examined is placed in a small heap on an iron plate in quantities increasing - in the light of the results of the test under (a) - from 0.5 g to a maximum of 100 g.

(2) A burning match is applied to the apex of the small heap and note is taken whether the explosive ignites and burns slowly, deflagrates, or detonates, and whether, once ignition has occurred, combustion continues even after the match has been removed. If no ignition takes place a similar test is made by bringing the explosive into contact with a gas flame and noting the same points.

(3) The results of the test are compared with those obtained with the standard explosive.

(c) Combustion test in conditions of enclosure in a sheet-steel box (see marginal 3107).

(1) The combustion test is carried out in a cubical box, made of sheet steel with edges 8 cm long and a wall thickness of 1 mm. The box is made of annealed mild steel sheet and closed in as tight a manner as possible by foldig the edge of the lid over (fig. 1).

(2) In the case of explosives sensitive to friction, the top surface should be covered with a sheet of paper to prevent particles of explosive from finding their way between the edges and remaining trapped there when the edge of the lid is being bent over. The box is completely filled with the explosive so that the latter has as nearly as possible the same density as when in cartridges. The box is placed in the fire with care; it shall first be wrapped in, for example, several layers of packing paper to avoid immediate ignition of the explosive.

A pile of wood 0.8 m high is prepared for the fire by first placing on the ground a thin layer of wood-wool and then on top of it, lying flat, three billets about 0.5 m long and 0.25 m in diameter. Across these are laid three more billets of similar size. On top of all are placed three layers of small sticks cut about 0.2 m long, with wood-wool between the layers. On each side, three or four pieces of wood about 0.5 m long are leant against the pile to prevent it from collapsing while it burns. The pile is set alight with a lighted fuse of wood-wool.

(3) Observations are made to see whether the explosive flares or explodes; how long it burns and what phenomena accompany combustion; and what changes the box has undergone.

(4) The test is carried out four times. A photograph is taken of the steel boxes after they have been used.

(b) Test by heating in a confined space in a steel tube with a calibrated orifice plate (steel tube test) (see marginals 3103 to 3110 and 3112).

(1) The tests in (a) to (c) may be supplemented by the following test.

(2) Description of the steel tube (fig. 2):

The tube is made by pressing from sheet steel suitable for deep drawing<sup>1</sup>. The dimensions are: inner diameter 24 mm; wall thickness 0.5 mm; length 75 mm. The open end is fitted with an outer flange. The tube is closed with a pressure-resistant central-orifice plate fixed tightly on the flange by an externally-threaded collar slipped over the tube and by a box nut screwed on to the collar. The plate is made from heat resisting chrome steel<sup>2</sup> 6 mm thick. To allow the escape of gases of decomposition, plates are used having cylindrical central orifices (a) with the following diameters:

1.0-1.5-2.0-2.5-3-4-5-6-8-10-12-14-16-18-20 mm; a diameter of 24 mm is added when the tube is used without orifice plate and closing device. The threaded collar and nut are made of manganese-chrome steel non-scaling up to 800°C.<sup>1</sup> With orifice plates of from 1 to 8 mm diameter, nuts with a perforation (b) 10 mm in diameter must be used; if the diameter of the orifice is above 8 mm, that of the nut perforation must be 20 mm. Each tube is used for one test only. On the other hand, the orifice plates, threaded collars and nuts may be used again provided they are undamaged. As a check the orifice must be measured after each test.

(3) Heating and protective device (fig. 3):

Heating is provided by town gas with a net calorific value of 4,000 Kcal/Nm<sup>3</sup>, from 4 burners producing about 2.4 kcal/sec for a consumption of 0.6 l/sec.

As destruction of the tube is possible, heating is undertaken in a splinter-proof welded box, made of steel 10 mm thick, open on one side and at the top. The tube is suspended between two rods 4 mm in diameter inserted through holes drilled in opposite walls of the box, and is then heated by four Teclu burners (external tube diameter 19 mm), the lowest heating the bottom of the tube, those at the right and left the walls, and that at the rear the closure. The burner tubes are inserted and secured in holes 20 mm in diameter drilled in the walls of the splinter-proof box. The burners are lit simultaneously by a pilot jet and regulated to a plentiful supply of air so that the tips of the blue inner cones of the flames are almost touching the tube.

The whole installation is contained in a test stand separated from the observation area by a strong wall in

<sup>1</sup> e.g. Material Specification No. 1.0336.505 g, in accordance with DIN 1623, Sheet 1.

<sup>2</sup> e.g. Material Specification No. 1.4873, in accordance with Sheet «Stahl-Eisen-Werkstoff» 490-52.

<sup>1</sup> e.g. Material Specification No. 1.3817, in accordance with Sheet «Stahl-Eisen-Werkstoff» 490-52.

which sight holes protected by armoured glass and slatted steel plates are arranged. The splinter-proof box is placed with its open side towards the observation area, care being taken that the flames are not affected by draughts. Equipment for extracting gases of decomposition and smoke from the explosion is installed in the test room.

If town gas is not available, propane can be used for heating. In such a case the propane is taken from an industrial cylinder fitted with a pressure regulator (500 mm water gauge), through a meter (bellows-type meter with a capacity of 2 litres at 500 mm water gauge), and distributed by a manifold to the four burners, whose jets have a diameter of 0.8 mm. Each burner consumes not more than about 1.7 litres of propane a minute. The gas cylinders and the meter are placed outside the test stand.

#### (4) Test procedure:

The tube is filled with the explosive substance to within 15 mm of the top, i.e. to a height of 60 mm. If the substance is in powdered form it is compressed by cautiously and gently tapping the tube and then pressing lightly with a small wooden rod. If the substance is gelatinous it is put into the tube with the aid of a spatula; after each addition the substance is lightly pressed down with a small wooden rod to eliminate occlusions of air. When the quantity of substance inserted has been weighed, the threaded collar is slipped on to the tube, the required orifice plate is put in place, and the nut is tightened by hand. It is essential to make sure that none of the substance is trapped between the flange and the plate, or in the threads. The tube is then put in a rigidly mounted vice with shielding against inadvertent explosion, and the nut is fully tightened with a spanner. The tube, now ready for the test, is suspended between the two rods in the splinter-proof box; the pilot jet is lighted, and when the test stand has been closed the gas supply to the four burners is turned on. At the same time a stop-watch is started to measure the time  $t_1$  elapsing between the lighting of the burners and the ignition of the substance, as shown by the escape of a flame from the orifice in the plate, and the time  $t_2$  between lighting and explosion. On completion of the test the gas supply is shut off and exhaust system in the test stand is started up; no one must enter the stand until a sufficient period of time has elapsed.

To make sure that the heating device is working satisfactorily, the tests must be preceded by a «dummy run».

#### (5) Interpretation of results:

The relative degree of sensitivity of a substance to heating in the steel tube is expressed by the limiting diameter, this being the orifice with the largest diameter in millimetres with which, in three tests, at least one tube explodes, that is to say breaks up into at least three pieces. The thermal sensitivity increases with increasing limiting diameter and with decreasing times  $t_1$  and  $t_2$ .

Organic peroxides (except those wetted or diluted with volatile substances, e.g. water) for which the limiting diameter is not less than 2.0 mm should be considered as explosive substances of Class Ia (see also note to marginal 2550).

(e) Heating test in a pressure vessel with an orifice plate and bursting disc (pressure vessel test) (see marginal 3112).

(1) For organic peroxides, the tests shown under (a), (b) and (d) may be supplemented by the following test.

(2) Description of the pressure vessel (fig. 4 to 6):  
Figures 4 to 6 and the appropriate captions give the details of the apparatus used and the dimensions and materials of the constituent parts.

It should be noted that the use of 24 plates is provided for, the diameters of the orifices being: 1.0-1. 2-1. 5-2. 0-2. 5-3. 0-3. 5-4. 0-4. 5-5. 0-5. 5-6. 0-7. 0-8. 0-9.

0-10. 0-11. 0-12. 0-14. 0-16. 0-18. 0-20. 0-22.0 and 24.0 mm. These plates have a thickness of 2.0 mm  $\pm$  0.2 mm.

The bursting disc is cut by a punch from a sheet of brass 0.05 mm thick with standing a bursting pressure of 5.4  $\pm$  0.5 Kg/cm<sup>2</sup> at normal temperature. Unannealed rolled brass containing 67 per cent copper is suitable.

#### (3) Heating device:

The pressure vessel is heated by technical-grade butane taken from a cylinder fitted with a pressure regulator. The heat output must be about 2,700 kcal/h. With a net calorific value of 27,000 kcal/m<sup>3</sup> (at 1 atm and 20°C), the rate of gas supply must be about 100 l/h. A Teclu butane is used. The amount of gas used is measured by a rotameter or other meter and regulated by the burner valve.

Instead of butane, town gas or propane may be used with a suitable burner, provided that the heat output of the gas is likewise about 2,700 kcal/h (for example, in the case of town gas with a net calorific value of 4,050 kcal/m<sup>3</sup> it would be necessary to supply about 670 l/h).

The gas cylinder and the rotameter or other meter must be situated outside the test area.

#### (4) Test procedure:

For a normal test, 10 grammes of the substance are placed in the vessel. In the case of a substance the sensitivity of which is unknown a start is made with smaller quantities: 1 gramme to begin with, then (if possible) 5 grammes, and finally 10 grammes. The bottom of the vessel must be evenly covered with the substance. The bursting disc, central orifice plate and retaining ring are then put in place. The wing nuts are tightened by hand and the box nut with a spanner. The bursting disc is covered with enough water to keep it at a low temperature.

The pressure vessel is placed on a tripod (with an inside ring diameter of 67 mm) which is inside a protective cylinder. The ring at the bottom of the vessel rests on the tripod.

The burner is lit, the flow of gas set at the required rate, and the flow of air so adjusted that the colour of the flame is blue and the inner cone of the flame light blue. The tripod must be of such a height that the inner cone almost touches the bottom of the vessel. Then the burner is placed under the vessel through a hole in the protective cylinder.

The test area must be well ventilated and admission to it prohibited during the test. The vessel is observed from outside either by mirrors or through a sight hole in the wall, fitted with armoured glass.

The time  $t_1$  between the beginning of heating and the beginning of reaction (flame, production of smoke, hissing) and the time  $t_2$  until the end of the reaction (detonation, end of hissing and production of smoke, or extinction of the flame) are measured. The vessel is then cooled with water and cleaned.

#### (5) Interpretation of results:

The relative degree of sensitivity of a substance to heating in the pressure vessel is expressed by the limiting diameter, this being the largest orifice diameter in millimeters with which the bursting disc is broken at least once in three tests while having remained intact during three tests with the next larger diameter.

The thermal sensitivity increases with increasing limiting diameter and with decreasing times  $t_1$  and  $t_2$ .

Organic peroxides (except those wetted or diluted with volatile substances, e.g. water) for which the limiting diameter is not less than 9 mm should be considered as explosive substances of Class Ia (see also note to marginal 2550).

Test of sensitivity to impact (see marginal 3103 to 3110 and 3112).

(a) Fall-hammer test I (figs. 7 and 8) against a standard (control) explosive.

(1) The explosive, after drying as described in marginal 3150, is put into the following form:

(a) Compact explosives are rasped fine enough to pass without residue through a sieve of 1 mm mesh; only the

residue remaining on a sieve of 0.5 mm mesh is kept for the following test;

(b) Explosives in powdered form are passed through a sieve of 1 mm mesh; all that passes through this sieve is kept for the impact test;

#### Appendix A.1

c) Plastic and gelatinous explosives are formed into small, roughly spherical pills weighing between 25 and 35 mg.

(2) The apparatus for carrying out the test consists of a weight which, sliding between two bars, is capable of being set to fall from a prearranged height and of being readily released for the fall.

The weight does not fall directly onto the explosive, but falls onto a striker. Resting on an anvil E, both in very hard steel and sliding easily in the guide ring F (fig. 7). The sample of explosive is placed between the striker and the anvil. The striker, anvil and guide ring are in a protective cylinder C made of hardened steel and placed on a steel block B embedded in a cement block A (fig. 8). The dimensions of the various parts are given in the figures.

(3) The tests are carried out in turn on the explosive to be tested and, on the standard (control) explosive as follows:

(a) The explosive, in the form of a spherical pill (if it is plastic) or measured with a measuring spoon of 0.05 cm<sup>3</sup> capacity (if it is in the form of a powder or of raspings), is arranged with care between the striker and the anvil, whose contact surfaces must not be moist. The ambient temperature must not exceed 30° C nor be less than 15° C. Each sample of the explosive must be subjected to one impact only. After each test the striker, the anvil and the guide ring must be carefully cleaned, any residue of explosive being removed.

(b) The tests must begin at heights of fall likely to cause complete explosion of the explosives under test. The height of fall is reduced gradually until the resulting explosion is incomplete or no explosion results. At this height four impact tests are carried out, and if at least one produces a definite explosion, four further fall tests from a slightly lower height are carried out, and so on.

(c) The lowest height or fall causing a definite explosion in a series of at least four tests at that height is taken as the limit of sensitivity.

(d) The impact test is normally carried out with a drop weight of 2 Kg; however, if the sensitivity to impact with this weight requires a height of fall greater than 60 to 70 cm, the impact test must be carried out with a weight of 5 Kg.

(b) Fall-hammer test II (figs. 9 to 13) with numerical expression of impact sensitivity (impact energy in Kgm)

(1) The test described in (a) may be replaced by the following test.

#### Appendix A.1

(2) Description of the apparatus:

The essential parts of the apparatus are the impact device (see under (4)), the cast steel block with base, the anvil, the column, the guides and the hammer with release device (fig. 9). A steel anvil (100 mm in diameter, 70 mm high) is screwed on the steel block (230 x 250 x 200 mm) cast integral with the base (450 x 450 x 60 mm).

Bolted to the back of the steel block is the support into which the column formed from a seamless-drawn steel tube (90 mm outside diameter, 75 mm inside diameter) is fixed. The two guides are fixed to the column by means of three cross-members and are fitted with a toothed rack to limit the rebound of the hammer and with a movable graduated scale for setting the height of fall. The hammer holding and releasing device is adjustable between the guides and is clamped to them by the operation of a lever-nut on two jaws. The apparatus is so fixed on a concrete block (600 x 600 x 600 mm) by means of four anchoring screws sealed in the concrete that the base is in contact with the concrete over its whole area and the

guides are exactly vertical. A wooden splinter-proof box which has a lead lining 2 mm thick and opens easily surrounds the apparatus up to the level of the bottom cross-member. An exhaustor enables the explosion gases and dust from the substance to be removed.

(3) Description of the fall-hammer:

Each hammer is provided with two positioning grooves holding it between the guides as it drops and with a suspension spigot, a removable cylindrical striking head and a rebound catch which are screwed on to the hammer (fig. 11). The striking head is of hardened steel (HRC 60 to 63); its minimum diameter is 25 mm; it has a shoulder preventing it from being forced into the hammer by the impact.

There are three hammers of different weights. The 1-Kg hammer is used for highly sensitivity the 5-Kg hammer for substances of medium sensitivity and the 10-Kg hammer for substances of low sensitivity. The 5-Kg and 10-Kg hammers are of massive and compact steel.\* The 1-Kg hammer must have a heavy steel centre carrying the striking head and forming with it the main mass of the hammer.

The 1-Kg hammer is used for drop heights of 10 to 50 cm (impact energy 0.1 to 0.5 Kgm), the 5-Kg hammer for drop heights of 15 to 60 cm (impact energy 0.75 to 3 Kgm), and the 10-Kg hammer for drop heights of 35 to 50 cm (impact energy 3.5 to 5 Kgm).

(4) Descriptions of the impact device:

The sample to be examined is enclosed in an impact device (fig. 11) consisting of two solid steel cylinders coaxially placed one above the other in a cylindrical guide ring likewise made of steel. The cylinders are steel rollers for anti-friction bearings and are 10 mm

in diameter (type with a mean deviation of - 4 microns for a tolerance of - 2 microns, i.e. a diameter of 10.003-0.005 mm+, 10 mm high, with polished surfaces and rounded edges (radius of curvature 0.5 mm) and an HRC hardness between 50 and 65. The guide ring has an outer diameter of 16 mm, a lapped bore of 10 + 0.005 + 0.010 mm and a height of 13 mm.

A cylindrical plug gauge may be used to check that the bore diameter is within the prescribed tolerances. The cylinders and the guide ring shall be degreased with acetone before use.

The impact device is placed on an intermediate anvil 26 mm in diameter and 26 mm high and centred by a locating ring provided with a ring of vent-holes to permit the escape of the gases (figs. 11 and 12).

Each striking surface of the cylinders shall be used only once. If an explosion occurs, the guide ring shall not be used again.

(5) Preparation of the samples

The explosive substances are tested in the dry state. Substances of marginal 2101, 11° to 14°, are tested as delivered provided that their water content agrees with the value indicated by the manufacturer. If the water content is higher, the mixtures must be dried before the test until their moisture content is that indicated.

In addition, in the case of solid substances other than those in paste-like form the following points should be observed:

(a) substances in powdered form are sieved (sieve mesh 0.5 mm); everything that passes through the sieve is used for the test;

(b) substances which have been compressed, cast or otherwise consolidated are broken into small pieces and sieved; the siftings from 0.5 mm to 1.0 mm in diameter are used for the test.

(6) Test procedure:

In the case of substances in powdered form, a sample is taken with a cylindrical measure of 40 mm<sup>3</sup> capacity (3.7 mm diameter x 3.7 mm).

\* At least St 37-1, in accordance with DIN 17000.

For substances in paste-like form, a cylindrical tube of the same capacity is used, which is plunged into the mass. After levelling off the excess extending beyond the measure, the sample is taken out by means of a wooden rod. For explosive liquids a fine-drawn pipette of 40 mm<sup>3</sup> is used.

The sample is placed on the open impact device, which is already in the locating ring on the intermediate anvil, and in the case of substances in powdered or paste-like form the upper steel cylinder is lightly and carefully pressed with the forefinger until it touches the sample without flattening it. In the case of liquid substances the

Upper steel cylinder is pressed down with the aid of the depth scale of a vernier gauge until it is 1 mm from the lower cylinder, and held in this position by a rubber ring previously slipped on to it (fig. 13).

The device is placed centrally on the anvil, the protective wooden box is closed, the hammer suspended at the required height is released, and the exhauster is then started up. The test is performed six times at each height of fall.

#### (7) Interpretation of results

In interpreting the results of the test of sensitivity to impact a distinction is made between "no reaction", "decomposition" (without flame or detonation; recognizable by colour-change or odour) and "explosion" (with weak to strong detonation\*. The degree of sensitivity to impact of a substance is measured by determining the weight of the hammer in kg and the lowest height of drop in cm with which an explosion occurs in at least one out of six tests, and the resultant impact energy in Kgm. The sensitivity of the substance to impact is greater the lower the impact energy in kgm.

Test of sensitivity to friction (see marginals 3103 to 3110 and 3112)

#### Friction test in a porcelain mortar

(1) The explosive is dried over calcium chloride. A sample of the explosive is compressed and ground in an unglazed porcelain mortar by means of a pestle, also unglazed. The mortar and pestle must have a temperature about 10 degrees higher than the ambient temperature (15° to 30° C).

(2) The results of the test are compared with those obtained with the standard (control) explosive, and are classified as follows:

1. no effect;
2. faint occasional crackling;
3. frequent crackling or very pronounced occasional crackling.

#### Appendix A.1

(3) Explosives which, under test, give the result set out in 1. are to be considered as practically insensitive to friction; if they give the result set out in 2. they are to be considered as moderately sensitive to friction; if they give the result set out in 3. they are to be considered as very sensitive to friction.

#### (b) Test with the friction apparatus (figs. 14 and 15)

(1) The test described in (a) may be replaced by the following test.

#### (2) Description of the apparatus:

The friction apparatus is made up of the cast-steel base on which the friction device proper, comprising a fixed porcelain peg and movable porcelain plate (fig. 14), is mounted. The porcelain plate is held in a carriage which runs in two guides. On operation of a push-button switch the carriage is moved by an electric motor through a

connecting-rod, an eccentric disc and suitable gearing in such a way that the porcelain plate moves back and forth once only beneath the porcelain peg, the distance of travel being 10 mm. The peg-holder pivots on an axis so that the porcelain peg can be changed; it is extended by a loading arm with six notches for hanging a weight. Balance in the «zero» position (without weights) is achieved by adjusting a counter-weight. When the peg-holder is lowered on to the porcelain plate the longitudinal axis of the porcelain peg is perpendicular to the upper surface of the plate. One of the weights is hung by means of a ring and hook in the appropriate notch; the load on the peg can be varied from 0.5 to 36 Kg.

#### (3) Description of the porcelain plate and peg:

The flat porcelain plates are made of pure technical white porcelain and have the following dimensions 25 mm × 25 mm × 5 mm.

Before being fired, their two rubbing surfaces are thoroughly roughened by being rubbed with a sponge. The sponge-marks are clearly visible.

The cylindrical porcelain pegs are also made of technical white porcelain; they are 15 mm long and 10 mm in diameter and their roughened ends are rounded, with a radius of curvature of 10 mm.

Samples of porcelain pegs and plates of the quality described above are deposited with the Bundesanstalt für Materialprüfung, Berlin-Dahlem, which can supply the addresses of manufacturers.

As the natural undamaged roughness of the plates and pegs is an essential condition for the reaction of the explosive substance, each part of the surface must be used only once. In consequence, the two end surfaces of each peg are sufficient for two tests, and the two friction surfaces of a plate will each serve for about three to six tests:

#### (4) Preparation of samples:

The explosive substances are tested in the dry state.

Substances of marginal 2101, 11° to 14° are tested as delivered, provided that their water content agrees with the value indicated by the manufacturer. If the water content is higher, the mixtures must be dried before the test until their moisture content is higher, the mixtures must be dried before the test until their moisture content is that indicated.

In addition, for solid substances, except those in paste-like form, the following points should be observed:

(a) substances in powdered form are sieved (sieve mesh 0.5 mm); everything that passes through the sieve is used for the test;

(b) substances which have been compressed, cast or otherwise consolidated are broken into small pieces and sieved; everything that passes through a sieve mesh of 0.5 mm is used for the test.

#### (5) Test procedure:

A porcelain plate is fixed on the carriage of the friction apparatus so that the grooves of the sponge-marks on it run transversely to the direction of movement. The quantity to be tested, about 10 mm<sup>3</sup>, is taken from substances in powdered form by means of a cylindrical measure (2.3 mm diameter × 2.4 mm); in the case of substances in paste-like form the sample is measured by a cylindrical tube which is plunged into the mass. After levelling off the excess extending beyond the measure, the sample is taken out by means of a wooden rod and placed on the porcelain plate. The firmly-clamped porcelain peg is set on the heaped-up quantity as shown in fig. 15; the loading arm is loaded with the required weight and the push-button switch is operated. Care must be taken that the peg rests on the sample and that there is enough of the substance in front of it to come under the peg as the plate moves.

#### (6) Interpretation of results:

In interpreting the results of the test a distinction is made between «no reaction», «decomposition» (change of colour, smell), «ignition», «crackling» and «explosion».

The relative degree of sensitivity of a substance to friction in the friction apparatus as described is indicated (without taking the coefficient of friction into account) by

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\* For some substances there is "ignition without detonation". This reaction is, however, regarded as an explosion (and designated by the terms in inverted commas) because it involves the entire sample and an explosion can also occur under identical conditions.

the smallest load on the peg in Kg, with which ignition, crackling or an explosion occurs in at least one out of six tests. In this connection, even ignition and crackling are deemed to be dangerous reactions. The sensitivity of an explosive substance to friction is greater the lower the ascertained load on the peg (loading weight in relation to length of loading peg).

Explosive liquids and substances in paste-like form are not in general sensitive to friction under the conditions of this test, since because of the lubricating effect the slight frictional heat produced is insufficient to induce ignition. With such substances the absence of any reaction is no indication that the substance is not dangerous.

The stability of the products referred to in marginal 3111 is to be checked by ordinary laboratory methods.

Test of dynamite for exudation (see marginal 3107)

(1) The apparatus for testing dynamite for exudation (figs. 16 to 18) consists of a hollow bronze cylinder. This cylinder, which is closed at one end by a plate of the same metal, has an internal diameter of 15.7 mm and a depth of 40 mm. It is pierced by 20 holes 0.5 mm in diameter (4 sets of 5 holes) on the circumference. A bronze piston, cylindrical over 48 mm of its total length of 52 mm, can slide in the vertical cylinder; this piston, whose diameter is 15.6 mm, is loaded with a weight of 2,220 g so as to produce a pressure of 1.2 Kg/cm<sup>2</sup>.

(2) A small plug of dynamite weighing 5 to 8 g, 30 mm long and 15 mm in diameter, is wrapped in very fine gauze and placed in the cylinder; the piston and its loading weight are then placed on it so that the dynamite is subjected to a pressure of 1.2 Kg/cm<sup>2</sup>.

The time taken for the appearance of the first signs of oily droplets (nitroglycerine) at the outer orifices of the cylinder holes is noted.

(3) The dynamite is considered satisfactory if the time elapsing before the appearance of the liquid exudations is more than 5 minutes, the test having been carried out at a temperature of 15° to 25° C.

Appendix A.1  
Combustion test  
Re marginal 3154 (c)

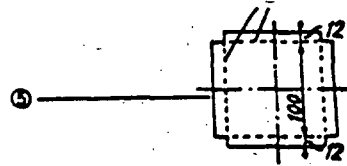
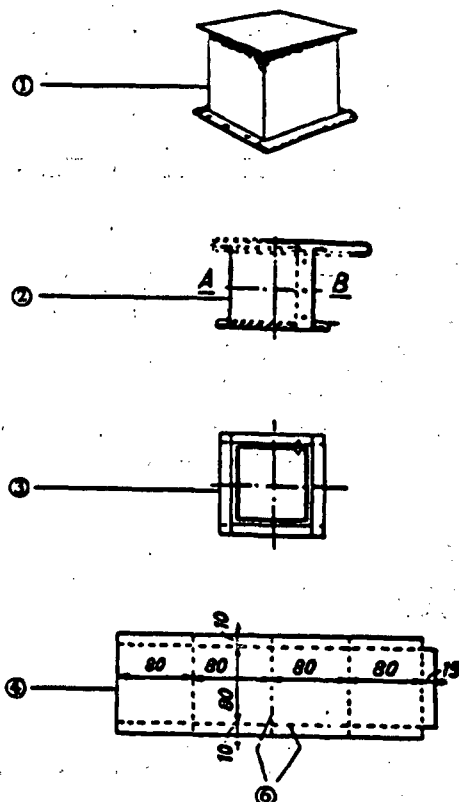


Fig. 1: Steel box  
thickness of wall 1 mm  
dimensions in mm

- (1) general view
- (2) vertical section
- (3) section A-B
- (4) fabrication of wall
- (5) fabrication of base and cover
- (6) edges to be folded in

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Appendix A.1  
Test by heating in a steel tube  
with a calibrated orifice plate  
He marginal 3154 (d)

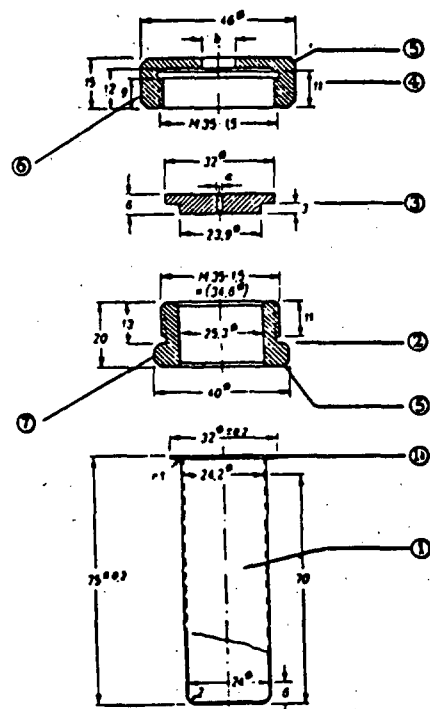
Fig. 2: Steel tube and accessories

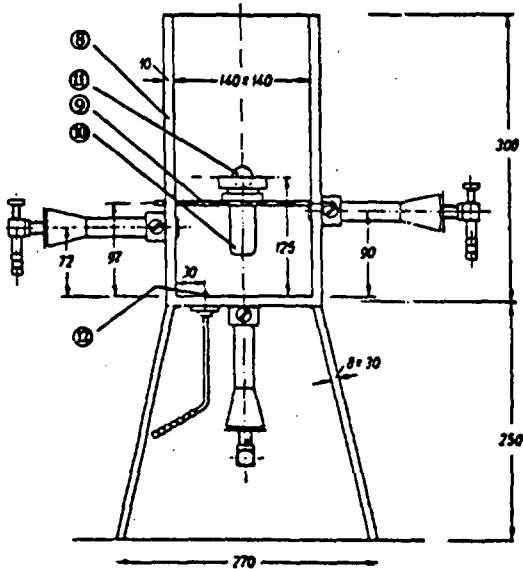
Fig. 3: Heating and protective device  
dimensions in mm; for construction materials  
see marginal 3154 (d) (2) and (3)

- (1) tube
- (1a) outer flange
- (2) threaded collar; low-friction thread
- (3) orifice plate a = 1.0 ... 20.0 diameter
- (4) nut b = 10 or 20 diameter
- (5) chamfered surface
- (6) 2 flats for spanner size 41
- (7) 2 flats for spanner size 36
- (8) splinter-proof box
- (9) 2 supporting rods for the tube
- (10) assembled tube
- (11) position of rear burner; the other burners are visible
- (12) pilot jet

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Appendix A.1  
Heating test in a pressure vessel  
with an orifice plate and bursting disc  
Re marginal 3154 (e)

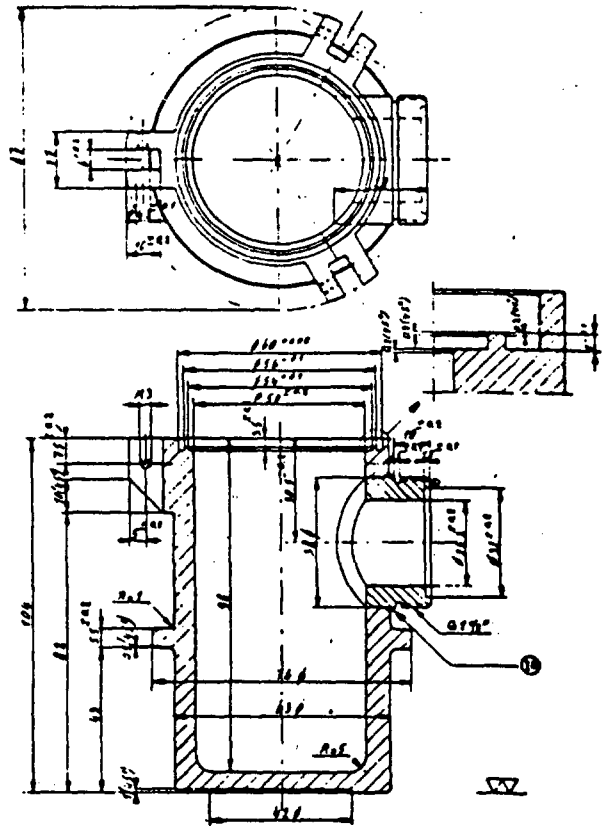


Fig. 5: Pressure vessel dimensions in mm

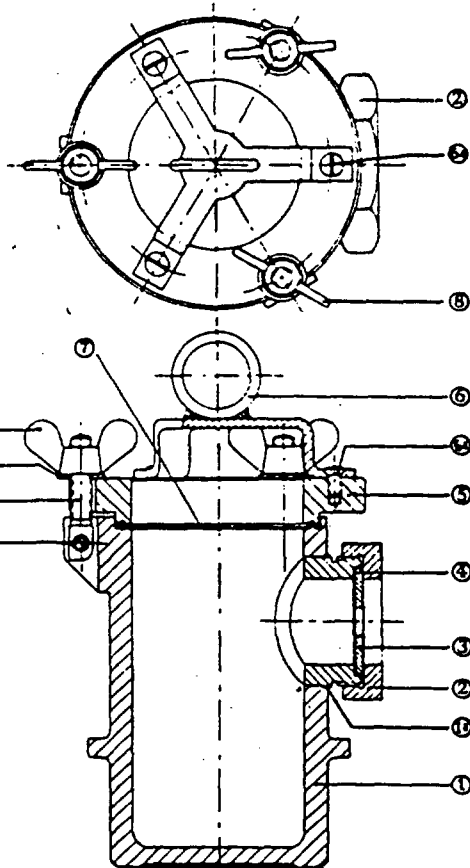


Fig. 4: Assembled pressure vessel; vertical section and plan

- (1) Pressure vessel (stainless steel)
- (1a) welded joint
- (2) box nut (fully-killed weldable steel)
- (3) central-orifice plate (stainless steel)
- (4) inert retaining ring, 0.5 thick
- (5) pressure ring (stainless steel)
- (6) brass handle
- (6a) brass screw (metetal M4 x 8 DIN 88)
- (7) bursting disc [for material see marginal 3154 (e) (2)]
- (8) wing nuts (brass M6 DIN 315)
- (8a) washer (brass 6 DIN 125)
- (9) eye-bolt (stainless steel)
- (10) pivot for wing nuts (stainless steel)

Note: Stainless steel having the following average composition is considered suitable: Cr 18%, Ni 9% Mn ≤ 2%, Si ≤ 1%, C ≤ 0.12%.

Appendix A.1  
Heating test in a pressure vessel with  
an orifice plate and bursting disc  
Re warginal 3154 (e)

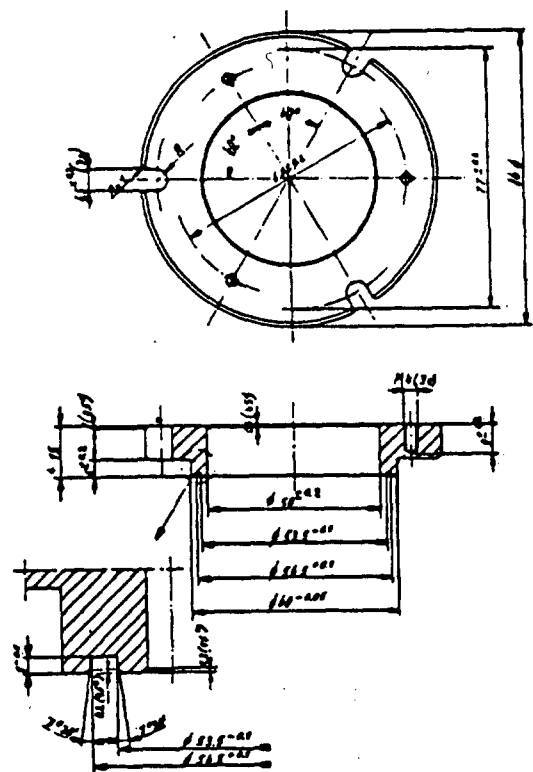


Fig. 6: Pressure ring of the vessel; details in vertical section and plan view dimensions in mm



Appendix A.1  
Fall-hammer test I  
Re marginal 3155 (a)

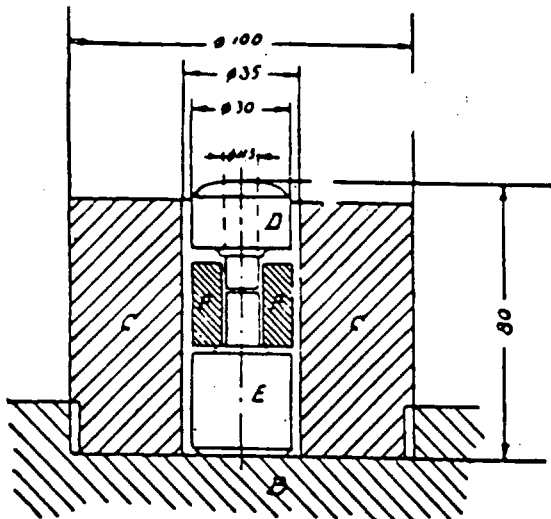


Fig. 7: Impact device, vertical section dimensions in mm

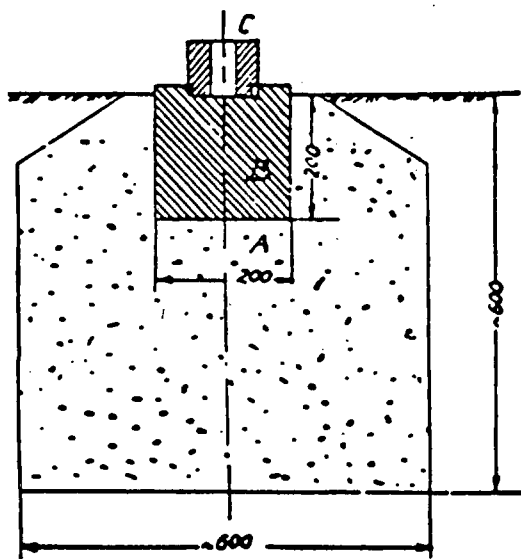


Fig. 8: Base for impact device, vertical section dimensions in mm

- A. cement concrete block
- B. steel block
- C. protective cylinder
- D. striker
- E. anvil
- F. guide ring

Appendix A.1  
Fall-hammer test II  
Re marginal 3155 (b)

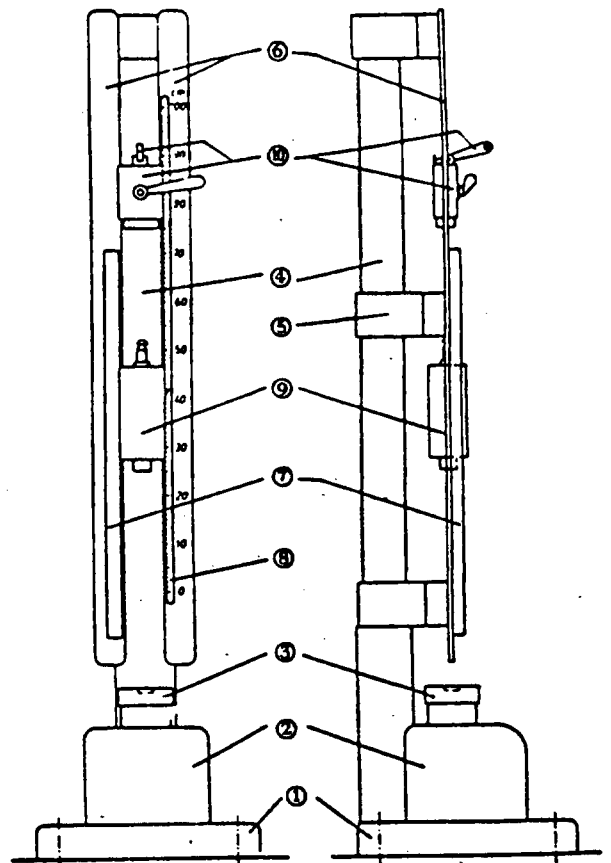


Fig. 9: Fall-hammer II, front and side, general view dimensions in mm

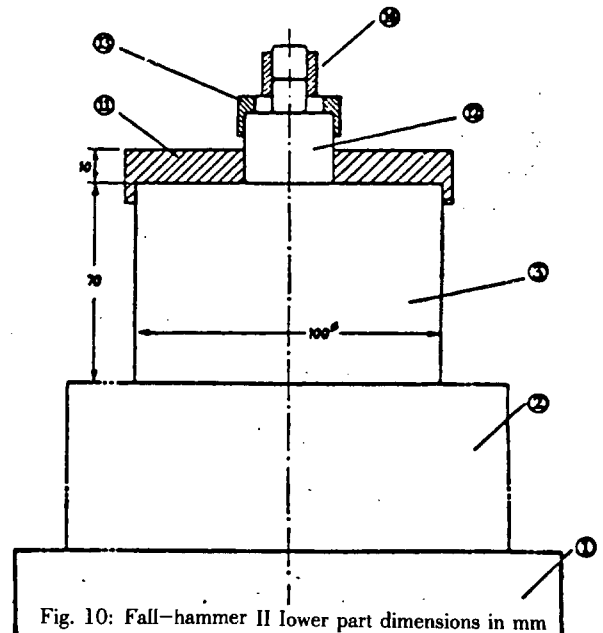


Fig. 10: Fall-hammer II lower part dimensions in mm

- (1) base, 450×450×60
- (2) steel block, 230×250×200
- (3) anvil, 100 diameter ×70
- (4) column
- (5) median cross-member
- (6) 2 guides
- (7) toothed rack
- (8) graduated scale
- (9) fall-hammer (drop weight)
- (10) holding and releasing device
- (11) locating plate
- (12) intermediate anvil (interchangeable), 26 diameter ×26
- (13) locating ring with orifices
- (14) impact device

Appendix A.1  
Fall-hammer test II  
Re marginal 3155 (b)

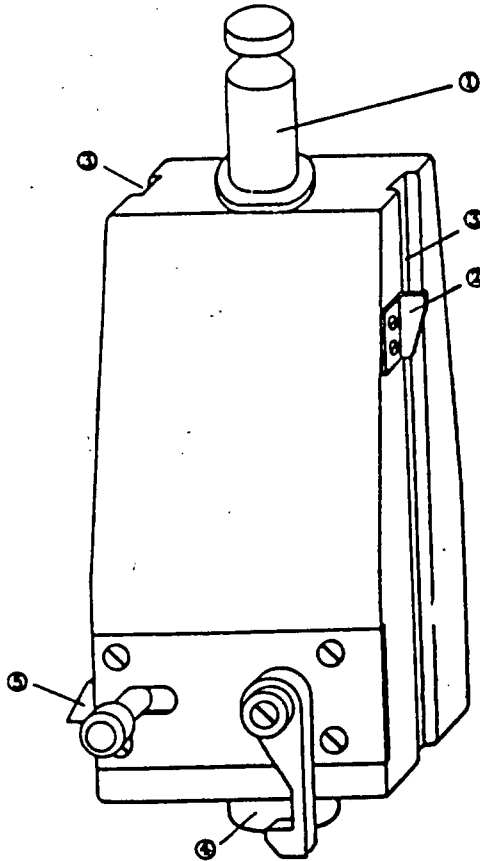


Fig. 11: Hammer (drop weight) of 5 kg  
(1) suspension spigot  
(2) height marker  
(3) positioning groove  
(4) cylindrical striking head  
(5) rebound catch

Appendix A.1  
Fall-hammer test II  
Re marginal 3155 (b)

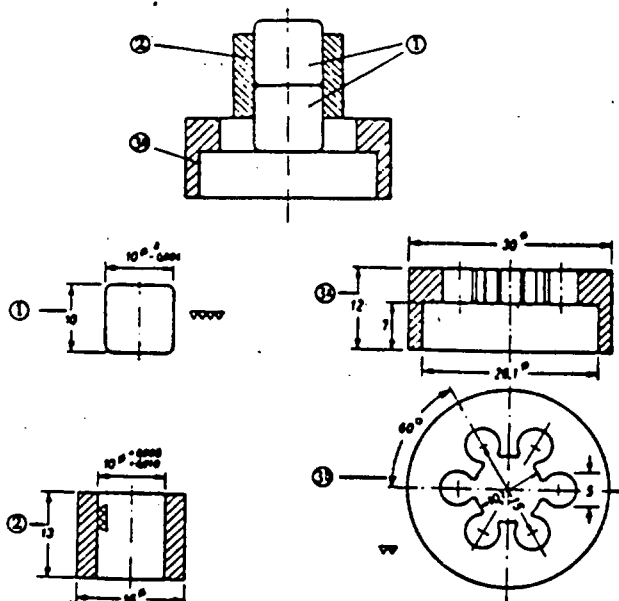


Fig. 12: Impact device for substances in powdered or paste-like form  
dimensions in mm

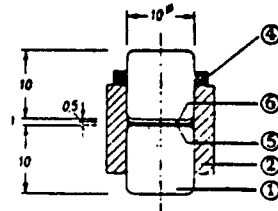


Fig. 13: Impact device for liquid substances  
dimensions in mm

- (1) steel cylinders\*
- (2) guide ring for steel cylinders\*
- (3) locating ring with orifices
- (a) vertical section
- (b) plan
- (4) rubber ring
- (5) liquid substance (40 mm<sup>3</sup>)
- (6) space free from liquid
- \* Steel can have the following composition:  
Cr ± 1.55%, C ± 1%, Si max 0.25%  
Mn ± 0.35% HRC 58...65 (heat-treated steel)

Appendix A.1  
Test with friction apparatus  
Re marginal 3156 (b)

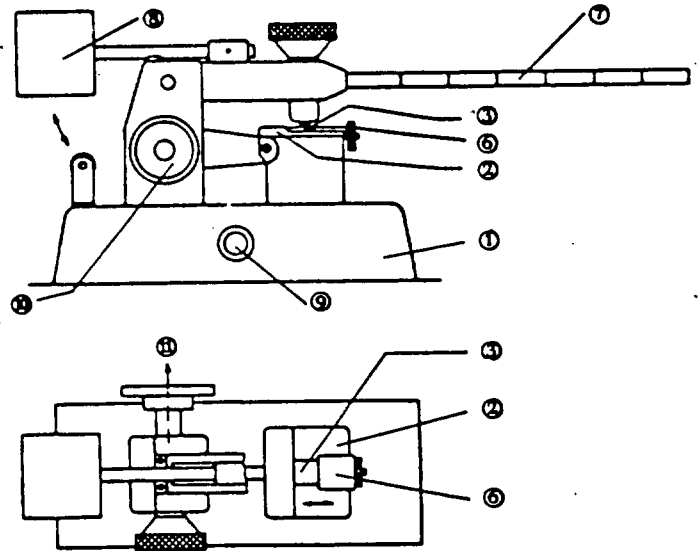


Fig. 14: Friction apparatus; elevation and plan view

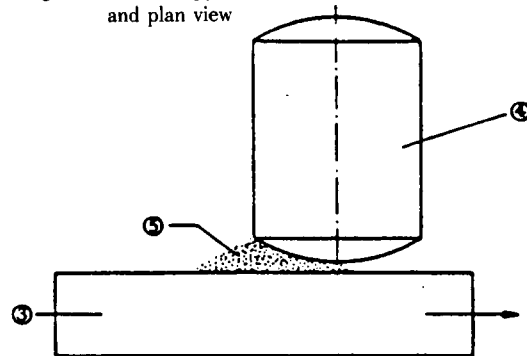


Fig. 15: Starting position of peg on sample  
(1) steel base  
(2) movable carriage  
(3) porcelain plate, 25×25×5 mm, held on the carriage  
(4) fixed porcelain peg, 10 diameter × 15 mm  
(5) sample under test, approximately 10 mm<sup>3</sup>  
(6) peg-holder  
(7) loading arm  
(8) counterweight  
(9) switch  
(10) wheel for setting carriage at starting position  
(11) direction to electric drive motor

Appendix A.1  
Test of dynamite for exudation  
Re marginal 3158

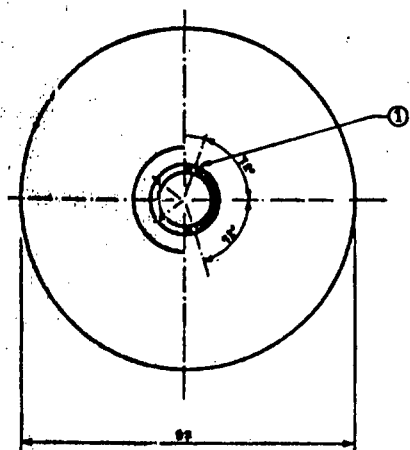


Fig. 16: Hollow bronze cylinder, closed at one end; plan and vertical section dimensions in mm

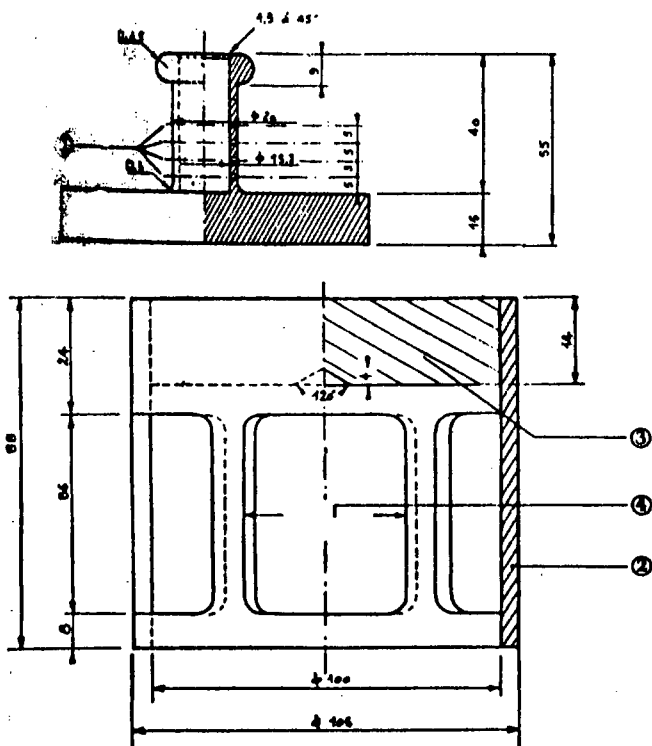


Fig. 17: Bell-shaped weight of 2220 g, capable of being suspended on the bronze piston

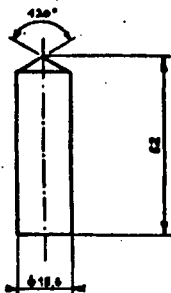


Fig. 18: Cylindrical bronze piston dimensions in mm

- (1) 4 sets of 5 holes of 0.5 diameter
- (2) copper
- (3) lead plate with central tapered recess on underside
- (4) 4 openings, about 46 x 56, evenly spaced round periphery

APPENDIX A.2

A. Provisions relating to the nature of aluminium - alloy receptacles for certain gases of Class 2  
I. Quality of the material

320C

(1) The materials of aluminium - alloy receptacles which are to be accepted for the gases referred to in marginal 2203 (2) (b) shall satisfy the following requirements:

	A	B	C	D
Tensile strength, Rm, in kg/mm <sup>2</sup>	5 to 19	20 to 38	20 to 38	35 to 50
Yield stress, Re, in kg/mm <sup>2</sup>				
(permanent set = 0.2%)	1 to 17	6 to 32	14 to 34	21 to 42
Permanent elongation at fracture (l = 5d) in per cent	12 to 40	12 to 30	12 to 30	11 to 16
Bend test	n=5(Rm ≤ 10)	n=6(Rm ≤ 33)	n=6(Rm ≤ 33)	n=7(Rm ≤ 40)
(diameter of former d= n.e, where e is the thickness of the test - piece)	n=6(Rm > 10)	n=7(Rm > 33)	n=7(Rm > 33)	n=8(Rm > 40)
Aluminium Association Series				
Number*	1000	5000	6000	2000

The actual properties will depend on the composition of the alloy concerned and on the final treatment of the receptacle, but whatever alloy is used the thickness of the receptacle shall be calculated by the following formula:

$$e = \frac{P \times D}{\frac{200Re}{1.30} + P}$$

Where e = minimum thickness of receptacle wall, in mm;  
P = test pressure, in kg/cm<sup>2</sup>;  
D = nominal external diameter of the receptacle, in mm, and  
Re = guaranteed minimum 0.2 - per cent proof stress, in kg/mm<sup>2</sup>.

In addition, the value of the minimum guaranteed proof stress (Re) introduced into the formula is in no case to be greater than 0.85 times the guaranteed minimum tensile strength (Rm), whatever the type of alloy used.

Notes: 1. The above characteristics are based on previous experience with the following materials used for receptacles:

- Column A: Aluminium, unalloyed, 99.5 per cent pure;
- Column B: Alloys of aluminium and magnesium;
- Column C: Alloys of aluminium, silicon and magnesium, such as ISO/R209-Al-Si-Mg (Aluminum Association 6351).
- Column D: Alloys of aluminium, copper and magnesium.

2. The permanent elongation at fracture (l = 5d) is measured by means of test-pieces of circular section in which the gauge length l is equal to five times the diameter d; if test-pieces of rectangular section are used, the gauge length must be calculated by the formula  $l = 5.65 \sqrt{F_0}$ , where F<sub>0</sub> is the initial cross - sectional area of the test-piece.

3. (a) The bend test (see diagram) shall be carried out on specimens obtained by cutting into two equal parts of width 3e, but in no case less than 25 mm, an annular section of a cylinder. The specimens shall not be machined elsewhere than on the edges.

(b) The bend test shall be carried out between a mandrell of diameter (d) and two circular supports separated by a distance of (d + 3e). During the test the inner faces shall be separated by a distance not greater than the diameter of the mandrell.

(c) The specimen shall not exhibit cracks when it has been bent inwards around the mandrell until the inner faces are separated by a distance not greater than the diameter of the mandrell.

\* See «Aluminium Standards and Data», fifth edition, January 1976, published by the Aluminium Association, 750 Third Avenue, New York.

(d) The ratio ( $n$ ) between the diameter of the mandrel and the thickness of the specimen shall conform to the values given in the table.

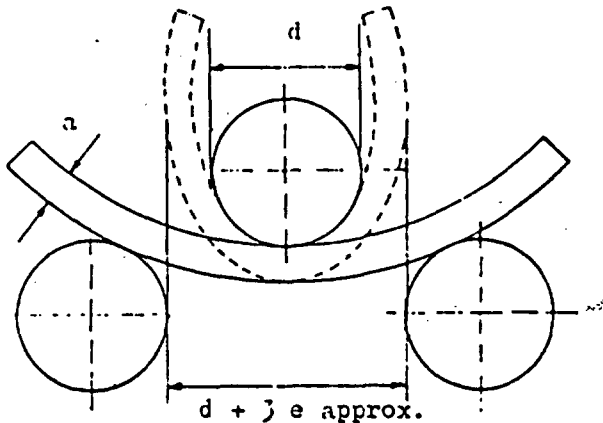


Diagram of bend test

A lower minimum elongation value is acceptable on condition that in additional test approved by the competent authority of the country in which the receptacles are made proves that safety of carriage is ensured to the same extent as in the case of receptacles constructed to comply with the characteristics given in the table in paragraph (1).

(3) The wall thickness of the receptacles at the thinnest point shall be the following:

where the diameter of the receptacle is less than 50 mm: not less than 1.5 mm;

where the diameter of the receptacle is from 50 to 150 mm: not less than 2 mm; and

where the diameter of the receptacle is more than 150 mm: not less than 3 mm.

(4) The ends of the receptacles shall have a semicircular, elliptical or «basket - handle» section; they shall afford the same degree of safety as the body of the receptacle.

## II. Additional official test for aluminium alloys.

(1) In addition to the tests required by marginals 2215, 2216 and 2217, it is necessary to test for possible intercrystalline corrosion of the inside wall of the receptacle where use is made of an aluminium alloy containing copper, or where use is made of an aluminium alloy containing magnesium and manganese and the magnesium content is greater than 3.5 per cent or the manganese content lower than 0.5 per cent.

(2) In the case of an aluminium / copper alloy the test shall be carried out by the manufacturer at the time of approval of a new alloy by the competent authority; it shall thereafter be repeated, in the course of production, for each pour of the alloy.

(3) In the case of an aluminium /magnesium alloy the test shall be carried out by the manufacturer at the time of approval of a new alloy and of the manufacturing process by the competent authority. The test shall be repeated whenever a change is made in the composition of the alloy or in the manufacturing process.

### (4) (a) Preparation of aluminium/copper alloys

Before the aluminium/copper alloy is subjected to the corrosion test, the samples shall be cleansed of grease by means of a suitable solvent, and dried.

### (b) Preparation of aluminium/magnesium alloys

Before the aluminium/magnesium alloy is subjected to the corrosion test, the samples shall be heated for seven days at 100° C; they shall then be cleansed of grease by means of a suitable solvent, and dried.

### (c) Performance of test

The inner side of a specimen measuring 1,000 mm<sup>2</sup> (33,3 × 30 mm) of the material containing copper shall be treated at ambient temperature, for 24 hours, with 1,000 ml of an aqueous solution containing 3 per cent NaCl and 0,5 per cent HCl.

## (d) Examination

After being washed and dried, a section of the specimen 20 mm long shall be examined micrographically at a magnification of 100 to 500 ×, preferably after electropolishing.

The depth of attack shall not go beyond the second layer of grains from the surface subjected to the corrosion test; in principle, if the entire first layer of grains is attacked, only part of the second row should be.

In the case of sections, examination shall be performed at right angles to the surface.

Where after electropolishing it is found necessary to render the grain boundaries particularly visible for subsequent examination, this shall be done by a method acceptable to the competent authority.

## III. Protection of the inner surface

The inner surface of aluminium - alloy receptacles shall be provided with a suitable anti-corrosion coating if the competent testing stations so consider necessary.

## B. Requirements concerning the materials and construction of receptacles intended for the carriage of deeply - refrigerated liquefied gases of Class 2

(1) Receptacles, tanks and shells shall be made of steel, aluminium, aluminium alloy, copper, or copper alloy, e.g. brass. However, receptacles, tanks and shells made of copper or copper alloy shall be accepted only for gases containing no acetylene; ethylene may however contain not more than 0.005 per cent acetylene.

(2) Only materials appropriate to the lowest working temperature of the receptacles, tanks and shells, and of their fittings and accessories, may be used.

The following materials shall be accepted for the manufacture of receptacles, tanks and shells:

(a) steels not subject to brittle fracture at the lowest working temperature (see marginal 3265).

The following may be used:

1. fine - grained unalloyed steels, down to a temperature of -60° C;

2. nickel steels (with a nickel content of 0.5 to 9 per cent), down to a temperature of -196° C, depending on the nickel content;

3. austenitic chrome - nickel steels, down to a temperature of -270° C

(b) aluminium not less than 99.5 per cent pure, or aluminium alloys (see marginal 3266);

(c) deoxidized copper not less than 99.9 per cent pure, or copper alloys having a copper content of over 56 per cent (see marginal 3267).

(1) Receptacles, tanks and shells shall be either seamless or welded.

(2) Receptacles under marginal 2207 made of austenitic steel, of copper or of copper alloy may alternatively be hard - soldered.

The fittings and accessories may either be screwed to the receptacles, tanks and shells or be affixed there to as follows:

(a) receptacles, tanks and shells made of steel, of aluminium or of aluminium alloy: by welding;

(b) receptacles, tanks and shells made of austenitic steel, of copper or of copper alloy: by welding or hard - soldering.

The construction of receptacles, tanks and shells and their mode of affixing to the vehicle, to the underframe or in the container frame shall be such as to preclude with certainty any such reduction in the temperature of the load - bearing components as would be likely to render them brittle. The fastenings of the receptacles, tanks and shells shall themselves be so designed that even when the receptacle, tank or shell is at its lowest working temperature the still possess the necessary mechanical properties.

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1. Materials, receptacles, tanks and shells

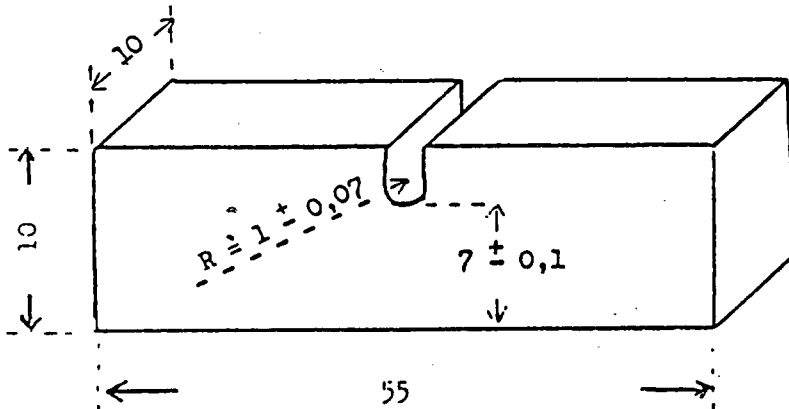
(a) Steel receptacles, tanks and shells

The materials used for the manufacture of receptacles, tanks and shells, and the weld beads, shall at their lowest working temperature meet at least the following requirements as to impact strength.

The tests may be conducted with test - pieces having either a U-shaped or a V-shaped notch.

Material	Impact strength <sup>1 2</sup> of sheet metal and weld beads at lowest working temperature	
	kgm/cm <sup>2</sup> <sup>3</sup>	kgm/cm <sup>2</sup> <sup>4</sup>
Unalloyed killed steel	3.5	2.8
Ferritic alloy steel Ni<5%	3.5	2.2
Ferritic alloy steel 5%≤Ni≤9%	4.5	3.5
Austenitic Cr-Ni steel	4.0	3.2

- 1 Impact strengths determined with different test - pieces are not mutually comparable.
- 2 See marginals 3275 to 3277.
- 3 The values relate to test - pieces with a U-shaped notch as illustrated below.
- 4 The values relate to test-pieces with a V-shaped notch conforming to ISO R 148.



In the case of austenitic steels, only the weld bead need be subjected to an impact - strength test.

For working temperatures below -196°C, the impact - strength test is not performed at the lowest working temperature, but at -196°C.

(b) Receptacles, tanks and shells made of aluminium or aluminium alloy

The seams of receptacles, tanks and shells shall at ambient temperature meet the following requirements as to bending coefficient:

Thickness of sheet e in mm	Bending coefficient K <sup>1</sup> for the seam	
	Root in compression zone	Root in tension zone
≤ 12	≥ 15	≥ 12
> 12 to 20	≥ 12	≥ 10
> 20	≥ 9	≥ 8

1 See marginal 3285.

(c) Receptacles, tanks and shells made of copper or copper alloy

It is not necessary to carry out tests to determine whether the impact strength is adequate.

2. Tests

(a) Impact-strength tests

3275

The impact strength shown in marginal 3265 relate to test-pieces measuring 10×10 mm and having a U-shaped or a V-shaped notch.

Notes: 1. With regard to the shape of the test-piece, see marginal 3265 (table), footnotes<sup>3</sup> and <sup>4</sup>.

2. For sheets less than 10 mm but not less than 5 mm thick, test-pieces having a cross-section of 10 × e mm, where «e» represents the thickness of the sheet, shall be used. Such impact-strength tests generally yield higher values than do such tests on standard test-pieces.

3. No impact-strength test shall be carried out on sheets less than 5 mm thick, or on their seams.

3276

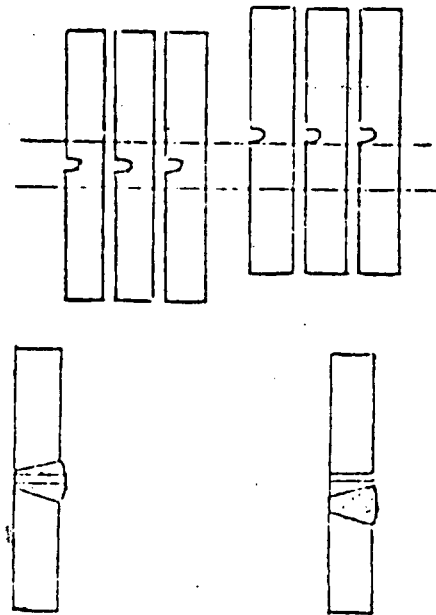
(1) For testing sheet metal the impact strength shall be determined on three test-pieces. The test-pieces shall be removed at right angles to the direction of rolling in the case of test-pieces with a U-shaped notch and in the direction of rolling in the case of test-pieces with a 7-shaped notch.

(2) For testing seams the test-pieces shall be taken as follows:

e ≤ 10

Three test-pieces from the centre of the weld;  
three test-pieces from the zone of deformation created by the weld (the notch shall be completely outside the melted area but as near to it as possible);

3266

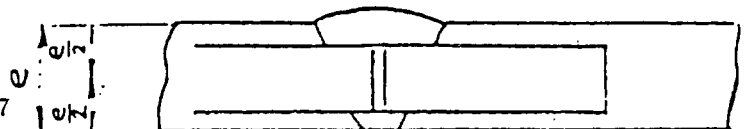


Centre of weld

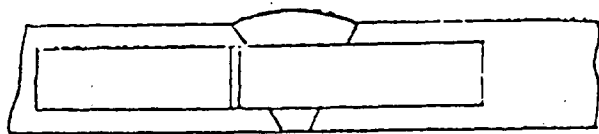
Zone of deformation

i.e. six test-pieces in all.  
The test-pieces shall be so machined as to have the maximum possible thickness.  
10 < e ≤ 20  
Three test-pieces from the centre of the weld;  
three test-pieces from the zone of deformation;

3267  
3268  
- 3274



Centre of weld



Zone of deformation

i.e. six test-pieces in all.

$e > 20$

Two sets of three test-pieces (one set on the upper face, one set on the lower face) at each of the points indicated below:

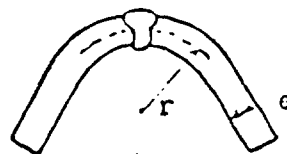


Fig. 1

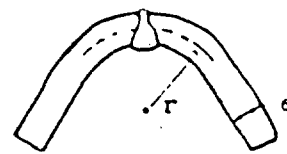
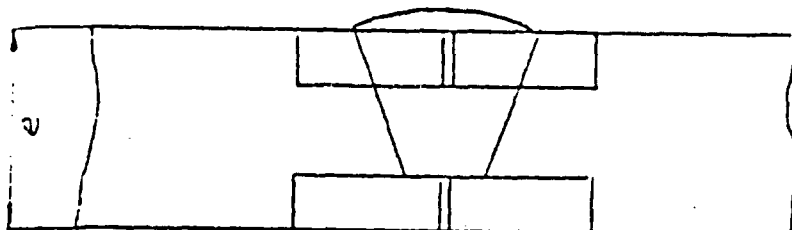
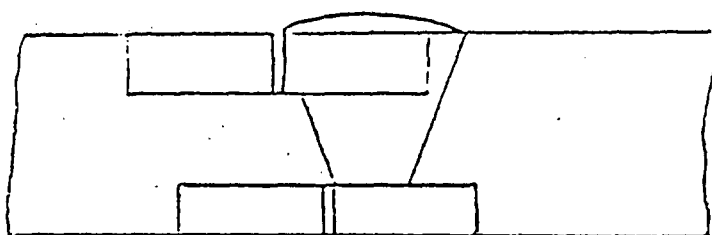


Fig. 2



Centre of weld



Zone of deformation

i.e. twelve test-pieces in all.

3277

(1) For sheet metal the average of three tests shall meet the minimum values given in marginal 3265; none of the values may be more than 30 per cent below the minimum specified.

(2) For welds the average values obtained from three the test-pieces taken at the different points, centre of weld and zone of deformation, shall correspond to the minimum values shown. None of the values may be more than 30 per cent below the minimum specified.

3278  
- 3284

(b) Determination of bending coefficient

(1) The bending coefficient  $k$  referred to in marginal 3266 is defined as follows:

$$k = 50 \frac{e}{r}$$

where  $e$  = thickness of sheet in mm; and  
 $r$  = mean radius of curvature in mm of the test-piece when the first crack appears in the tension zone.

(2) The bending coefficient  $k$  shall be determined for the seam.

The width of the test piece shall be equal to 3  $e$ .

(3) Four tests shall be performed on the seam, two with the root in the compression zone (fig. 1) and two with the root in the tension zone (fig. 2); all values obtained shall meet the minimum value requirements of marginal 3266.

3285

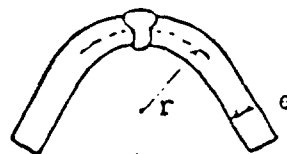


Fig. 1

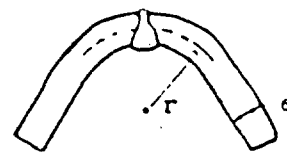


Fig. 2

C. Provisions relating to tests on aerosol dispensers and non-refillable containers for gases under pressure of Class 2, 10° and 11°

3286  
- 3290

1. Pressure and bursting tests on receptacle model

3291

Hydraulic pressure tests shall be carried out on at least five empty receptacles of each model:

(a) until the prescribed test pressure is reached, by which time no leakage or visible permanent deformation shall have occurred; and

(b) until leakage or bursting occurs; the dished end, if any, should yield first and the receptacle should not leak or burst until a pressure 1.2 times the test pressure has been reached or passed.

2. Tightness (leakproofness) tests on all receptacles

3292

(1) For the test on aerosol dispensers (10°) and non-refillable containers for gas under pressure (11°) in a hot-water bath, the temperature of the bath and the duration of the test shall be such that the internal pressure of each receptacle reaches at least 90 per cent of the internal pressure that would be reached at 55°C.

However, if the contents are sensitive to heat or if the receptacles are made of a plastics material which softens at this test temperature, the temperature of the bath shall be from 20° to 30°C; in addition, one dispenser out of every 2,000 shall be tested at the temperature prescribed in the foregoing paragraph.

(2) No leakage or permanent deformation of receptacles shall occur. The provision concerning permanent deformation is not applicable to receptacles which, being made of a plastics material, soften.

3293  
3299

## APPENDIX A.3

Tests relating to inflammable liquids of Classes 3 and 6.1

3300

(1) The flash-point is determined by means of one of the following types of apparatus:

(a) for use at temperatures not exceeding 50°C: Abel, Abel-Pensky, Luchoire-Finances, Tag;

(b) for use at temperatures above 50°C: Pensky-Martens, Luchoire-Finances;

(c) failing these, any other closed-cup apparatus capable of giving results within 2°C of these which an apparatus listed above would give at the same place.

(2) To determine the flash-point of paints, gums and similar viscous products containing solvents, only apparatus and test methods suitable for determining the flash-point of viscous liquids may be used, such as method A of IP standard 170/59 or more recent IP standards,

German standards DIN 53 213 and TGL 14 301, leaflet 2.

The test procedure shall be:

(a) for the Abel apparatus, that of IP\* standard 33/44; this standard may also be used for the Abel-Pensky apparatus;

(b) for the Pensky-Martens apparatus, that of IP\* standard 34/47, or that of ASTM\* standard D.93/46;

(c) for the Tag apparatus, that of ASTM\*\* standard D.53/46;

(d) for the Luchaire apparatus, that of the Instruction annexed to the ministerial order (arrêté ministériel) (France) of 26 October 1925 issued by the Ministère du Commerce et de l' Industrie and published in the Journal Officiel of 29 October 1925.

If any other apparatus is used, the following precautions must be taken:

1. The test must be performed in a place free from draughts.

2. The rate of temperature increase of the liquid being tested must never exceed 5°C per minute.

3. The pilot-flame must be 5 mm ( $\pm$  0.5 mm) long.

4. The pilot-flame must be applied to the opening of the receptacle after each rise of 1°C in the temperature of the liquid.

In the event of a dispute as to the classification of an inflammable liquid, the item number proposed by the sender shall be accepted if a check-test of the flash-point, carried out on the liquid in question, yields a result not differing by more than 2° from the limits (21°, 55° and 100°C respectively) stated in marginal 2301. If a check-test yields a result differing by more than 2°C from these limits, a second check-test must be carried out, and the highest figure obtained shall be adopted.

The peroxide content of a liquid shall be determined as follows:

A quantity p (about 5 g, weighed to the nearest cg) of the liquid to be titrated is placed in an Erlenmeyer flask; 20 cm<sup>3</sup> of acetic anhydride and about 1 g of powdered solid potassium iodide are added; the flask is shaken and, after ten minutes, heated for 3 minutes to about 60°C; it is then allowed to cool for 5 minutes, after which 25 cm<sup>3</sup> of water are added. After being left standing for half an hour, the iodine liberated is titrated with a decinormal solution of sodium thiosulphate, no indicator being added. Complete decolorization indicates the end of the reaction. If n is the number of cm<sup>3</sup> of thiosulphate solution required, the percentage of peroxide (calculated as H<sub>2</sub>O<sub>2</sub>) present

in the sample is obtained by the formula  $\frac{17 n}{100 p}$ .

#### APPENDIX A.4

Reserved

#### APPENDIX A.5

Provisions relating to tests on the metal drums referred to in marginals 2303 (6) and 2813 (1) (c)

##### I. Hydraulic pressure test

This test shall be performed by an approved body.

Number of samples

Three drums per design type and per manufacturer.

3301

Test procedure and test pressure

The drums shall be subjected to a hydraulic-gauge pressure of not less than 0.75 kg/cm<sup>2</sup> for five minutes, during which time the pressure must remain constant. The drums shall not be mechanically supported during the test.

Criteria determining passing of test

The drums must remain leak-proof.

II. Drop test

This test shall be performed by an approved body.

Number of samples

Six drums per design type and per manufacturer.

Preparation of packages for testing

The drums shall be filled to 98 per cent of their capacity.

Target

The target shall be a rigid, even, flat and horizontal surface.

Height of drop

If the test is carried out with water:

(a) where the liquids to be carried have a specific gravity not exceeding 1.2 : 1.20 m;

(b) where the liquids to be carried have a specific gravity exceeding 1.2 a height expressed in metres by a number equal to the number expressing the specific gravity of the liquid to be carried rounded upwards to one decimal place.

If the test is carried out with the liquid to be carried or with a liquid whose specific gravity is at least equal to that of the liquid to be carried : 1.20 m.

Point of impact

The test shall comprise drops of two kinds:

First drop (using three drums):

The drum shall strike the target diagonally on the chime or, if it has no chime, on a circumferential seam. When dropped, the drum shall be so suspended that its centre of gravity is vertically above the point of impact.

Second drop (using the other three drums):

The drum shall strike the target horizontally on the welded longitudinal seam of the drum body.

Criteria determining passing of test

After the drop, all drums must be leak-proof when equilibrium between the external pressure and the internal pressure has been restored. If a drum is not leak-proof, twelve further drums shall be tested. None of these drums must show any leakage after the tests. If more than one in the first batch of six drums is not leak-proof, the type of drum in question shall be rejected.

III. Leakage test

Every drum shall be tested:

(a) before being used in transport for the first time; and

(b) after reconditioning, before being used again in transport.

Test procedure

The drum shall be immersed in water; the manner of maintaining the drum under water shall be such as not to falsify the result of the test. Alternatively the drum may be covered with a soap solution, heavy oil or other suitable liquid on the seams and any other place where leakage could occur. Other methods at least as effective, such as the air pressure differential test («air-pocket tester»), may also be used.

Air pressure to be applied

The pressure shall not be less than 0.2 kg/cm<sup>2</sup>.

Criteria determining passing of test

There must be no air leakage.

IV. Marking

3302

3303

3304

3399

3400

-3499

3500

3501

3502

\* The Institute of Petroleum, 61, New Cavendish Street, London, W.1.

\*\* American Society for Testing and Materials, 1916 Race Street, Philadelphia 3, (pa.).

Drums of tested types of construction shall be durably marked with the impressed or printed sign of the State\* in which the test was carried out, with the mark «ADR» or «RID» and with a registration number assigned by the body which carried out the tests.

#### V. Test report

A test report must be drawn up, which shall include:

1. particular identifying the manufacturer of the drum;
2. a description (e.g. material used, thickness of walls and ends, joints, seams) and a drawing;
3. the result of the tests;
4. the mark of the drum.

A copy of the test report shall be sent to a body designated by the competent authority of the State in which the test is carried out.

### APPENDIX A.6.

#### REGULATIONS RELATING TO RADIOACTIVE SUBSTANCES OF CLASS 7

#### CHAPTER I - PACKAGING AND PACKAGE DESIGN REQUIREMENTS

##### A. GENERAL DESIGN REQUIREMENTS FOR PACKAGING AND PACKAGES

(1) The packaging shall be so designed that the package can be easily handled and can be properly secured during transport.

(2) A package of gross weight 10 kg or more and up to 50 kg shall be provided with means for manual handling.

(3) A package of gross weight in excess of 50 kg shall be so designed as to enable safe handling to be done by mechanical means.

(4) The design shall be such that any lifting attachments on the package, when used in the intended manner, do not impose unsafe stresses on the structure of the package; assessment shall take account of appropriate safety factors to cover "snatch" lifting.

(5) Attachments and any other features on the outer surface of the packaging which could be used to lift the packages shall be removable or otherwise rendered inoperable for transport or shall be designed to support the weight of the package in accordance with the requirements of paragraph (4) above.

(6) The outer layer of packaging shall be so designed as to avoid, as far as practicable, the collection and the retention of water.

(7) The external surfaces of packaging shall, as far as practicable, be so designed and finished that they may be easily decontaminated.

(8) Any features added to the package at the time of transport which are not part of the package shall not reduce the safety of the package.

(9) The smallest overall external dimension of the packaging shall not be less than 10 cm.

(10) Substances which have a critical temperature below 50°C or, at this temperature, a vapour pressure above 3 kg/cm<sup>2</sup> shall be contained in receptacles which also comply with the regulations of marginals 2202 and 2211 to 2218.

3503

#### B. ADDITIONAL REQUIREMENTS FOR TYPE A PACKAGES

3601

(1) The outside of every package shall incorporate a feature such as a seal, which is not readily breakable and which, while intact, will be evidence that the package has not been opened.

3504

(2) As far as practicable, packaging shall be designed so that the external surfaces are free from protruding features.

(3) The design of the packaging shall take into account the variations in temperature to which the packaging may be subjected during transport and storage. In this respect, -40°C and 70°C shall be considered as satisfactory limits to be used in the selection of the materials; special attention, however, shall be given to brittle fracture over this temperature range.

3505

- 3599

(4) The design, fabrication and manufacturing techniques for welded, brazed, or other fusion joints shall be in accordance with national or international standards or with standards acceptable to the competent authority.

(5) The package shall be capable of withstanding the effects of any acceleration, vibration or vibration resonance which may arise during normal transport without any deterioration in the effectiveness of the closing devices on the various receptacles or in the integrity of the package as a whole. In particular, nuts, bolts and other securing devices shall be so designed as to prevent them from becoming loose or being released unintentionally, even after repeated use.

(6) Special form radioactive substances may be considered as a component of the containment system.

(7) The design shall include a containment system closed by a positive fastening device, that is a device which cannot open by itself, can only be opened intentionally and will resist the effect of a possible increase in pressure inside the vessel.

3600

(8) If a containment system forms a separate unit of the packaging, it shall be capable of being securely closed by a positive fastening device which is independent of any other part or the packaging.

(9) The materials of the packaging and any components or structures shall be physically and chemically compatible with each other and with the package contents; account shall be taken of their behaviour under irradiation.

(10) The design of any component of the containment system shall take into account, where applicable, the radiolytic decomposition of liquids and other vulnerable materials and the generation of gas by chemical reaction and radiolysis.

(11) The containment system shall retain its radioactive contents under the reduction of ambient pressure to 0.25 kg/cm<sup>2</sup>.

(12) All valves, other than pressure relief valves, through which the radioactive contents could otherwise escape shall be protected against unauthorized operation and shall be provided with an enclosure to retain any leakage from the valve.

(13) A radiation shield which encloses a component of the packaging specified as a part of the containment system shall be so designed as to prevent the unintentional release of that component from the shield. Where the radiation shield and such component within it form a separate unit, the radiation shield shall be capable of being securely closed by a positive fastening device which is independent of any other packaging structure.

(14) Any tie-down attachments on the package shall be so designed that, under both normal and accident conditions, the forces in those attachments shall not impair the ability of the package to meet the requirements of this Appendix.

(15) Type A packaging shall be so designed that, if it were subjected to the tests specified in marginal 3635 it would prevent:

(a) loss or dispersal of the radioactive contents, and

\* The signs referred to are the national distinguishing signs for motor vehicles in international traffic.



(b) any increase of the maximum radiation level recorded or calculated at the external surface for the condition before the test.

(16) Type A packaging designed for liquids shall, in addition, be adequate to meet the conditions prescribed in marginal (15) above if the package is subjected to the tests specified in marginal 3636.

However, these tests are not required when enough absorbent material to absorb twice the volume of the liquid contents is within the containment system and:

(a) the absorbent material is within the radiation shield; or

(b) the absorbent material is outside the radiation shield, provided that it can be shown that if the liquid contents were taken up by the absorbent material the resultant radiation level at the surface of the package would not exceed 200 mrem/h.

(17) Type A packaging designed for compressed or uncompressed gases shall, in addition, prevent loss or dispersal of the radioactive contents if the package is subjected to the tests specified in marginal 3636.

Packaging designed for tritium and argon-37, in gaseous form and in activities up to 200 Ci, shall be exempted from this requirement.

**C. BASIC ADDITIONAL REQUIREMENTS FOR TYPE B(U) AND TYPE B(M) PACKAGES**

(1) Except as provided in marginal 3603(1) (a) and 3604(2) respectively, Type B(U) and Type B(M) packages shall be designed to meet the additional requirements specified for Type A packages in marginal 3601(1) to (15) inclusive.

(2) The packaging shall be so designed that if it were subjected to the tests in marginal 3637 it would retain sufficient radiation shielding to ensure that the radiation level at 1 m from the surface of the package would not exceed 1 rem/h had the package contained sufficient iridium-192 to produce a radiation level of 10 mrem/h at 1 m from the surface before the tests.

Where the use of the packaging is to be restricted to particular radionuclides, those radionuclides may be used as the reference source in place of iridium-192. In addition, if the packaging is to be used for neutron emitters, an appropriate neutron reference source should also be used. It is not required that a measurement necessarily be made with a test radiation source but only that calculations be made with respect to the particular reference radiation source considered.

(3) Type B(U) and Type B(M) packages shall be so designed, constructed and prepared for shipment that, under the ambient conditions specified in paragraph (4), they shall satisfy the conditions in (a) and (b) below:

(a) Heat generated within the package by the radioactive contents will not, under normal conditions of transport (as demonstrated by the tests in marginal 3635) adversely affect the package in such a way that it will fail to meet the applicable requirements for containment and shielding if left unattended for a period of one week. Particular attention shall be paid to the effects of heat which may:

(i) alter the arrangement, the geometrical form or the physical state of the radioactive contents or, if the material is enclosed in a can or receptacle (for example, clad fuel elements), cause the can, receptacle or material to melt;

(ii) lessen the efficiency of the packaging through differential thermal expansion or cracking or melting of the radiation shielding material;

(iii) in combination with moisture, accelerate corrosion.

(b) The temperature of the accessible surfaces of a Type B(U) or Type B(M) package shall not exceed 50°C in the shade unless the package is transported as a full load.

(4) In applying paragraph (3)(a), the following conditions shall be assumed:

(a) Ambient temperature 38°C.

(b) Insolation data according to Table I below.

In applying paragraph (3)(b), the following condition shall be assumed:

Ambient temperature 38°C.

In the case of Type B(M) packages to be transported exclusively between specified countries, alternative conditions may be assumed with the agreement of the competent authorities of these countries.

TABLE I. INSOLATION DATA

Form and location of surface	Insolation in Gcal/cm <sup>2</sup> for 12 hours per day
Flat surfaces transported horizontally:	
- base	none
- other surfaces	800
Flat surfaces not transported horizontally:	
- each surface	200 <sup>a</sup>
Curved surfaces	400 <sup>a</sup>

3602

<sup>a</sup> Alternatively, a sine function may be used, adopting an absorption coefficient and neglecting the effects of possible reflection from neighbouring objects.

(5) Packaging which includes thermal protection for the purpose of satisfying the requirements of the thermal test specified in marginal 3637(3) shall be so designed that such protection will remain effective if the packaging is subjected to the tests specified in marginal 3635 and marginal 3637(2). Any such protection on the exterior of the package shall not be rendered ineffective by conditions commonly encountered in normal handling or in accidents and not simulated in the tests referred to above, e.g. by ripping, cutting, skidding, abrasion or rough handling.

**D. SPECIFIC ADDITIONAL REQUIREMENTS FOR TYPE B(U) PACKAGES**

3603

(1) The package shall be so designed that, if it were subjected to the 3603 tests referred to below, it would:

(a) with regard to the tests specified in marginal 3635 restrict the loss of radioactive contents to not more than  $A_2 \times 10^{-6}$  per hour.

(b) with regard to the tests in marginal 3637, restrict the accumulated loss of radioactive contents to not more than  $A_2 \times 10^{-3}$  in a period of one week.

Where mixtures of different radionuclides are present, the provisions of marginal 3691 shall apply.

For (a) above, the evaluation shall take into account the external contamination limitations of marginal 3651. For both (a) and (b) above, the  $A_2$  values for noble gases shall be those for the uncompressed state.

(2) Compliance with the permitted activity release limits shall depend neither upon filters nor upon a mechanical cooling system.

(3) A package shall not incorporate a feature which is intended to allow continuous venting during transport.

(4) The package shall not include a pressure relief system from the containment system which would allow the release of radioactive substances to the environment under the conditions of the tests specified in marginals 3635 and 3637.

(5) Where the maximum normal operating pressure (see marginal 2700(2)) of the containment system added to any differential pressure below mean sea-level atmospheric pressure to which any component of the packaging specified as part of the containment system may be subjected exceed 0.35 kg/cm<sup>2</sup>, that component shall be capable of withstanding a pressure of not less

than one and a half times the sum of those pressures; the stress at this latter pressure shall not be more than 75 per cent of the minimum yield strength and not more than 40 per cent of the ultimate strength of that component at the maximum expected operating temperature.

(6) With the package at the maximum normal operating pressure (see marginal 2700(2)) subjected to the thermal test specified in marginal 3637(3), the pressure in any component of the packaging specified as a part of the containment system shall be demonstrated not to exceed the pressure which corresponds to the minimum yield strength of that component at the maximum temperature which it would be expected to reach in the test.

(7) The package shall not have a maximum normal operating pressure (see marginal 2700(2)) in excess of 7 kg/cm<sup>2</sup> (gauge).

(8) The maximum temperature of any surface readily accessible during transport of the package shall not exceed 82°C in the shade under normal conditions of transport (see also marginal 3602(3) (b) above.).

(9) The containment system of a package containing liquid shall not be impaired if the package is subjected to a temperature of -40°C under normal conditions of transport.

#### E. ADDITIONAL REQUIREMENTS FOR TYPE B(M) PACKAGES

(1) In addition to the requirements of marginal 3602, Type B(M) packages shall, as far as practicable, meet the additional specific requirements for Type B(U) packages given in marginal 3603.

(2) A type B(M) package shall be so designed that, if it were subjected to the tests referred to in Table II it would restrict the loss of radioactive contents to not more than the activity limits specified in Table II. The evaluation with respect to the tests specified in marginal 3635 shall take into account the external contamination limitations of marginal 3651.

TABLE II. ACTIVITY LIMITS FOR LOSS OF RADIOACTIVE CONTENTS FROM TYPE B(M) PACKAGES

Conditions	Type B(M) packages not designed for continuous venting	Type B(M) packages specially designed to allow continuous venting
After the tests in marginal 3635	$A_2 \times 10^{-6}$ per hour	$A_2 \times 5 \times 10^{-5}$ per hour
After the tests in marginal 3637	Krypton-85: 10 000 Ci in 1 week Other radionuclides: $A_2$ in 1 week	Krypton-85: 10 000 Ci in 1 week Other radionuclides: $A_2$ in 1 week

The  $A_2$  values used for noble gases shall be for the uncompressed state. Where mixtures of radionuclides are present the provisions of marginal 3691 shall apply.

(3) If the pressure in the containment system of a Type B(M) package could result in a stress exceeding, under the conditions of the tests in marginals 3635 and 3637, the minimum yield strength of any structural material of the containment system at the temperature which it would be expected to reach in the tests, the packaging shall be equipped with a pressure relief system to ensure that that minimum yield strength is not exceeded.

## CHAPTER II - FISSILE SUBSTANCES

### A. EXEMPTIONS OF FISSILE SUBSTANCES FROM FISSILE CLASS PACKAGE PRESCRIPTIONS

3610

Packages containing radioactive substances which are also fissile substances except for the cases specified in (a) to (g) below, shall be designed to comply with the requirements of this chapter.

(a) Packages containing individually not more than 15 g of uranium-233, uranium-235, plutonium-238, plutonium-239, plutonium-241, or 15 g of any combination of these radionuclides, provided that the smallest external dimension of the package is not less than 10 cm. When material is transported in bulk, the quantity limitations shall apply to the vehicle.

(b) Packages containing only natural or depleted uranium which has been irradiated in thermal reactors only.

(c) Packages containing homogeneous hydrogenous solutions or mixtures satisfying the conditions listed in Table III. When material is transported in bulk, the quantity limitations shall apply to the vehicle.

TABLE III. LIMITATIONS ON HOMOGENEOUS HYDROGENOUS SOLUTIONS OR MIXTURES

Parameters	Any other fissile substances (including mixtures)	<sup>235</sup> U only
Minimum H/X <sup>a</sup>	5200	5200
Maximum concentration of fissile nuclide in g/l	5	5
Maximum mass of fissile nuclide in g/package	500	800 <sup>b</sup>

a Where H/X is the ratio of the number of hydrogen atoms to the number of atoms of fissile nuclide.

b With a tolerance for Pu and <sup>233</sup>U of not more than 1 per cent of the mass of <sup>235</sup>U.

(d) Packages containing uranium enriched in uranium-235 to a maximum of 1 per cent by weight, and with a total plutonium and uranium-233 content of up to 1 per cent of the mass uranium-235, provided, that the fissile substances are distributed homogeneously throughout the material. In addition, if uranium-235 is present in metallic or oxide forms, it shall not form a lattice arrangement within the package.

(e) Packages containing any fissile substances provided that they do not contain more than 5 g of fissile substances in any 10-litre volume. The substances shall be packed in packages which will maintain the limitations on fissile substances distribution during normal transport.

(f) Packages containing individually not more than 1 kg of total plutonium of which not more than 20 per cent by mass may consist of plutonium-239, plutonium-241, or any combination of those radionuclides.

(g) Packages containing liquid solutions of uranyl nitrate enriched in uranium-235 to a maximum of 2 per cent by weight, with a tolerance for plutonium and uranium-233 of up to 0.1 per cent of the mass of uranium-235.

The packages shall also comply with the other relevant parts of this Appendix.

3604

3605  
- 3609

## B. GENERAL PROVISIONS FOR NUCLEAR SAFETY

(1) All fissile substances shall be packed and shipped in such a manner that criticality<sup>1</sup> cannot be reached under any foreseeable circumstances of transport. In particular, the following contingencies shall be considered:

- (a) water leaking into or out of packages
- (b) the loss of efficiency of built-in neutron absorbers or moderators;
- (c) possible rearrangement of contents into more reactive arrays, either within the package or as a result of loss from the package;
- (d) reduction of spaces between packages or contents;
- (e) packages becoming immersed in water or buried in snow;
- (f) possible increase of reactivity due to temperature changes;

(2) In addition, for irradiated nuclear fuel or unspecified fissile substances the following assumptions shall be made:

(a) Irradiated nuclear fuel for which the degree of irradiation is not known and whose reactivity decreases with burn-up shall be regarded as unirradiated for criticality control. If its reactivity increases with burn-up, it shall be regarded as irradiated to the point of maximum reactivity. The reactivity of nuclear fuel for which the degree of irradiation is known be assessed accordingly.

(b) For unspecified fissile substances such as residues or scrap whose enrichment, mass, concentration, moderation ratio or density is not known or cannot be identified, the assumption shall be that each parameter that is not known has the value which gives the maximum reactivity under credible conditions.

(3) Packages of fissile substances, except as provided in marginal 3610, shall be classified as follows:

(a) Fissile Class I: packages which are nuclearly safe in any number and in any arrangement under all foreseeable circumstances of transport;

(b) Fissile Class II: packages which, in limited number, are nuclearly safe in any arrangement under all foreseeable circumstances of transport;

(c) Fissile Class III: packages which are nuclearly safe under all foreseeable circumstances of transport by reason of special precautions, or special administrative or operational controls imposed upon the transport of the consignment.

## C. PROVISIONS SPECIFIC TO FISSILE CLASS I PACKAGES

(1) Each Fissile Class I package shall be so designed that, if it were subjected to the tests specified in marginal 3635:

- (a) water would not leak into or out of any part of the package unless water inleakage to, or outleakage from, that part, to the optimum foreseeable extent, has been assumed for the purposes of marginal 3614(1); and
- (b) the configuration of the contents and the geometry of the containment system would not be altered so as to increase the reactivity significantly.

(2) Fissile Class I packages shall satisfy the nuclear safety criteria specified in marginals 3613 and 3614.

## 1. For the individual package considered in isolation

(1) The following conditions shall be assumed:

- (a) the package is «damaged» (for this purpose

1. In applying criticality data, obtained by either calculation or experiment, to the criticality clearance of transport packages, allowance shall be made separately for any inaccuracy in the data or uncertainty concerning their validity.

3611

«damage» shall mean the evaluated or demonstrated condition of the package if it had been subjected either to the tests specified in marginals 3635 and 3637(1) to (3), followed by that in marginal 3638 or to the tests specified in marginals 3635 and 3637(4), whichever combination is the more limiting); and

(b) water can leak into or out of all void spaces of the package including those within the containment system, except that, where the package design incorporates special features to prevent the leakage of water into or out of certain void spaces even as a result of human error, absence of leakage may be assumed in respect of those void spaces. Such special features may include either:

- (i) multiple high standard water barriers, each of which would remain leaktight if the package were subjected to the combinations of tests specified in paragraph (1)(a); or
- (ii) high degree of quality control in the production and maintenance of packaging, coupled with special tests to demonstrate closure of each package before shipment.

(2) The package shall be sub-critical by an adequate margin<sup>2</sup> under the conditions specified in paragraph (1), the physical and chemical characteristics being taken into account, including any change in those characteristics which could occur under the conditions of paragraph (1), and with the conditions of moderation and reflection as specified below:

(a) with the substances within the containment system:

- (i) the most reactive configuration and moderation foreseeable under the conditions of paragraph (1);
- (ii) close full water reflection of the containment system or such greater reflection of the containment system as may additionally be provided by the surrounding material of the packaging, and, in addition,

(b) if any part of the substances escapes from the containment system under the conditions of paragraph (1):

- (i) the most reactive configuration and moderation considered credible;
- (ii) close full water reflection of the substances.

## 2. For consignments of one or more packages.

(1) Any number of undamaged packages of one design in any arrangement shall be sub-critical; for this purpose «undamaged» shall mean the condition in which the packages are designed to be presented for transport.

(2) 250 such packages when «damaged» shall be sub-critical if stacked together in any arrangement and closely reflected on all sides of the stack by the equivalent of water (for this purpose «damaged» shall mean the evaluated or demonstrated condition of the package if it had been subjected either to the tests specified in marginals 3635 and 3637 (1) to (3), followed by that in marginal 3638, or to the tests specified in marginals 3635 and 3637 (4), whichever combination is the more limiting). Hydrogenous moderation<sup>3</sup> between packages, and water leakage into or out of the packages consistent with the test results shall be assumed to the extent which results in the greatest reactivity.

3. Examples of package designs requiring multilateral approval.

## Example 1.

The calculation shall be based on the following requirements:

2. For example, if mass of fissile substance is an appropriate parameter for control, an adequate margin would be represented by limiting the mass to 80 per cent of that mass which would be critical in a similar system.

3. The hydrogenous moderation may be considered to consist of either a uniform layer of full density water surrounding each package or water at an appropriate density homogeneously interspersed between packages.

3612

3614

3613

3615

(a) Each individual package shall comply with the criteria under marginals 3612 and 3613.

(b) The package, whether damaged or undamaged, shall be such as to shield the fissile contents from thermal neutrons.

(c) When a parallel beam of neutrons having an energy spectrum as specified in Table IV is incident at any angle on an undamaged package, the surface multiplication factor for epithermal neutrons, i.e. the ratio of the number of epithermal neutrons leaving the package to the number of epithermal neutrons entering the package, shall be less than one, and the energy spectrum of the neutrons that are emitted by the package in an infinite array shall be no harder than that of the incident neutron.

(d) The package design shall comply with the criteria in marginal 3614 (2).

4. Examples of package designs requiring unilateral approval.

Example 1.

(1) The packaging shall be constructed so that the fissile contents are surrounded by a layer of material capable of absorbing all thermal neutrons incident on it<sup>4</sup> and this neutron absorbent layer is then surrounded by a thickness of at least 10.2 cm of wood having a minimum hydrogen content of 6.5 per cent by weight, so that the minimum external dimension over the wood is 30.5 cm.

(2) The packaging shall be so constructed that when damaged» (for this purpose «damaged» shall have the meaning assigned in marginal 3613 (1)) the fissile contents will remain surrounded by the neutron absorbent layer, the neutron absorbent layer will remain surrounded by the wood, and wood will not be lost to an extent which would reduce the thickness of the remaining wood to less than 9.2 cm or reduce the minimum external dimension over the remaining wood to less than 28.5 cm.

3616

(3) The contents shall not exceed that permissible mass of fissile substances shown in Tables V to XIII which is consistent with: (a) the nature of the substances; (b) the maximum moderation; and (c) the maximum diameter (or volume) which could occur if the package were «damaged» (for this purpose «damaged» shall have the meaning assigned in marginal 3613 (1)).

TABLE IV - NEUTRON ENERGY SPECTRUM\*

Neutron energy E	Fractions of neutrons with energy less than E
11.0 MeV	1.000
2.4 MeV	0.802
1.1 MeV	0.590
0.55 MeV	0.460
0.26 MeV	0.373
0.13 MeV	0.319
43 keV	0.263
10 keV	0.210
1.6 keV	0.156
0.26 keV	0.111
42 eV	0.072
5.5 eV	0.036
0.4 eV	0

Note: A detailed calculation for a given package design in accordance with the method set out in marginal 3615 can give less restrictive values than those in Tables V to XIII.

4. This layer may consist of cadmium at least 0.38 mm thick equivalent to 0.325 g cadmium per cm<sup>2</sup>.

a. The spectrum is the epithermal portion of the equilibrium spectrum emergent from packages incorporating 5 cm thickness of wood in a critical array of such packages.

## Appendix A.6

TABLE V  
 AQUEOUS SOLUTIONS OF URANYL<sup>a</sup>/ FLUORIDE OR URANYL<sup>a</sup>/ NITRATE  
 Permissible mass of uranium per package as a function of the packaging wood density

1. Limited by maximum internal diameter of inner receptacle														
Inner receptacle diameter not exceeding (cm)	Wood density not exceeding 1.25 g/cm <sup>3</sup> and not less than (g/cm <sup>3</sup> )													
	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25
kg uranium per package														
10.16	← No limit →													
No limit	0.084	0.120	0.157	0.193	0.231	0.267	0.301	0.335	0.370	0.400	0.429	0.456	0.478	0.498
2. Limited by maximum internal volume of inner receptacle														
Inner receptacle volume not exceeding (l)	Wood density not exceeding 1.25 g/cm <sup>3</sup> and not less than (g/cm <sup>3</sup> )													
	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25
kg uranium per package														
2	0.152	0.380	0.66	1.01	1.47	2.00	2.66	3.50	4.64	6.15	7.62	9.39	11.3	13.3
3	0.084	0.223	0.416	0.65	0.93	1.25	1.58	1.96	2.34	2.74	3.16	3.53	3.99	4.42
4	0.084	0.120	0.157	0.193	0.231	0.274	0.356	0.498	0.73	1.15	1.47	2.02	2.70	3.55
5	0.084	0.120	0.157	0.193	0.231	0.267	0.301	0.495	0.57	0.66	0.74	0.84	0.92	1.02
7	0.084	0.120	0.157	0.193	0.231	0.267	0.301	0.347	0.406	0.467	0.53	0.60	0.66	0.73
No limit	0.084	0.120	0.157	0.193	0.231	0.267	0.301	0.335	0.370	0.400	0.429	0.456	0.478	0.498

<sup>a</sup>/ Uranium which includes no <sup>233</sup>U and no more than 93% <sup>235</sup>U by weight

Appendix A.6

TABLE VI

NON-HYDROGENOUS URANIUM (a) COMPOUNDS OR MIXTURES IN WHICH THE URANIUM-235 CONCENTRATION DOES NOT EXCEED 4.9 g/cm<sup>3</sup> (b)

(Including unmoderated uranium metal of uranium-235 enrichment not exceeding 2% per unit by weight)

Permissible mass of uranium per package as a function of the packaging wood density

1. Limited by maximum internal diameter of inner receptacle		kg uranium per package	
Inner receptacle diameter not exceeding (cm)	Wood density not exceeding 1.25 g/cm <sup>3</sup> and not less than 0.6 g/cm <sup>3</sup>		
10.16	No limit		
No limit	0.69		
2. Limited by maximum internal volume of inner receptacle		kg uranium per package	
Inner receptacle volume not exceeding (l)	Wood density not exceeding 1.25 g/cm <sup>3</sup> and not less than 0.6 g/cm <sup>3</sup>	0.8	0.7
3	7.0	14.5	14.5
4	4.6	7.8	7.8
5	3.63	3.63	3.63
6	1.41	1.41	1.41
No limit	0.69	0.69	0.69

(a) Uranium which includes no U<sup>233</sup> and no more than 93% per cent U<sup>235</sup> by weight.

(b) Mixtures containing beryllium or deuterium are excluded and the mass of carbon shall not exceed five times the allowed mass of uranium.

Appendix A.6

TABLE VII

NON-HYDROGENOUS URANIUM<sup>a/</sup> COMPOUNDS OR MIXTURES IN WHICH THE URANIUM-235 CONCENTRATION DOES NOT EXCEED 9.6 g/cm<sup>3</sup> b/  
 (Including unmoderated uranium metal of uranium-235 enrichment not exceeding 50% by weight)  
 Permissible mass of uranium per package as a function of the packaging wood density

1. Limited by maximum internal diameter of inner receptacle																						
Inner receptacle diameter not exceeding (cm)	Wood density not exceeding 1.25 g/cm <sup>3</sup> and not less than (g/cm <sup>3</sup> )		0.8		0.85		0.9		0.95		1.0		1.05		1.1		1.15		1.2		1.25	
	kg uranium per package																					
7.5	← No limit →																					
8	← No limit →																					
8.5	← No limit →																					
9	← No limit →																					
9.5	← No limit →																					
10	← No limit →																					
No limit	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
2. Limited by maximum internal volume of inner receptacle																						
Inner receptacle volume not exceeding (l)	Wood density not exceeding 1.25 g/cm <sup>3</sup> and not less than (g/cm <sup>3</sup> )		0.75		0.8		0.85		0.9		0.95		1.0									
	kg uranium per package																					
3	7	8	9.2	10	10	11	11	12	14	15	15	17	17	19								
4	4.8	7.8	7.8	7.8	7.8	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6								
7	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63								
No limit	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41								
	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69								

a/ Uranium which includes no U<sup>235</sup> and no more than 95% U<sup>235</sup> by weight  
 b/ Mixtures containing beryllium or deuterium are excluded and the mass of carbon shall not exceed five times the allowed mass of uranium.

Appendix A.6

TABLE VIII

UNMODERATED URANIUM <sup>235</sup> FETAL

Permissible mass of uranium per package as a function of the packaging wood density

1. Limited by maximum internal diameter of inner receptacle														
Inner receptacle diameter not exceeding (cm)	Wood density not exceeding 1.25 g/cm <sup>3</sup> and not less than (g/cm <sup>3</sup> )		kg uranium per package											
	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25
6	← No limit →													
6.5	← No limit →													
7	← No limit →													
7.5	← No limit →													
10	← No limit →													
No limit	← No limit →													
No limit <sup>b/</sup>	← No limit →													
2. Limited by maximum internal volume of inner receptacle														
Inner receptacle volume not exceeding (l)	Wood density not exceeding 1.25 g/cm <sup>3</sup> and not less than (g/cm <sup>3</sup> )		kg uranium per package											
	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25
2	6	7	8	9.2	10	11	12	14	15	16	17	17	17	19
3	6	7	8	9.2	10	11	12	14	14.5	14.5	14.5	14.5	14.5	14.5
4	6	7	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
5	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63
7	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41
No limit	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
No limit <sup>b/</sup>	6	7	8	9.2	10	11	12	14	15	16	17	17	17	19

a/ Uranium which includes no U<sup>233</sup> and no more than 93% U<sup>235</sup> by weight

b/ These enhanced masses apply where the fissile substances are in the form of massive metal pieces weighing not less than 2 kg each and free from re-entrant surfaces.



Appendix A.6

TABLE IX

URANIUM<sup>235</sup> COMPOUNDS OR MIXTURES IN WHICH THE URANIUM CONCENTRATION DOES NOT EXCEED  $\frac{26.44}{W/U + 1.41} \text{ g/cm}^3$

Permissible mass of uranium per package as a function of the packaging wood density

1. Limited by maximum internal diameter of inner receptacle														
Inner receptacle diameter not exceeding (cm)	Wood density not exceeding 1.25 g/cm <sup>3</sup> and not less than (g/cm <sup>3</sup> )		0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25			
	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25
kg uranium per package														
6	← No limit										←			
6.5	2.80	6.0	←	No limit							←	←		
7	2.80	6.0	6.0	6.0	6.0	15	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2
7.5	2.80	6.0	6.0	6.0	6.0	14	15	15.2	15.2	15.2	15.2	15.2	15.2	15.2
10	0.330	0.87	1.10	1.80	2.50	3.50	4.6	7.1	7.7	9.6	11.6	13.8	16.1	18.3
No limit	0.084	0.120	0.157	0.193	0.231	0.267	0.301	0.335	0.370	0.400	0.429	0.456	0.478	0.498
2. Limited by maximum internal volume of inner receptacle														
Inner receptacle volume not exceeding (l)	Wood density not exceeding 1.25 g/cm <sup>3</sup> and not less than (g/cm <sup>3</sup> )		0.8 <th>0.85 <th>0.9 <th>0.95</th> <th>1.0</th> <th>1.05</th> <th>1.1</th> <th>1.15</th> <th>1.2</th> <th>1.25</th> </th></th>	0.85 <th>0.9 <th>0.95</th> <th>1.0</th> <th>1.05</th> <th>1.1</th> <th>1.15</th> <th>1.2</th> <th>1.25</th> </th>	0.9 <th>0.95</th> <th>1.0</th> <th>1.05</th> <th>1.1</th> <th>1.15</th> <th>1.2</th> <th>1.25</th>	0.95	1.0	1.05	1.1	1.15	1.2	1.25		
	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25
kg uranium per package														
2	0.152	0.380	0.66	1.01	1.47	2.00	2.66	3.50	4.64	6.04	7.62	9.39	11.3	13.3
3	0.084	0.223	0.416	0.65	0.93	1.25	1.58	1.96	2.34	2.74	3.16	3.57	3.99	4.42
4	0.084	0.120	0.157	0.193	0.231	0.274	0.356	0.498	0.73	1.05	1.47	2.02	2.70	3.55
5	0.084	0.120	0.157	0.193	0.231	0.267	0.301	0.495	0.57	0.66	0.74	0.84	0.92	1.02
7	0.084	0.120	0.157	0.193	0.231	0.267	0.301	0.347	0.406	0.467	0.53	0.60	0.68	0.73
No limit	0.064	0.120	0.157	0.193	0.231	0.267	0.301	0.335	0.370	0.400	0.429	0.456	0.478	0.498

a/ Uranium which includes no <sup>233</sup> and no more than 93% per cent <sup>235</sup> by weight.

Appendix A.6

TABLE X

NON-HYDROGENOUS PLUTONIUM COMPOUNDS OR MIXTURES IN WHICH THE PLUTONIUM-239 CONCENTRATION DOES NOT EXCEED 10 g/cm<sup>3</sup> a/

Permissible mass of plutonium per package as a function of the packaging wood density

1. Limited by maximum internal diameter of inner receptacle										
Inner receptacle diameter not exceeding (cm)	Wood density not exceeding 1.25 g/cm <sup>3</sup> and not less than (g/cm <sup>3</sup> )		0.95		1.05		1.1		1.15	
	0.6	0.65	0.7	0.75	0.8	0.8	0.8	0.8	0.8	0.8
kg plutonium per package										
6	← No limit →									←
6.5	3.60	4.2	← No limit →							←
7	3.60	4.2	4.7	5.3	← No limit →					←
7.5	3.60	4.2	4.7	5.3	5.9	7.1	← No limit →			←
10	3.60	4.2	4.7	5.3	5.9	7.1	8.1	8.6	8.9	8.9
No limit	0.405	0.405	0.405	0.405	0.405	0.405	0.405	0.405	0.405	0.405
2. Limited by maximum internal volume of inner receptacle										
Inner receptacle volume not exceeding (l)	Wood density not exceeding 1.25 g/cm <sup>3</sup> and not less than (g/cm <sup>3</sup> )		0.75		0.75		0.75		0.8	
	0.6	0.65	0.65	0.7	0.7	0.7	0.7	0.7	0.7	0.8
kg plutonium per package										
3	3.60	4.2	4.7	5.3	← No limit →					←
4	3.60	3.84	3.84	3.84	← No limit →					←
5	2.44	2.44	2.44	2.44	← No limit →					←
7	1.20	1.20	1.20	1.20	← No limit →					←
No limit	0.405	0.405	0.405	0.405	← No limit →					←

a/ Mixtures containing beryllium and deuterium are excluded and the mass of carbon shall not exceed 1/10 of the allowed mass of plutonium.

## Appendix A.6

TABLE XI

## UNMODERATED PLUTONIUM METAL

Permissible mass of plutonium per package as a function of the packaging wood density

1. Limited by maximum internal diameter of inner receptacle	
Inner receptacle diameter not exceeding (cm)	Wood density not exceeding 1.25 g/cm <sup>3</sup> and not less than (g/cm <sup>3</sup> )
	0.6      0.65      0.7      0.75      0.8      0.85
	kg plutonium per package
4	3.20      ←      No limit      →
30	3.20      3.60      3.90      4.2      4.4      4.5
No limit	0.405      0.405      0.405      0.405      0.405      0.405
No limit <sup>a/</sup>	3.20      3.60      3.90      4.2      4.4      4.5
2. Limited by maximum internal volume of inner receptacle	
Inner receptacle volume not exceeding (l)	Wood density not exceeding 1.25 g/cm <sup>3</sup> and not less than (g/cm <sup>3</sup> )
	0.6      0.65      0.7      0.75      0.8      0.85
	kg plutonium per package
3	3.20      3.60      3.90      4.2      4.4      4.5
4	3.20      3.60      3.84      3.84      3.84      3.84
5	2.44      2.44      2.44      2.44      2.44      2.44
7	1.20      1.20      1.20      1.20      1.20      1.20
No limit	0.405      0.405      0.405      0.405      0.405      0.405
No limit <sup>a/</sup>	3.20      3.60      3.90      4.2      4.4      4.5

<sup>a/</sup> These enhanced masses apply where the fissile substances are in the form of massive metal pieces weighing not less than 2 kg each and free from re-entrant surfaces

Appendix A.6

TABLE XII

PLUTONIUM COMPOUNDS OR MIXTURES IN WHICH THE PLUTONIUM CONCENTRATION

DOES NOT EXCEED  $\frac{26.56}{W/P \times 1.35} \text{ g/cm}^3$

Permissible mass of plutonium per package as a function of the packaging word density

1. Limited by maximum internal diameter of inner receptacle														
Inner receptacle diameter not exceeding (cm)	Wood density not exceeding $1.25 \text{ g/cm}^3$ and not less than $(\text{g/cm}^3)$		kg plutonium per package											
	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25
4	3.2	3.60	3.90	4.2	4.4	No limit					No limit			
5	2.80	3.60	3.90	4.2	4.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
6	2.50	3.40	3.80	4.2	4.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
6.5	2.20	3.10	3.70	4.2	4.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
7	1.90	2.70	3.40	4.1	4.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
7.5	1.60	2.30	3.0	3.80	4.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
8	1.30	1.80	2.40	3.20	3.80	4.3	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
8.5	0.97	1.30	1.80	2.40	3.00	3.40	3.60	3.80	4.0	4.2	4.4	4.5	4.5	4.5
9	0.65	0.88	1.20	1.50	1.90	2.20	2.40	2.60	2.80	3.10	3.60	4.5	4.5	4.4
9.5	0.370	0.42	0.50	0.58	0.70	0.83	0.99	1.20	1.50	1.90	2.70	3.50	4.5	4.5
10	0.022	0.053	0.084	0.114	0.143	0.171	0.199	0.226	0.250	0.274	0.294	0.311	0.327	0.339
2. Limited by maximum internal volume of inner receptacle														
Inner receptacle volume not exceeding (l)	Wood density not exceeding $1.25 \text{ g/cm}^3$ and not less than $(\text{g/cm}^3)$		kg plutonium per package											
	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25
2	0.152	0.309	0.52	0.80	1.16	1.59	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
3	0.047	0.133	0.247	0.380	0.700	0.76	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
4	0.022	0.076	0.095	0.133	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700
5	0.022	0.053	0.085	0.118	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700
7	0.02	0.053	0.094	0.114	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700
No limit	0.022	0.053	0.084	0.114	0.143	0.171	0.199	0.226	0.250	0.274	0.294	0.311	0.327	0.339

## Appendix A.6

TABLE XIII

## AQUEOUS SOLUTIONS OF URANIUM-233 NITRATE OR URANIUM-233 FLUORIDE

Permissible mass of uranium per package as a function of the packaging wood density

1. Limited by maximum internal diameter of inner receptacle														
Inner receptacle diameter not exceeding (cm)	Wood density not exceeding 1.25 g/cm <sup>3</sup> and not less than (g/cm <sup>3</sup> )													
	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25
kg uranium per package														
9	← No limit →													
9.5	0.035	0.067	← No limit →											
10	0.035	0.067	0.100	← No limit →										
No limit	0.035	0.067	0.100	0.134	0.169	0.200	0.231	0.261	0.289	0.316	0.340	0.361	0.371	0.391
2. Limited by maximum internal volume of inner receptacle														
Inner receptacle volume not exceeding (l)	Wood density not exceeding 1.25 g/cm <sup>3</sup> and not less than (g/cm <sup>3</sup> )													
	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25
kg uranium per package														
2	0.152	0.309	0.475	0.71	0.99	1.33	1.71	2.11	2.54	2.99	3.44	3.94	4.41	4.8
3	0.085	0.133	0.180	0.228	0.285	0.332	0.389	0.446	0.50	0.56	0.60	0.67	0.73	0.78
4	0.085	0.109	0.133	0.175	0.213	0.256	0.304	0.356	0.408	0.460	0.51	0.57	0.63	0.69
5	0.035	0.076	0.114	0.152	0.190	0.223	0.256	0.292	0.323	0.356	0.389	0.422	0.451	0.484
7	0.035	0.073	0.109	0.142	0.175	0.204	0.235	0.263	0.289	0.318	0.342	0.368	0.394	0.42
No limit	0.035	0.067	0.100	0.134	0.169	0.200	0.231	0.261	0.289	0.316	0.340	0.361	0.377	0.391

#### D. PROVISIONS SPECIFIC TO FISSILE CLASS II PACKAGES

(1) Each Fissile Class II package shall be designed so that if it were subjected to the tests specified in marginal 3635:

(a) Neither the volume nor any spacing on the basis of which nuclear safety for the purpose of marginal 3619(a) has been assessed would suffer more than 5 per cent reduction, and the construction of the package would not permit the entry of a 100 cm cube.

(b) Water would not leak into or out of any part of the package unless water inleakage to, or outleakage from, that part, to the optimum foreseeable extent had been assumed in assessing the allowable number for the purpose of marginal 3619(a).

(c) The configuration of the contents and the geometry of the containment system would not be altered so as to increase the reactivity significantly.

(2) Fissile Class II packages shall satisfy the nuclear safety criteria described in marginals 3618 and 3619.

1. The individual package considered in isolation.

(1) The following conditions shall be assumed:

(a) the package is damaged (for this purpose «damaged» shall mean the evaluated or demonstrated condition of the package if it has been subjected either to the tests specified in marginals 3635 and 3637 (1) to (3), followed by that in marginal 3638 or to tests specified in marginals 3635 and 3637 (4), whichever combination is the more limiting); and

(b) water can leak into or out of all void spaces of the package, including those within the containment system, except that, where the package design incorporates special features to prevent the leakage of water into or out of certain void spaces even as a result of human error, absence of leakage may be assumed in respect of those void spaces. Such special features may include either:

(i) multiple high-standard water barriers, each of which would remain leaktight if the package were subjected to the combinations of tests specified in paragraph (1)(a); or

(ii) a high degree of quality control in the production and maintenance of packaging, coupled with special tests to demonstrate closure of each package before shipment.

(2) The package shall be sub-critical by an adequate margin (see footnote 2) under the conditions specified in paragraph (1), the physical and chemical characteristics being taken into account, including any change in those characteristics which could occur under the conditions of paragraph (1), and with the conditions of moderation and reflection as specified below:

(a) with the substances within the containment system:

(i) the most reactive configuration and moderation foreseeable under the conditions of paragraph (1);

(ii) close full water reflection of the containment system or such greater reflection of the containment system as may additionally be provided by the surrounding material of the packaging and, in addition,

(b) if any part of the substances escapes from the containment system under the conditions of paragraph (1);

(i) the most reactive configuration and moderation considered credible;

(ii) close full water reflection of the substances.

#### 2. Consignments of one or more packages

An «allowable number» shall be devised for each Fissile Class II package design, such that:

(a) five times the allowable number of undamaged packages shall be sub-critical if stacked together in any arrangement without anything between the packages, close reflection on all sides of the stack by the equivalent or water being assumed; for this purpose «undamaged» shall mean the condition in which the packages are designed to be presented for transport; and

(b) twice the allowable number of such packages when damaged shall be sub-critical if stacked together in any

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arrangement and closely reflected on all sides of the stack by the equivalent of water (for this purpose «damaged» shall mean the evaluated or demonstrated condition of each package if it had been subjected either to the tests specified in marginals 3635 and 3637 (1) to (3) followed by that in marginal 3638, or to the tests specified in marginals 3635 and 3637 (4), whichever combination is the more limiting); hydrogenous moderations<sup>3</sup> between packages and water leakage into or out of the packages consistent with test results shall be assumed to the extent which results in the greatest reactivity.

#### 3. Examples of package designs requiring no competent authority approval

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Example I (requiring multilateral approval of shipment) Packages for Fissile Class II require no competent authority approval of package design provided that the following conditions are met;

(a) Packaging: the criticality safety of these consignments does not depend upon the integrity of the packaging. Any packaging which complies with the other relevant requirements of Class IVb with respect to the non-fissile radioactive characteristics may, therefore, be used.

(b) Contents - uranium metal, compounds and/or mixtures;

the contents of any consignment consisting of the «allowable number» of packages shall not exceed the permissible mass of uranium-235 given in Table XIV per consignment as a function of enrichment for substances satisfying the following conditions:

(i) Uranium-233 shall not be present.

(ii) Beryllium and hydrogenous material enriched in deuterium shall not be present.

(iii) The total mass of graphite present shall not exceed 150 times the total mass of uranium-235.

(iv) Mixtures of fissile substances with substances having a higher hydrogen density than water, e.g., some hydrocarbon oils, shall not be present. This does not preclude the use of polyethylene for packing or wrapping.

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TABLE XIV. PERMISSIBLE MASS OF URANIUM 235 PER CONSIGNMENT

Uranium enrichment in weight per cent of uranium-235 not exceeding	Permissible mass per consignment grams of uranium-235
93	160
75	168
80	176
40	184
30	192
20	203
15	224
11	240
10	256
9.5	262
9	270
8.5	276
8	284
7.5	294
7	300
6.5	312
6	324
5.5	340
5	360
4.5	380
4	400
3.5	440
3	500
2.5	600
2	820
1.5	1360
1.35	1600
1	3400
0.92	6000

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(c) Contents - uranium metal, compounds and/or mixtures not forming a lattice; the contents of any consignment consisting of the allowable number of packages shall not exceed the permissible mass of uranium-235 given in Table XV per consignment as a function of enrichment for substances satisfying the following conditions:

- (i) Uranium-233 shall not be present.
- (ii) Beryllium and hydrogenous material enriched in deuterium shall not be present.

#### Appendix A.6

(iii) The total mass of graphite present shall not exceed 150 times the total mass of uranium-235.

(iv) Mixtures of fissile substances with substances having a higher hydrogen density than water, e. g. some hydrocarbon oils, shall not be present.

This does not preclude the use of polyethylene for packing or wrapping.

(v) The fissile substances shall be distributed homogeneously throughout the contents. In addition, the substances shall not form a lattice arrangement within the package.

TABLE XV. PERMISSIBLE MASS OF URANIUM-235 PER CONSIGNMENT

Uranium enrichment in weight per cent of uranium-235 not exceeding	permissible mass per consignment grams of uranium-235
4	420
3.5	460
3	560
2.5	740
2	1200
1.5	2800
1.35	4000

(d) Contents - uranium and/or plutonium metal, compounds and/or mixtures; the substances shall satisfy the following conditions:

(i) Beryllium and hydrogenous material enriched in deuterium shall not be present.

(ii) The total mass of graphite present shall not exceed 150 times the total mass of uranium and plutonium.

(iii) Mixtures of fissile substances with substances having a higher hydrogen density than water, e.g., some hydrocarbon oils, etc., shall not be present. This does not preclude the use of polyethylene for packing or wrapping.

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The total mass of fissile substances per consignment shall be such that:

$$\frac{^{235}\text{U}(\text{grams})}{160} + \frac{\text{Pu}(\text{grams})}{90} + \frac{^{233}\text{U}(\text{grams})}{100} \text{ is not greater than 1.}$$

(e) Allowable number: the allowable number for a particular package to this specification will depend on the actual contents and is equal to the fissile mass limit per consignment divided by the actual fissile mass present in the package. In the case of the mixed nuclides in (d) above the allowable number is:

$$\frac{160}{^{235}\text{U} + 1.6 \times ^{233}\text{U} + 1.778 \times \text{Pu}}$$

where  $^{235}\text{U}$ ,  $^{233}\text{U}$  and Pu are the numbers of grams of  $^{235}\text{U}$ ,  $^{233}\text{U}$  and Pu present in the package. Where the package forms part of a mixed consignment the requirements of footnote 1 to marginal 2700 (2) be met.

(f) Shipment shall be subject to multilateral approval.  
E. PROVISIONS SPECIFIC TO FISSILE CLASS III PACKAGES

Fissile Class III packages shall meet the general requirements of marginal 3611 and shall be approved in accordance with marginals 3674 and 3675.

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1. Examples of package designs requiring unilateral approval

Example 1 (requiring multilateral approval of shipment)

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Packages to the following specification require only unilateral approval of the package design provided that the following conditions are fulfilled:

(a) The number of packages in any one consignment shall be so limited that:

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(i) twice this number of undamaged packages shall be sub-critical if stacked together in any arrangement without anything between the packages, assuming close reflection on all sides of the stack by the equivalent of water; for this purpose "undamaged" shall mean the condition in which the packages are designed to be presented for transport; and

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(ii) this number of packages when "damaged" shall be sub-critical if stacked together in any arrangement and closely reflected on all sides of the stack by the equivalent of water (for this purpose "damaged" shall mean the evaluated or demonstrated condition of each package if it had been subjected either to the tests specified in marginals 3635 end 3637 (1) to (3) followed by that in marginals 3638 or the tests specified in marginals 3635 and 3637 (4), whichever combination is the more limiting).

Hydrogenous moderation 3/between the packages and water leakage into or out of the packages consistent with test results shall be assumed to the extent which results in the greatest reactivity.

(b) Shipment of these packages shall be made only under arrangements approved by the competent authorities in conformity with marginal 3675, so as to prevent loading, transport or storage of these packages with other labelled packages of radioactive material.

2. Examples of fissile package design requiring no competent authority approval

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Example 1 (requiring multilateral approval of shipment).

Packages to the following specification for Fissile Class III require no competent authority approval of package design provided the following conditions are met:

(a) The package is currently approved as a Fissile Class II package and the number in any one consignment does not exceed twice the allowable number associated with the Fissile Class II approval.

(b) Shipment of these packages shall be made only under arrangements approved by the competent authorities in conformity with marginal 3675, so as to prevent loading, transport or storage of these packages with other Fissile Class II or Class III packages. Examples of such arrangements are:

(i) no other labelled packages of radioactive substances may be carried with the consignment in the same vehicle, and

(ii) either transport shall be direct to the consignee without any intermediate transit storage; or controls shall be imposed, by the provision of an escort, to prevent the packages of the consignment from being stacked with or alongside any other packages of radioactive substances after an accident, or at any other time.

The escort shall travel in a separate vehicle.

Example II (requiring multilateral approval of shipment)

Packages for Fissile Class III require no competent authority approval of package design provided that the following conditions are met

(a) Packaging: the criticality safety of these consignments does not depend upon the integrity of the packaging. Any packaging which complies with the other relevant requirements of this Appendix may therefore be used, provided it does not incorporate lead exceeding 5 cm in thickness, tungsten or uranium shielding.

(b) Contents - uranium metal, compounds and/or mixtures: the contents of any consignment shall not exceed the permissible mass of uranium-235 given in Table XVI per consignment as a function of enrichment for substances satisfying the following conditions:

(i) Uranium-233 shall not be present.

(ii) Beryllium and hydrogenous material enriched in deuterium shall not be present.

(iii) The total mass of graphite present shall not exceed 150 times the total mass of uranium-235.

(iv) Mixtures of fissile substances with substances having a higher hydrogen density than water e.g., some hydrocarbon oils, shall not be present. This does not preclude the use of polyethylene for packing or wrapping.

#### Appendix A.6

TABLE XVI. PERMISSIBLE MASS OF URANIUM-235 PER CONSIGNMENT

Uranium enrichment in weight per cent of uranium-235 not exceeding	Permissible mass per consignment grams of uranium-235
93	400
75	420
60	440
40	460
30	480
20	520
15	560
11	600
10	640
9.5	655
9	675
8.5	690
8	710
7.5	730
7	750
6.5	780
6	810
5.5	850
5	900
4.5	950
4	1.000
3.5	1.100
3	1.250
2.5	1.500
2	2.050
1.5	3.400
1.35	4.000
1	8.500
0.92	15.000

(c) Contents - uranium metal, compounds and/or mixtures not forming a lattice: Table XVII gives the permissible mass of uranium-235 per consignment as a function of enrichment, for substances satisfying the following conditions:

(i) Uranium-233 shall not be present.

(ii) Beryllium and hydrogenous material enriched in deuterium shall not be present.

(iii) The total mass of graphite present shall not exceed 150 times the total mass of uranium-235.

(iv) Mixtures of fissile substances with substances having a higher hydrogen density than water, e.g., some hydrocarbon oils, shall not be present. This does not preclude the use of polyethylene for packing or wrapping.

(v) The fissile substances shall be distributed homogeneously throughout the contents. In addition, the substances shall not form a lattice arrangement within the package.

TABLE XVII. PERMISSIBLE MASS OF URANIUM-235 PER CONSIGNMENT

Uranium enrichment in weight per cent of uranium-235 not exceeding	Permissible mass per consignment kilograms of uranium-235
4	1.05
3.5	1.15
3	1.4
2.5	1.8
2	3
1.5	7
1.35	10

(d) Contents - uranium and/or plutonium metal, compounds and/or mixtures: the substances shall satisfy the following conditions:

(i) Beryllium and hydrogenous material enriched in deuterium shall not be present.

(ii) The total mass of graphite present shall not exceed 150 times the total mass of uranium and plutonium.

(iii) Mixtures of fissile substances with substances having a higher hydrogen density than water, e.g., some hydrocarbon oils, shall not be present. This does not preclude the use of polyethylene for packing or wrapping.

The total mass of fissile substances per consignment shall be such that:

$$\frac{{}^{235}\text{U}(\text{grams})}{400} + \frac{\text{Pu}(\text{grams})}{225} + \frac{{}^{233}\text{U}(\text{grams})}{250} \text{ is not greater than } 1.$$

(e) Conditions of transport: the following administrative controls shall be applied throughout the transport of the consignment:

(i) the quantity of substances in a consignment shall not exceed that defined in (b), (c) or (d) above;

(ii) transport shall be direct to the consignee, without any intermediate transit storage.

(f) Shipment shall be subject to multilateral approval.

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### CHAPTER III - TEST AND INSPECTION PROCEDURES

#### A. DEMONSTRATION OF COMPLIANCE WITH THE TEST REQUIREMENTS

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(1) Demonstration of compliance with the test requirements of this chapter may be accomplished by any of the methods listed below or by a combination thereof.

(a) Performance of tests with prototypes or samples of the packaging as normally presented for transport, in which case the contents of the packaging for the test shall simulate as closely as practicable the expected normal radioactive contents.

(b) Reference to previous satisfactory demonstrations of sufficiently similar nature.

(c) Performance of tests with models of appropriate scale incorporating those features which are significant with respect to the item under investigation, when engineering experience has shown results of such tests to be suitable for design purposes. When a scale model is used, the need for adjusting certain test parameters, such as the penetrator diameter or the compressive load, shall be taken into account.

(d) Calculation, or reasoned argument, when the calculative procedures and parameters are generally agreed to be reliable or conservative.



(2) With respect to the initial conditions for the tests of this chapter except those in marginals 3637 (4) to 3639, the demonstration of compliance shall be based on the assumption that the package is in equilibrium at an ambient temperature of 38°C. With respect to the thermal test the effects of solar radiation can be neglected prior to and during that test but shall be taken into account in the subsequent evaluation of the test results.

## B. TESTS FOR PACKAGING

### 1. Number of specimens to be tested

The number of specimens actually subjected, to the tests should be related to the number of packagings of that type which are to be produced, the frequency of use and the cost. The results of the tests may necessitate an increase in the number of specimens to meet the requirements of the test procedures in respect of maximum damage.

### 2. Preparation of a specimen for testing

(1) All specimens shall be examined before testing to identify and record faults or damage including the following:

- (a) divergence from the specifications or the drawings;
- (b) defects in construction;
- (c) corrosion or other deterioration; and
- (d) distortion of features.

(2) The containment system of the packaging shall be clearly specified.

(3) The external features of the specimen shall be clearly identified so that reference may be made simply and clearly to any part of such specimen.

### 3. Testing the integrity of containment and shielding

After any of the applicable tests specified in marginals 3635 to 3637, it shall be further demonstrated that the integrity of the containment, or of the containment and shielding, has been retained to the extent required in marginals 3601 (15) to (17), 3602 (2), 3603 (1) and 3604 (2) for the packaging under test.

4. Target for the drop tests specified in marginals 3635 (4), 3636 (2), 3637 (2) and 3641 (1)

The target shall be a flat, horizontal surface of such a character that any increase in its resistance to displacement or deformation upon impact by the specimen would not significantly increase the damage to the specimen.

5. Tests for demonstrating ability to withstand normal conditions of transport

(1) The tests are: the water spray test, the free drop test, the compression test and the penetration test. Prototypes of the package shall be subjected to the free drop test, the compression test and the penetration test, preceded in each case by the water spray test. One prototype may be used for all the tests, provided that the requirements of paragraph (2) are complied with.

(2) The time interval between the conclusion of the water spray test and the succeeding test shall be such that the water has soaked in to the maximum extent, without appreciable drying of the exterior of the specimen. In the absence of any evidence to the contrary, this interval shall be taken to be about two hours if the water spray is applied from four directions simultaneously. No time interval should elapse, however, if the water spray is applied from each of the four directions consecutively.

(3) Water spray test: Any water spray test shall be considered as satisfactory provided that:

(a) the amount of water per unit of ground area is approximately equivalent to a rainfall rate of 5 cm per hour;

(b) the water impinges upon the specimen at an angle of approximately 45° from the horizontal;

(c) the water is approximately uniformly distributed, as in a rainfall, over the entire surface of the specimen in the direction of the spray;

(d) the duration of the spray is at least one hour;

(e) the orientation of the packaging is such that the effects are expected to be the most severe for the features under investigation, and the specimen is supported so that it does not sit in a pool of water.

(4) Free drop test: The specimen shall fall onto the target so as to suffer maximum damage in respect of the safety features to be tested.

(a) The height of fall measured from the lowest point of the package to the upper surface of the target shall be as specified in Table XVIII.

TABLE XVIII. FREE-FALL DISTANCE FOR PACKAGES

Package weight (Kg)	Free fall distance (m)
less than 5,000	1.2
5,000 to < 10,000	0.9
10,000 to < 15,000	0.6
15,000 and greater	0.3

(b) For Fissile Class II packages, the free drop specified above shall be preceded by a free drop from a height of 0.3 m on each corner or, in the case of a cylindrical package, onto each of the quarters of each rim.

(c) For fibreboard or wood rectangular packages not exceeding 50 kg in weight, a separate specimen shall be subjected to a free drop onto each corner from a height of 0.3 m.

(d) For fibreboard cylindrical packages not exceeding 100 kg in weight, a separate specimen shall be subjected to a free drop onto each of the quarters of each rim from a height of 0.3 m.

(5) Compression test: the specimen shall be subjected, for a period of 24 hours, to a compressive load equal to the greater of the following:

(a) the equivalent of 5 times the weight of the actual package;

(b) the equivalent of 1300 kg/m<sup>2</sup> multiplied by the vertically projected area of the package.

The load shall be applied uniformly to two opposite sides of the specimen, one of which shall be the base on which the package would normally stand.

(6) Penetration test: the specimen shall be placed on a rigid, flat, horizontal surface which will not move significantly while the test is being carried out.

(a) A bar of 3.2 cm diameter with a hemispherical end and weighing 6 kg shall be dropped and directed to fall, with its longitudinal axis vertical, onto the centre of the weakest part of the specimen, so that, if it penetrates sufficiently far, it will hit the containment vessel. The bar shall not be significantly deformed by the test performance.

(b) The height of fall of the bar measured from its lower end to the upper surface of the specimen shall be 1 m.

6. Additional tests for Type A packaging designed for liquids and gases

(1) Separate specimens shall be subjected to each of the following tests unless it can be demonstrated that one test is more severe for the specimen in question than the other, in which case one specimen shall be subjected to the more severe test.

(2) Free drop test: the specimen shall fall onto the target so as to suffer the maximum damage in respect of containment. The height of the fall measured from the lowest part of the specimen to the upper surface of the target shall be 9 m.

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(3) Penetration test: the specimen shall be subjected to the test specified in marginal 3635 (6) except that the height of fall shall be increased to 1.7 m from the 1 m specified in marginal 3635 (6) (b).

7. Tests for demonstrating ability to withstand accident conditions in transport

(1) The specimen shall be subjected to the cumulative effects of the mechanical tests specified in paragraph (2) and the thermal test specified in paragraph (3) in that order. A separate specimen shall be subjected to the effect of the water immersion test in paragraph (4).

(2) Mechanical test: the test shall consist of two drops onto a target. The order in which the specimen is subjected to the two drops shall be such that, on completion of the mechanical test, the specimen will have suffered such damage as will lead to the maximum damage in the thermal test which follows.

(a) For drop I, the specimen shall fall onto the target so as to suffer the maximum damage, and the height of fall measured from the lowest point of the specimen to the upper surface of the target shall be 9 m.

(b) For drop II, the specimen shall fall onto the target so as to suffer the maximum damage, and the height of fall measured from the intended point of impact of the specimen to the upper surface of the target shall be 1 m. The target in this case shall be the upper end of a solid mild steel bar of circular section, 15 cm  $\pm$  0.5 cm in diameter. The target surface shall be flat and horizontal with its edges rounded off to a radius of not more than 6 mm. The bar shall be rigidly mounted perpendicularly on the foundation target described in marginal 3634 and shall be 20 cm long unless a longer bar would cause greater damage; in that case, a bar of sufficient length to cause maximum damage shall be used.

(3) Thermal test: any thermal test shall be considered as satisfactory provided that the heat flux incident on the specimen is not less than that which would result from exposure for 30 minutes of the whole specimen to a radiation environment of 800°C with an emissivity coefficient of at least 0.9. For purposes of calculation, the surface absorptivity shall be either that value which the package may be expected to possess if exposed to a fire or 0.8, whichever is greater. In addition, when significant, convective heat input shall be included on the basis of still ambient air at 800°C during the thirty-minute period. After cessation of the external heat input to the specimen:

(a) the specimen shall not be cooled artificially until another three hours have elapsed or until it has been demonstrated that all internal temperatures have begun to fall, whichever is the earlier; and

(b) any combustion of materials of the specimen shall be allowed to proceed for three hours after the cessation of external heating to the specimen unless it terminates earlier naturally.

(4) Water immersion test: the specimen shall be immersed under a head of water of at least 15 m for a period of not less than eight hours. For test purposes, an external pressure of water of 1.5 kg/cm<sup>2</sup> (gauge) will be considered to meet these conditions.

8. Water in-leakage test for packages containing fissile substances

(1) Packages other than Fissile Class I or Fissile Class II packages and any packages for which water in-leakage or out-leakage to the extent which results in greatest reactivity has been assumed for purpose of assessment under marginals 3614 (2) and 3619 (b) shall be exempted from the test.

(2) Before the specimen is subjected to the water in-leakage test specified below, it shall be subjected to the tests in marginals 3637 (2) and (3).

(3) The specimen shall be immersed under a head of water of at least 0.9 m for a period of not less than eight hours and in the attitude for which maximum leakage is

expected. For this test an ambient temperature of 38°C is not required.

9. Tests for integrity of containment and shielding

3637

Any test or inspection method may be employed to determine whether the requirements of this Chapter have been met after the specimen has been subjected to the tests in marginals 3635 to 3637, provided that the method can be demonstrated to meet the relevant requirements of marginals 3601 to 3604.

### C. TESTS FOR SPECIAL FORM RADIOACTIVE SUBSTANCES

1. General

3639

(1) The tests are: the impact test, the percussion test, the bending test and the heat test.

(2) Specimens (solid radioactive substances or capsules) to be tested shall be prepared as normally presented for transport. The radioactive substances shall be duplicated as closely as practicable.

(3) A different specimen may be used for each of the tests.

(4) The specimen shall not break or shatter when subjected to the impact, percussion or bending tests.

(5) The specimen shall not melt or disperse when subjected to the heat test.

(6) After each test, a leaching assessment shall be performed on the specimen by a method no less sensitive than the methods given in marginal 3642.

2. Test methods

3640

(1) Impact test: the specimen shall fall onto the target from a height of 9 m. The target shall be as defined in marginal 3634.

(2) Percussion test: the specimen shall be placed on a sheet of lead which is supported by a smooth solid surface and struck by the flat face of a steel billet so as to produce an impact equivalent to that resulting from a free fall of 1.4 kg through 1 m. The flat face of the billet shall be 25 mm in diameter with the edges rounded off to a radius of 3 mm  $\pm$  0.3 mm. The lead, of hardness number 3.5 to 4.5 on the Vickers scale and not more than 25 mm thick, shall cover an area greater than that covered by the specimen. A fresh surface of lead shall be used for each impact. The billet shall strike the specimen so as to cause maximum damage.

(3) Bending test: the test is applicable only to long, slender sources with both a minimum length of 10 cm and a length to minimum width ratio of not less than 10. The specimen shall be rigidly clamped in a horizontal position so that one half of its length protrudes from the face of the clamp. The orientation of the specimen shall be such that the specimen will suffer maximum damage when its free end is struck by the flat face of a steel billet. The billet shall strike the specimen so as to produce an impact equivalent to that resulting from a free vertical fall of 1.4 kg through 1 m. The flat face of the billet shall be 25 mm in diameter with the edges rounded off to a radius of 3 mm to  $\pm$  0.3 mm.

(4) Heat test: the specimen shall be heated in air to a temperature of 800°C and held at that temperature for a period of 10 min and shall then be allowed to cool.

3. Leaching assessment methods

3638

(1) For indispersible solid substances:

(a) The specimen shall be immersed for seven days in water at ambient temperature. The water shall have a pH of 6 to 8 and a maximum conductivity of 10  $\mu$ S/cm at 20°C.

(b) The water with specimen shall then be heated to a temperature of 50°  $\pm$  5°C and maintained at this temperature for four hours.

3641

3642

(c) The activity of the water shall then be determined.

(d) The specimen shall then be stored for at least seven days in still air of humidity not less than 90 per cent at 30°C.

(e) The specimen shall then be immersed in water of the same specification as in (a) above and the water with specimen heated to 50°C ± 5°C and maintained at this temperature for four hours.

(f) The activity of the water shall then be determined.

The activities determined in (c) and (f) above shall not exceed 0.05 µ Ci.

(2) For encapsulated substances:

(a) The specimen shall be immersed in water at ambient temperature. The water shall have a pH of 6-8 with a maximum conductivity of 10 µ S/cm. The water and specimen shall be heated to a temperature of 50°C ± and maintained at this temperature for four hours.

(b) The activity of the water shall then be determined.

(c) The specimen shall then be stored for at least seven days in still air at a temperature not less than 30°C.

(d) Repeat (a).

(e) The activity of the water shall then be determined.

The activities determined in (b) and (e) above shall not exceed 0.05 µ Ci.

#### D. INSPECTION REQUIREMENTS TO BE FULFILLED BEFORE FIRST USE AND BEFORE EACH SHIPMENT OF CERTAIN TYPES OF PACKAGES

##### 1. Before first use

Before first use of any package, the following requirements shall be complied with by the consignor:

(a) For each Type B(U) and Type B(M) package, it shall be ensured that the effectiveness of its shielding and containment, and, where necessary, the heat transfer characteristics, are within the limits applicable to or specified for the approved design.

(b) If the design pressure of the containment system exceeds 0.35 kg/cm<sup>2</sup> (gauge), it shall be ensured that the containment system of each package conforms with the approved design requirements relating to the capability of that system to maintain its integrity under pressure.

(c) Where, in order to comply with the nuclear safety criteria, neutron poisons are specifically included as components of the packaging primarily for this purpose, tests shall be performed to confirm the presence and distribution of that poisoning.

##### 2. Before each shipment

Before each shipment of any package, the following requirements shall be complied with by the consignor:

(a) Type B(U) and Type B(M) packages shall be held until equilibrium conditions have been closely enough approached to demonstrate compliance with the shipment requirements for temperature and pressure unless an exemption from these requirements has received unilateral approval.

(b) It shall be ensured that all the requirements specified in the approval certificates have been satisfied.

(c) It shall be ensured by examination and/or appropriate tests that all closures, valves and other openings of the containment system through which the radioactive contents might escape are properly closed and, where appropriate, sealed in the manner for which the demonstrations of marginals 3603 (1) and 3604 (2) were made.

(d) It shall be ensured that the provisions of marginal 3600 (5), with regard to lifting attachments have been complied with.

#### CHAPTER IV. – CONTROLS FOR TRANSPORT AND STORAGE IN TRANSIT

##### A. MIXED PACKING

3650

A package containing radioactive substances shall not contain any other items except such articles and documents as are necessary for the use of the radioactive substances. Such items may be included, provided that there is no interaction between them and the packaging or contents that would reduce the safety of the package.

##### B. NON-FIXED RADIOACTIVE CONTAMINATION

3651

The non-fixed radioactive contamination on any external surface of the package shall be kept as low as practicable and shall at no time during normal transport exceed the levels laid down in Table XIX. The level of non-fixed radioactive contamination may be determined by wiping an area of 300 cm<sup>2</sup> of the surface concerned by hand with a filter paper, or a wad of cotton wool or any other material of this nature.

Packages used for the transport of radioactive substances such as irradiated fuel, shall be assessed to determine whether activity is likely to be leached to the surface e.g. by rain. The frequency of such assessment shall be related to the likelihood of radioactive contamination having been absorbed into the surface coating, particularly paint. When activity is likely to be leached to the surface of the package, the continued use of such a package shall be conditional upon a radiation safety assessment by a qualified person.

3643

TABLE XIX. MAXIMUM PERMISSIBLE LEVELS OF NON-FIXED RADIOACTIVE CONTAMINATION

Contaminant	Maximum permissible level (see Note <sup>a</sup> ) (µCi/cm <sup>2</sup> )
Natural and depleted uranium and natural thorium only	10 <sup>-3</sup>
Beta and gamma emitters and the low-toxicity alpha emitters specified in Note <sup>b</sup> below	10 <sup>-4</sup>
All other alpha emitters	10 <sup>-5</sup>

Notes: <sup>a</sup>The above levels are permissible when averages over any area of 300 cm<sup>2</sup> of any part of the surface.

<sup>b</sup>Low toxicity alpha emitters:

Uranium-235 or uranium-238; thorium-232; thorium-228 and thorium-230 when diluted to a specific activity of the same order as that of natural uranium and natural thorium; radionuclides with a half-life of less than 10 days.

3644

##### C. CATEGORIES

3652

Packages and containers (both large and small) shall be in one of the following three categories:

##### 1. Category I-WHITE

3653

(1) Packages: When the radiation level originating from the package at any time during normal transport does not exceed 0.5 mrem/h at any location on the external surface of the package, and the package does not belong to Fissile Class II or III.

(2) Containers: When the container contains packages of radioactive substances none of which is in a category higher than Category I-WHITE.

##### 2. Category II-YELLOW

3654

(1) Packages: When the radiation level limit in marginal 3653(1) is exceeded, or the package belongs to Fissile Class II, provided that:

3645  
-3649

(a) the radiation level originating from the package at any time during normal transport does not exceed 50 mrem/h at any location on the external surface of the package; and

(b) the transport index at any time during normal transport does not exceed 1.0.

(2) Containers: When the transport index of the container at any time during normal transport does not exceed 1.0, and when it contains no packages of Fissile Class III.

### 3. Category III-YELLOW

(1) Packages: When either of the two limits in marginal 3654(1) is exceeded, or when the package belongs to Fissile Class II or Class III, or when the package is being transported under special arrangement, provided that:

(a) the radiation level originating from the package at any time during normal transport does not exceed 200 mrem/h at any location on the external surface of the package, except that, for full load shipments under the conditions specified in marginal 3659(7), the maximum allowable level shall be 1000 mrem/h; and

(b) the transport index at any time during normal transport does not exceed 10 unless the package is being transported as full load.

(c) Containers: when the transport index of the container, at any time during normal transport, exceeds 1.0, or when the container carries packages belonging to Fissile Class III, or when it is being transported under special arrangement.

### D. LABELLING AND MARKING (see Appendix A.9)

(1) Each package and container (both large and small) shall bear at least two labels which conform to the models 6A, 6B or 6C in Appendix A.9 according to the category (see marginals 3652 to 3655) of that package or container.

(2) The labels shall be affixed to two opposite sides of the outside of the package, or on the outside of all for sides of the container.

(3) The labels shall be completed as follows in a clear and indelible manner:

(a) next to the word «contents» shall be indicated the radionuclide or the substance whose presence constitutes the principal danger in the event of damage to the package (for example: strontium -90, irradiated uranium, radioactive LSA);

(b) next to the word «activity» shall be written the activity in curies;

Note. This activity may also be expressed in micro, milli or kilocuries on condition that the prefixed micro, milli and kilo are written in full;

(c) on the label to model Nos. 6B and 6C shall be written, in addition, the transport index in the largest possible figures in the frame intended for that purpose.

(4) Each package of gross weight exceeding 50 kg shall have its gross weight plainly and durably marked on the outside of the package.

(5) Each package which conforms to a Type A packaging design shall be plainly and durably marked on the outside of the package with «Type A».

(6) Each package which conforms to a design approved under marginals 3672 to 3674 shall be plainly and durably marked on the outside of the package with the identification mark allocated to that design by the competent authority and, in the case of a Type B(U) or Type B(M) package design, with «Type B(U)» or «Type B(M)».

(7) Each package which conforms to a Type B(U) or Type B(M) package design shall have the outside of the outermost receptacle which is resistant to the effects of fire and water plainly marked by embossing, stamping or other means resistant to the effects of fire and water with the trefoil symbol shown in the labels to models 6A to 6C.

### E. SEGREGATION OF RADIOACTIVE SUBSTANCES

3657

Packages of Category II-YELLOW or III-YELLOW shall be separated in carriage and in storage from packages which bear a label with the word «FOTO» by the safety distances given in the table in marginal 240 001 of Appendix B.4.

### F. STORAGE IN TRANSIT

3658

(1) Packages of radioactive substances shall not be stored near dangerous goods with which mixed loading is prohibited (see marginal 2700(3)).

(2) The number of Category II-YELLOW and Category III-YELLOW packages and containers stored in any one storage area, such as a transit area, terminal building, store - room or assembly yard, shall be so limited that the total sum of the transport indices in any individual group of such packages or containers does not exceed 50. Groups of such packages and containers shall be stored so as to maintain a spacing of at least 6 metres from other groups of such packages or containers.

(3) Where control of package accumulations is effected by reference to the red bands marked on the labels there shall not be more than 50 Category II-YELLOW or 5 Category III-YELLOW packages in any one group of packages.

Where packages of both categories are present, one Category III-YELLOW package shall be taken as equivalent to ten Category II-YELLOW packages.

(4) Except in the case of Fissile Class II or Class III packages, the limitations in marginal 3658(2) do not apply to packages marked «RADIOACTIVE LSA» and containing low specific activity substance or those marked «RADIOACTIVE LLS» and containing low level solid radioactive substance when they are maintained in a compact stack or in containers.

(5) Mixing of different kinds of packages, including Fissile Class I packages with Fissile Class II packages, is permitted.

### G. TRANSPORT

#### 1. Packages

3659

(1) Packages shall be so loaded in vehicles that they cannot shift dangerously, upset or fall.

(2) Provided that its average surface heat flux does not exceed 15W/m<sup>2</sup>, and that the surrounding cargo is not in sacks or bags, a package may be carried among packaged general cargo without any special stowage provisions except as may be specially required by the competent authority in an appropriate certificate. If the heat flux exceeds 15W/m<sup>2</sup> the package shall be carried as full load.

(3) Categories I-WHITE, II- or III-YELLOW packages shall not be carried in compartments occupied by passengers, except those exclusively reserved for couriers specially authorized to accompany such packages.

(4) Mixing of different kinds of packages, including Fissile Class I packages with Fissile Class II packages, is permitted.

(5) Accumulation of packages and containers shall be controlled as follows:

(a) For both packages and containers, the number of packages and containers shall be so limited that the total sum of the transport indices in any vehicle does not exceed 50. Where this control of packages is effected by reference to the red bands marked on the packages see marginal 3658 (3).

(b) In the case of full loads the limits under paragraph (5)(a) shall not apply, provided that the radiation level under normal conditions of transport does not exceed 200 mrem/h. at any point on, and 10 mrem/h at 2m from the outside surface of a freight container or vehicle. For Fissile Class II or III consignments, or mixtures thereof, the full load shall not include more than the allowable

number of packages (see footnote to marginal 2700).

(6) Vehicles and large containers carrying packages or containers labelled with any of the labels to Models 6A, 6B or 6C, or carrying full load consignments of any radioactive substances shall display the placard in marginal 240 010 of Appendix B.4 on the outside of each of the two lateral sides and the rear wall in the case of a vehicle.

(7) In the case of full loads the radiation level shall not exceed:

(a) 1000 mrem/h at any point on the external surface of any package, provided that:

(i) the vehicle is equipped with an enclosure which, during normal transport, prevents the access of unauthorized persons to the interior of the enclosure;

(ii) provisions are made to secure the packages so that their position within the vehicle remains fixed during normal transport;

(iii) there are no loading or unloading operations between the beginning and end of the transport.

Under other conditions, the radiation level at any point on the external surface of the package shall not exceed 200 mrem/h.

(b) 200 mrem/h at any point on the outer surface of the vehicle or large container, including the upper and lower surfaces, and, in the case of an open vehicle at any point on the vertical planes projected from the outer edges of the vehicle, on the upper surface of the load, and on the lower external of the vehicle and

(c) 10mrem/h at any point 2m from the vertical planes represented by the outer lateral surfaces of the vehicle or large container, and, if the load is transported in an open vehicle at any point 2m from the vertical planes projected from the outer edges of the vehicle.

(8) (a) The radiation level in any normally occupied position of a vehicle shall not exceed 2 mrem/h during transport. Under such circumstances the carrier shall ensure that the driver or any accompanying personnel, shall not receive more radiation than 0.5 rem. in any 12 month period.

Maintaining the minimum distances listed in the table in marginal 240 000 of Appendix B.4, even in the absence of a protective shield, shall be considered as keeping within the 2 mrem/h limit.

(b) As an alternative to (a) above, the carrier may operate to a scheme of work approved by the competent authority whereby records must be kept by him of the times spent by persons travelling in his vehicles and the radiation levels those persons and subjected to, in order that no person receives a greater dose than 375 mrem in any calendar quarter.

## 2. Tank Vehicles

Low - specific - activity substances, LSA (I), of marginal 2703, schedule 5, other than uranium hexafluoride and substances liable to spontaneous ignition, may be carried in tank - vehicles in accordance with the requirements of Appendix B.1a.

## 3. Tank - Containers

Low specific - activity substances, LSA (I), of marginal 2703, schedule 5, including natural or depleted uranium hexafluoride, may be carried in tank - containers in accordance with the requirements of Appendix B.1b.

## CHAPTER V. - ADMINISTRATIVE REQUIREMENTS

Approval by competent authorities is not required for package designs for substances consigned under Schedules 1 to 4 and, provided the contents are not fissile substances requiring approval under marginal 3674, for package designs for substances consigned under schedules 5 to 8.

## A. APPROVAL OF SPECIAL FORM RADIOACTIVE SUBSTANCES

3671

(1) Any design for special form radioactive substances, with the exception of the substances specified in Schedules 3 and 4, shall require unilateral approval.

An application for approval shall include:

(a) a detailed description of the substances or, if a capsule, the contents; particular reference shall be made to both physical and chemical states;

(b) a detailed statement of the design of any capsule to be used, including complete engineering drawings and schedules of materials and methods of construction to be used;

(c) a statement of the tests which have been done and their results, or evidence based on calculative methods to show that the substances are capable of meeting the tests, or other evidence that the special form radioactive substances meet the requirements of this Appendix.

(2) The competent authority shall establish a certificate stating that the approved design meets the definition of special form radioactive substances as defined in marginal 2700 (2) and shall attribute to that design an identification mark. The certificate shall specify the details, of the radioactive substances.

## B. APPROVAL OF PACKAGE DESIGNS

1. Approval of Type B(U) package designs (including those for Fissile Class I, Class II and Class III packages which are also subject to marginal 3674).

3672

(1) Any design of Type B(U) package originating in a country party to ADR shall be approved by the competent authority of this country; if the country where the package has been designed is not party to ADR, carriage is possible on condition that:

(a) a certificate has been supplied by this country, proving that the package satisfies the technical regulations of ADR, and that this certificate is counter - signed by the competent authority of the first ADR country reached by the consignment;

(b) if no certificate has been supplied, the package design is approved by the competent authority of the first ADR country reached by the consignment;

(2) An application for approval shall include:

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(a) a detailed description of the proposed contents with particular reference to their physical and chemical states and the nature of the radiation emitted;

(b) a detailed statement of the design, including complete engineering drawings and schedules of materials and methods of construction to be used;

(c) a statement of the tests which have been done and their results, or evidence based on calculative methods or other evidence that the package design is adequate to meet the requirements of marginals 3602 and 3603;

(d) the proposed operating and maintenance instructions for the use of the package, in particular, in the case of packages likely to be immersed in contaminated ponds, the provisions incorporated to ensure that the surface of the package is not contaminated above the permitted levels;

(e) if the package is designed to have a maximum normal operating pressure in excess of 1.0 Kg/cm<sup>2</sup> (gauge), the application for approval shall, in particular, state, in respect of the materials of construction of the containment system, the specifications, the samples to be taken and the tests to be made;

(f) where the proposed contents are irradiated fuel, the applicant shall state and justify any assumption in the safety analysis relating to the characteristics of the fuel;

(g) any special stowage provisions necessary to ensure the safe dissipation of heat from the package; consideration shall be given to the type of vehicle or

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container (see marginal 3681 (1) (a) );

(h) a reproducible illustration not larger than 21 cm × 30 cm, showing the make-up of the package.

(3) The competent authority shall establish a certificate stating that the approved design meets the requirements for Type B(U) packages (see marginals 3677 and 3678).

2. Approval of Type B(M) package design (including those for Fissile Class I, Class II and Class III packages which are also subject to marginal 3674)

(1) Each type B(M) package design shall require multilateral approval

(2) An application for approval of a Type B(M) package design shall include, in addition to the information required in marginal 3672 (2) for Type B(U) packages:

(a) a list of those specific additional requirements for Type B(U) packages specified in marginal 3603 with the package does not conform;

(b) any proposed supplementary operational controls<sup>5</sup> to compensate for the deficiencies listed in (a) above; and

(c) a statement relative to any special loading, carriage, unloading, or handling procedures;

(d) the maximum and minimum ambient conditions (temperature, solar radiation) expected to be encountered during transport and which have been taken into account in the design.

(3) The competent authority shall establish a certificate stating that the approved package design meets the requirements for Type B(M) packages (see marginals 3677 to 3679).

3. Approval of Fissile Class I, Class II and Class III package design

(1) Package designs complying with the examples in marginal 3620, 3623 or 3624 shall require no further competent authority approvals.

(2) Package designs complying with the examples in marginals 3616 and 3622 shall require unilateral approval.

(3) All other package designs shall require multilateral approval.

(4) An application for approval shall include all information necessary to satisfy the competent authority that the design meets the requirements of marginals 3610 to 3624.

(5) The competent authority shall establish a certificate (see marginals 3677 to 3679) stating that the approved package design meets the requirements of marginals 3610 to 3624.

### C. APPROVAL OF SHIPMENTS

(1) Multilateral shipment approvals shall be required for the following packages:

(a) Type B(M) packages specially designed to allow continuous venting.

(b) Type B(M) packages containing radioactive materials with an activity greater than  $3 \times 10^3 A_1$  or  $3 \times 10^3 A_2$ , as appropriate, or  $3 \times 10^4$  Ci, whichever is the lower;

c) Fissile Class II packages with marginal 3620.

d) Fissile Class III packages.

However, a competent authority can authorize transport into or through its country, without shipment approval, by a specific provision in its design approval.

2) An application for shipment approval shall include:

a) the period of time, related to the shipment, for which the approval is sought;

b) the actual contents, the type of vehicle and the probable or proposed route; and

c) how the special precautions and special administrative and operational controls referred to in the package design certificates issued under marginals 3673 and 3674, are to be put into effect.

3) Upon approval of the shipment, the competent authority shall issue a certificate (see marginals 3677 to 3679).

4) The package and shipment certificates may be combined into a single certificate.

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### D: APPROVAL OF TRANSPORT BY SPECIAL ARRANGEMENT

1) A consignment of radioactive substances which does not satisfy all the applicable requirements of this Appendix shall be transported only by special arrangement, which always requires multilateral approval. The special arrangements shall be adequate to ensure that the overall level of safety in transport is at least equivalent to that which would be provided if all the applicable requirements of this Appendix had been met.

2) An application for approval shall include the information required under marginals 3672 to 3675 and also:

a) a statement of the respects in which, and of the reasons why, the consignment cannot be made in full accordance with the applicable requirements of this Appendix; and

b) a statement of any special precautions or special administrative or operational controls which shall be taken during transport to compensate for the failure to meet the applicable requirements of this Appendix.

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3) Upon approval of the special arrangement, the competent authority shall issue a certificate (see marginals 3677 to 3679).

### E. COMPETENT AUTHORITY CERTIFICATES OF APPROVAL

#### 1. Competent authority identification marks

1) Each approval certificate issued by a competent authority shall be identified by an identification mark. The mark shall be of the following generalized type:

Symbol of nationality of country<sup>6</sup> Number/Type Code

a) The number shall be assigned by the competent authority, and shall be unique and specific with regard to the particular design or shipment. The shipment approval identification mark shall be clearly identified with the package design approval identification mark.

b) The following type codes shall be used in the order listed to indicate the types of approval certificates issued:

A Type A package design (when also a fissile class package)

B(U) Type B(U) package design

B(M) Type B(M) package design

F Fissile class package design

S Special form material approval

T Shipment

X Special arrangement

2) These type codes shall be applied as follows:

a) Each certificate and each package shall bear the appropriate identification mark composed of the symbols prescribed in paragraph (1) except that for packages, only the applicable package design type codes shall appear following the second stroke, i.e. the «S», «T» and «X» shall not appear in the identification marking on the package. Where the package design approval and shipment approval are combined, the applicable Type Codes do not need to be repeated. For example:

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<sup>5</sup> That is, operational controls during transport not routinely provided for in this Appendix but which are considered necessary to ensure the safety of the package during transport, such as human intervention for temperature or pressure measurements or for periodical venting. These controls shall also take into account the possibility of unexpected delay.

<sup>6</sup> The signs referred to are the national distinguishing signs for motor vehicles in international traffic.

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- A/132/B(M)F: A Type B(M) Fissile Class package approved by Austria for package design number 132 (to be marked on both the package itself and on the package design approval certificate).
- A/132/B(M)FT: The shipment approval certificate identification mark issued for that package design (to be marked on the certificate only).
- A/137/X: The shipment approval certificate identification mark issued for Austrian design 137 under a special arrangements shipment (to be marked on the certificate only).

b) Where multilateral approval is effected by validation, only the identification marks issued by the country of origin of the design or shipment would be used. Where multilateral approval is effected by issue of certificates by successive countries, each certificate would bear the appropriate mark and the package whose design was so approved would bear all appropriate identification marks. For example,

(A/132/B(M)F)  
(CH/28/B(M)F)

would be the identification marks of a package which was originally approved by Austria and was subsequently approved, by separate certificate, by Switzerland. Additional identification marks would be tabulated in a similar manner on the package.

c) The revision of certificate numbers shall be indicated by a parenthetical expression following the identification mark on the certificate. For example, A/132/B(U)F. (Rev.2) would indicate revision 2 of the Austrian-approved package design certificate; or A/132/B(U)F. (Rev.0) would indicate the original issue of the Austrian-approved package design certificate. For original issue the parenthetical expression is optional and other words such as «(original issue)» may also be used in lieu of «(Rev.0)». Certificate revision numbers may only be issued by the country issuing the original certificate number. Revision by other than the issuing country shall require a new certificate and identification number.

d) Additional symbols (as may be necessitated by national requirements) may be added in brackets to the end of the identification mark. For example, A/132/B(U)F (SP503).

e) It is not necessary to alter the identification mark on the package each time that a revision to the package certificate is made. Such alteration shall be made only in those cases where the revision of the package design certificate involves a change in the letter type codes for the package design, following the second stroke.

## 2. Information required in certificates

Each approval certificate issued by a competent authority shall include the relevant information from the following:

- a) The competent authority identification mark.
- b) A brief description of the packaging, including materials of construction, gross weight, general outside dimensions, and appearance. This shall include a reproducible illustration not larger than 21 cm by 30 cm, showing the make-up of the package.
- c) A brief specification of the permitted contents, including any restrictions on contents which might not be obvious from the nature of the packaging. This should include the physical and chemical forms, the activities in curies (including those of the various isotopes, if appropriate), amounts in grams for fissile substances, and whether in special form.
- d) Additionally, for fissile class packages:
  - i) Fissile Class I: a detailed description of the permissible contents and any special features, on the basis of which the leakage of water in respect of certain void spaces has been assumed in the criticality assessment (see marginal

nal 3613(b)).

ii) Fissile Class II: a detailed description of the permissible contents, the corresponding allowable numbers (or transport index) and any special features, on the basis of which the leakage of water in respect of certain void spaces has been assumed in the criticality assessment (see marginal 3618(b)).

iii) Fissile Class III: a detailed description of the individual consignments including the permissible contents and the corresponding allowable numbers (or transport indices) together with any special precautions to be taken during transport.

e) A statement regarding the ambient conditions assumed for purposes of design (see marginal 3602 (4)).

f) For Type B(M) packages, a statement specifying those prescriptions of marginal 3603 with which the package does not conform and any amplifying information which may be useful to other competent authorities.

g) A reference to the following information provided by the applicant:

i) instructions on the use and maintenance of the packaging;

ii) the actions to be taken by the consignor prior to the shipment, e.g. any special decontamination procedures.

h) A detailed listing of any supplementary operational requirements (see footnote 5) for package preparation, loading, transport, storage, unloading, and handling, including any special stowage provisions for the safe dissipation of heat from the package, or a statement that no such controls are required.

j) A statement authorizing shipment where shipment approval is required under marginal 3675.

k) Any restrictions on the types of vehicle containers, and any necessary routing instructions.

l) Emergency arrangements specific to the approved design.

m) The following statement: «This certificate does not relieve the consignor from compliance with any requirement of the government of any country through or into which the package will be transported».

n) An issue date, and, if appropriate, an expiry date.

o) Signature and identification of the certifying official.

p) Appendices containing certificates for alternative package contents, other competent authority validations, or additional technical data or information.

## 3. Validation of certificates

Multilateral approvals may be by validation of the original certificate issued by the competent authority of the country of origin of the design or shipment.

## F. CONSIGNOR'S RESPONSIBILITIES

### 1. Particulars of consignment

The consignor shall include in the transport document for each consignment or radioactive substances, as well as the description given in the appropriate schedule, the following details:

a) The statement «The nature of the goods and the packaging are in conformity with the provisions of ADR».

b) The identification mark for each competent authority certificate (special form, package design, and shipment) applicable to the consignment).

c) The name of the radioactive substances, or nuclide.

d) A description of the physical and chemical form of the substance, or whether it is in special form.

e) The activity of the radioactive substances in appropriate curie units.

f) The category of the package, i.e. I-WHITE, II-YELLOW, III-YELLOW.

g) The transport index (Categories II-and III-YELLOW only).

h) For a consignment of fissile substances:

i) if exempted under marginal 3610, the words «FISSILE EXEMPT»; or

ii) if not so exempted, the fissile class of the package(s).

### 2. Information and notification for carriers

1) The consignor shall provide in the transport doc-

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ument a statement regarding actions, if any, that must be taken by the carrier. The statement shall be in the languages deemed necessary by the carrier or the authorities concerned, and shall include at least the following points:

a) supplementary operational requirements for loading, transport, storage, unloading, handling, and stowage for safe dissipation of heat, or a statement that no supplementary operational requirements are necessary (see marginal 3678 (h));

b) any necessary routing instructions (see marginal 3678 (k)).

c) emergency arrangements specific to the approved design (see marginal 3678 (i)).

2) In all cases where approval of the shipment or prior notification to the competent authority is required, all the carriers shall be informed of the requirements in advance, in order that they may take in good time any measures required for the transport.

### 3. Notification to competent authorities

1) Before the first shipment of a Type B(U) package containing radioactive substances with an activity greater than  $3 \times 10^3 A_1$  or  $3 \times 10^3 A_2$ , as appropriate, or  $3 \times 10^4 Ci$ , whichever is the lower, the consignor shall ensure that copies of each applicable competent authority certificate applying to that package design have been submitted to the competent authority of each country in whose territory the consignment is to be transported. The consignor is not required to await an acknowledgement from the competent authority, nor is the competent authority required to make such acknowledgement of receipt of the certificate.

2) For each shipment listed in a) to d) below inclusive, the consignor shall notify the competent authorities of each country in whose territory the consignment is to be transported. This notification shall be in the hands of each competent authority prior to the commencement of the shipment, and preferably at least 15 days in advance.

a) Type B(U) packages containing radioactive substances with an activity greater than  $3 \times 10^3 A_1$  or  $3 \times 10^3 A_2$ , as appropriate, or  $3 \times 10^4 Ci$ , whichever is the lower.

b) Type B(M) packages.

c) Fissile Class III packages under marginal 3674 (3).

d) Transport by special arrangement.

3) The consignment notification shall include:

a) sufficient information to enable the identification of the package, including all applicable certificate numbers and identification marks; and

b) information on the date of shipment, the expected date of arrival and proposed routing.

(4) The consignor is not required to send a separate notification if the required information has been included in the application for shipment approval (see marginal 3675 (2)).

### 4. Possession of certificates

The consignor shall have in his possession a copy of each certificate required under this Appendix and a copy of the instructions with regard to the proper closing of the package and other preparation for shipment before making any shipment under the terms of the certificates.

### G. QUALITY CONTROL IN FABRICATION AND MAINTENANCE OF PACKAGING

The manufacturer, consignor, or user of an approved package design shall be prepared to demonstrate to any cognizant competent authority that:

(a) the constructional methods and materials used for the construction of the packaging are in accordance with the approved design requirements; the competent authority may carry out inspection of the packaging during construction;

(b) all packagings built to an approved design shall be maintained in good condition so that they continue to

comply with all relevant regulatory criteria, even after repeated use.

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## CHAPTER VI - ACTIVITY LIMITS DETERMINATION OF $A_1$ AND $A_2$

### 1. Single radionuclides

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(1) For single radionuclides of known identity, the values of  $A_1$  and  $A_2$  are given in Table XX. The values of  $A_1$  and  $A_2$  are also applicable for radionuclides contained in (a, n) or ( $\gamma$ , n) neutron sources.

TABLE XX.  $A_1$  and  $A_2$  VALUES FOR RADIONUCLIDES

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Symbol of radionuclide	Element and atomic number	$A_1(Ci)$	$A_2(Ci)$	Specific activity (Ci/g)
227 <sub>Ac</sub>	Actinium (89)	1.000	0.003	7.2×10 <sup>5</sup>
228 <sub>Ac</sub>		10	4	2.2×10 <sup>6</sup>
105 <sub>Ag</sub>	Silver (47)	40	40	3.1×10 <sup>4</sup>
110 <sub>Ag<sup>m</sup></sub>		7	7	4.7×10 <sup>3</sup>
111 <sub>Ag</sub>		100	100	1.6×10 <sup>5</sup>
241 <sub>Am</sub>	Americium (95)	8	0.008	3.2
243 <sub>Am</sub>		8	0.008	1.9×10 <sup>-1</sup>
37 <sub>Ar</sub> (compressed or uncompressed)	Argon (18)	1.000	1000	1.0×10 <sup>5</sup>
41 <sub>Ar</sub> (uncompressed)		20	20	4.3×10 <sup>7</sup>
41 <sub>Ar</sub> (compressed)		1	1	4.3×10 <sup>7</sup>
73 <sub>As</sub>	Arsenic (33)	1.000	400	2.4×10 <sup>4</sup>
74 <sub>As</sub>		20	20	1.0×10 <sup>5</sup>
76 <sub>As</sub>		10	10	1.6×10 <sup>6</sup>
77 <sub>As</sub>		300	300	1.1×10 <sup>6</sup>
211 <sub>At</sub>	Astatine (85)	200	7	2.1×10 <sup>6</sup>
193 <sub>Au</sub>	Gold (79)	200	200	9.3×10 <sup>5</sup>
196 <sub>Au</sub>		30	30	1.2×10 <sup>5</sup>
198 <sub>Au</sub>		40	40	2.5×10 <sup>5</sup>
199 <sub>Au</sub>		200	200	2.1×10 <sup>5</sup>
131 <sub>Ba</sub>	Barium (56)	40	40	8.7×10 <sup>4</sup>
133 <sub>Ba</sub>		40	10	4.0×10 <sup>2</sup>
140 <sub>Ba</sub>		20	20	7.3×10 <sup>4</sup>
7 <sub>Be</sub>	Beryllium (4)	300	300	3.5×10 <sup>5</sup>
206 <sub>Bi</sub>	Bismuth (83)	5	5	9.9×10 <sup>4</sup>
207 <sub>Bi</sub>		10	10	2.16×10 <sup>2</sup>
210 <sub>Bi(RaE)</sub>		100	4	1.2×10 <sup>5</sup>
212 <sub>Bi</sub>		6	6	1.5×10 <sup>7</sup>
249 <sub>Bk</sub>	Berkelium (97)	1.000	1	1.8×10 <sup>3</sup>
82 <sub>Br</sub>	Bromine (35)	6	6	1.1×10 <sup>6</sup>
14 <sub>C</sub>	Carbon (6)	1.000	100	4.6
45 <sub>Ca</sub>	Calcium (20)	1.000	40	1.9×10 <sup>4</sup>
47 <sub>Ca</sub>		20	20	5.9×10 <sup>5</sup>
109 <sub>Cd</sub>	Cadmium (48)	1.000	70	2.6×10 <sup>3</sup>
115 <sub>Cd<sup>m</sup></sub>		30	30	2.6×10 <sup>4</sup>
115 <sub>Cd</sub>		80	80	5.1×10 <sup>5</sup>
139 <sub>Ce</sub>	Cerium (58)	100	100	6.5×10 <sup>3</sup>
141 <sub>Ce</sub>		300	200	2.8×10 <sup>4</sup>
143 <sub>Ce</sub>		60	60	6.6×10 <sup>5</sup>
144 <sub>Ce</sub>		10	7	3.2×10 <sup>3</sup>
249 <sub>Cf</sub>	Californium (98)	2	0.002	3.1
250 <sub>Cf</sub>		7	0.007	1.3×10 <sup>2</sup>
252 <sub>Cf</sub>		2	0.009	6.5×10 <sup>2</sup>
36 <sub>Cl</sub>	Chlorine (17)	300	30	3.2×10 <sup>-2</sup>
38 <sub>Cl</sub>		10	10	1.3×10 <sup>6</sup>
242 <sub>Cm</sub>	Curium (96)	200	0.2	3.3×10 <sup>3</sup>
243 <sub>Cm</sub>		9	0.009	4.2×10
244 <sub>Cm</sub>		10	0.01	8.2×10
245 <sub>Cm</sub>		6	0.006	1.0×10 <sup>-1</sup>
246 <sub>Cm</sub>		6	0.006	3.6×10 <sup>-1</sup>
56 <sub>Co</sub>	Cobalt (27)	5	5	3.0×10 <sup>4</sup>
57 <sub>Co</sub>		90	90	8.5×10 <sup>3</sup>
58 <sub>Co<sup>m</sup></sub>		1.000	1.000	5.9×10 <sup>6</sup>
58 <sub>Co</sub>		20	20	3.1×10 <sup>4</sup>
60 <sub>Co</sub>		7	7	1.1×10 <sup>3</sup>
51 <sub>Cr</sub>	Chromium (24)	600	600	9.2×10 <sup>4</sup>

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182 <sub>Ta</sub>	Tantalum (73)	20	20	6.2x10 <sup>3</sup>
160 <sub>Tb</sub>	Terbium (65)	20	20	1.1x10 <sup>4</sup>
96 <sub>Tc,m</sub>	Technetium (43)	1.000	1.000	3.8x10 <sup>7</sup>
96 <sub>Tc</sub>		6	6	3.2x10 <sup>5</sup>
97 <sub>Tc,m</sub>		1.000	200	1.5x10 <sup>4</sup>
97 <sub>Tc</sub>		1.000	400	1.4x10 <sup>-3</sup>
99 <sub>Tc,m</sub>		100	100	5.2x10 <sup>6</sup>
99 <sub>Tc</sub>		1.000	80	1.7x10 <sup>-2</sup>
125 <sub>Te,m</sub>	Tellurium (52)	1.000	100	1.8x10 <sup>4</sup>
127 <sub>Te,m</sub>		300	40	4.0x10 <sup>4</sup>
127 <sub>Te</sub>		300	300	2.6x10 <sup>6</sup>
129 <sub>Te,m</sub>		30	30	2.5x10 <sup>4</sup>
129 <sub>Te</sub>		100	100	2.0x10 <sup>7</sup>
131 <sub>Te,m</sub>		10	10	8.0x10 <sup>5</sup>
132 <sub>Te</sub>	Thorium (90)	7	7	3.1x10 <sup>5</sup>
227 <sub>Th</sub>		200	0.2	3.2x10 <sup>4</sup>
228 <sub>Th</sub>		6	0.008	8.3x10 <sup>2</sup>
230 <sub>Th</sub>		3	0.003	1.9x10 <sup>-2</sup>
231 <sub>Th</sub>		1.000	1.000	5.3x10 <sup>5</sup>
232 <sub>Th</sub>		Unlimited	Unlimited	1.1x10 <sup>-7</sup>
234 <sub>Th</sub>	10	10	2.3x10 <sup>4</sup>	
Th (natural)	Unlimited	Unlimited	(see Table XXI)	
Th (irradiated)	a	a		
200 <sub>Tl</sub>	Thallium (81)	20	20	5.8x10 <sup>5</sup>
201 <sub>Tl</sub>		200	200	2.2x10 <sup>5</sup>
202 <sub>Tl</sub>		40	40	5.4x10 <sup>4</sup>
204 <sub>Tl</sub>		300	30	4.3x10 <sup>2</sup>
170 <sub>Tm</sub>	Thulium (69)	300	40	6.0x10 <sup>3</sup>
171 <sub>Tm</sub>		1.000	100	1.1x10 <sup>3</sup>
230 <sub>U</sub>	Uranium (92)	100	0.1	2.7x10 <sup>4</sup>
232 <sub>U</sub>		30	0.03	2.1x10
233 <sub>U</sub>		100	0.1	9.5x10 <sup>-3</sup>
234 <sub>U</sub>		100	0.1	6.2x10 <sup>-3</sup>
235 <sub>U</sub>		100	0.2	2.1x10 <sup>-6</sup>
236 <sub>U</sub>		200	0.2	6.3x10 <sup>-5</sup>
238 <sub>U</sub>		Unlimited	Unlimited	3.3x10 <sup>-7</sup>
U (natural)		Unlimited	Unlimited	(see Table XXI)
U (enriched) <20%	Unlimited	Unlimited	(see Table XXI)	
20%				
or greater	100	0.1		
U (depleted)	Unlimited	Unlimited	(see Table XXI)	
U (irradiated)	b	b		
48 <sub>V</sub>	Vanadium (23)	6	6	1.7x10 <sup>5</sup>
181 <sub>W</sub>	Tungsten (74)	200	100	5.0x10 <sup>3</sup>
185 <sub>W</sub>		1.000	100	9.7x10 <sup>-3</sup>
187 <sub>W</sub>		40	40	7.0x10 <sup>5</sup>
131 <sub>Xe,m</sub> (compressed)		Xenon (54)	10	10
131 <sub>Xe,m</sub> (uncompressed)	100		100	1.0x10 <sup>5</sup>
133 <sub>Xe</sub> (uncompressed)	1.000		1.000	1.9x10 <sup>5</sup>
133 <sub>Xe</sub> (compressed)	5		5	1.9x10 <sup>5</sup>
135 <sub>Xe</sub> (uncompressed)	70		70	2.5x10 <sup>6</sup>
135 <sub>Xe</sub> (compressed)	2		2	2.5x10 <sup>6</sup>
90 <sub>Y</sub>	Yttrium (39)	10	10	5.3x10 <sup>5</sup>
91 <sub>Y,m</sub>		30	30	4.1x10 <sup>7</sup>
91 <sub>Y</sub>		30	30	2.5x10 <sup>4</sup>
92 <sub>Y</sub>		10	10	9.5x10 <sup>6</sup>
93 <sub>Y</sub>		10	10	3.2x10 <sup>6</sup>
175 <sub>Yb</sub>	Ytterbium (70)	400	400	1.8x10 <sup>5</sup>
65 <sub>Zn</sub>	Zinc (30)	30	30	8.0x10 <sup>3</sup>
69 <sub>Zn,m</sub>		40	40	3.3x10 <sup>6</sup>
69 <sub>Zn</sub>		300	300	5.3x10 <sup>7</sup>
93 <sub>Zr</sub>	Zirconium (40)	1.000	200	3.5x10 <sup>-3</sup>
95 <sub>Zr</sub>		20	20	2.1x10 <sup>4</sup>
97 <sub>Zr</sub>		20	20	2.0x10 <sup>6</sup>

TABLE XXI. ACTIVITY-MASS RELATIONSHIPS FOR URANIUM AND NATURAL THORIUM<sup>a</sup>  
(This table is referred to in Table XX).

Radioactive material	Ci/g	g/Ci
Uranium (wt% <sup>235</sup> U present)		
0.45	5.0x10 <sup>-7</sup>	2.0x10 <sup>6</sup>
0.72 (natural)	7.06x10 <sup>-7</sup>	1.42x10 <sup>6</sup>
1.0	7.6x10 <sup>-7</sup>	1.3x10 <sup>6</sup>
1.5	1.0x10 <sup>-6</sup>	1.0x10 <sup>6</sup>
5.0	2.7x10 <sup>-6</sup>	3.7x10 <sup>5</sup>
10.0	4.8x10 <sup>-6</sup>	2.1x10 <sup>5</sup>
20.0	1.0x10 <sup>-5</sup>	1.0x10 <sup>5</sup>
35.0	2.0x10 <sup>-5</sup>	5.0x10 <sup>4</sup>
50.0	2.5x10 <sup>-5</sup>	4.0x10 <sup>4</sup>
90.0	5.8x10 <sup>-5</sup>	1.7x10 <sup>4</sup>
93.0	7.0x10 <sup>-5</sup>	1.4x10 <sup>4</sup>
95.0	9.1x10 <sup>-5</sup>	1.1x10 <sup>4</sup>
Natural thorium	2.2x10 <sup>-7</sup>	4.6x10 <sup>6</sup>

(2) For any single radionuclide whose identity is known, but which is not listed in Table XX, the values of A<sub>1</sub> and A<sub>2</sub> shall be determined according to the procedure given below:

(a) If the radionuclide emits only one type of radiation, A<sub>1</sub> shall be determined according to the rules in (i), (ii), (iii) and (iv) below. For radionuclides emitting different kinds of radiation, A<sub>1</sub> shall be the most restrictive value of those determined for each individual radiation. However, in both cases A<sub>1</sub> shall be restricted to a maximum of 1000 Ci. If a parent nuclide decays into a shorter lived daughter, of a half-life not greater than 10 days, A<sub>1</sub> shall be calculated for both the parent and the daughter, and the more limiting of the two values should be assigned to the parent nuclide.

(1) For gamma emitters, A<sub>1</sub> is determined by the expression:

$$A_1 = \frac{9}{\Gamma} \text{ curies}$$

where Γ is the gamma-ray constant, corresponding to the dose in R/h at 1 m per Ci; the number 9 results from the choice of 1 rem/h at a distance of 3 m as the reference dose equivalent rate.

(ii) For X-ray emitters, A<sub>1</sub> is determined by the atomic number of the nuclide:

$$\text{for } Z \leq 55; A_1 = 1.000 \text{ Ci}$$

$$\text{for } Z > 55; A_1 = 200 \text{ Ci}$$

(iii) For beta emitters, A<sub>1</sub> is determined by the maximum beta energy (E<sub>max</sub>) according to Table XXII.

(iv) For alpha emitters A<sub>1</sub> is determined by the expression:

$$A_1 = 1.000 A_3$$

where A<sub>3</sub> is the value listed in Table XXIII.

(b) A<sub>2</sub> shall be the more restrictive of the following two values:

(1) the corresponding A<sub>1</sub> and (2) the value A<sub>3</sub> obtained from Table XXIII.

TABLE XXII  
RELATIONSHIP BETWEEN A<sub>1</sub> AND E<sub>max</sub> FOR BETA EMITTERS

E <sub>max</sub> (MeV)	A <sub>1</sub> (Ci)
< 0.5	1.000
0.5 - < 1.0	300
1.0 - < 1.5	100
1.5 - < 2.0	30
> 2.0	10

a. The values for A<sub>1</sub> and A<sub>2</sub> shall be calculated in accordance with marginal 3691 (3) taking into account the activity of the fission products and uranium-233 in addition to that of thorium.

b. The values for A<sub>1</sub> and A<sub>2</sub> shall be calculated in accordance with marginal 3691 (3) taking into account the activity of the fission products and plutonium isotopes in addition to that of the uranium.

a. The figures for uranium include the activity of uranium -234 which is concentrated during the enrichment process. The activity for thorium includes the equilibrium concentration of thorium -228.

TABLE XXIII  
RELATIONSHIP BETWEEN  $A_3$  AND THE ATOMIC  
NUMBER OF THE RADIONUCLIDE

Atomic number	$A_3$		
	Half-life less than 1000 days	Half-life 1000 days to $10^6$ years	Half-life greater than $10^6$ years
1 to 81	3 Ci	50 mCi	3 Ci
82 and above	2 mCi	2 mCi	3 Ci

(3) For any single radionuclide whose identity is unknown, the value of  $A_1$  shall be taken to be 2 Ci and the value of  $A_2$  shall be taken to be 0.002 Ci. However, if the atomic number of the radionuclide is known to be less than 82, the value of  $A_1$  shall be taken to be 10 Ci and the value of  $A_2$  shall be taken to be 0.4 Ci.

2. Mixtures of radionuclides, including radioactive decay chains

(1) For mixed fission products the following activity limits may be assumed, if a detailed analysis of the mixture is not carried out:

$$A_1 = 10 \text{ Ci}$$

$$A_2 = 0.4 \text{ Ci}$$

(2) A single radioactive decay chain in which the radionuclides are present in their naturally occurring proportions and in which no daughter nuclide has a half-life either longer than 10 days or longer than that of the parent nuclide shall be considered as a single radionuclide. The activity to be taken into account and the  $A_1$  or  $A_2$  value to be applied shall be those corresponding to the parent nuclide of that chain.

However, in the case of radioactive decay chains in which any daughter nuclide has a half-life either longer than 10 days or greater than that of the parent nuclide, the parent and such daughter nuclides shall be considered as mixtures of different nuclides.

(3) In the case of a mixture of different radionuclides, where the identity and activity of each radionuclide are known, the permissible activity of each radionuclide  $R_1, R_2 \dots R_n$  shall be such that  $F_1 + F_2 + \dots F_n$  is not greater than unity, where

$$F_1 = \frac{\text{Total activity of } R_1}{A_1(R_1)}$$

$$F_2 = \frac{\text{Total activity of } R_2}{A_1(R_2)}$$

$$F_n = \frac{\text{Total activity of } R_n}{A_1(R_n)}$$

$A_1(R_1), A_1(R_2), \dots A_1(R_n)$ , is the value of  $A_1$  or  $A_2$  as appropriate for the nuclide  $R_1, R_2 \dots R_n$ .

(4) When the identity of each radionuclide is known but the individual activities of some of the radionuclides are not known, the formula given in paragraph (3) shall be applied to establish the values of  $A_1$  or  $A_2$  as appropriate. All the radionuclides whose individual activities are not known (their total activity will, however, be known) shall be classed in a single group and the most restrictive value of  $A_1$  and  $A_2$  applicable to any one of them shall be used as the value of  $A_1$  or  $A_2$  in the denominator of the fraction.

(5) Where the identity of each radionuclide is known but the individual activity of none of the radionuclides is known, the most restrictive value of  $A_1$  or  $A_2$  applicable to any one of the radionuclides present shall be adopted as the applicable value.

(6) When the identity of none or only some of the nuclides is known, the value of  $A_1$  shall be taken to be 2 Ci and the value of  $A_2$  shall be taken to be 0.002 Ci. However, if alpha emitters are known to be absent, the value of  $A_2$  shall be taken to be 0.4 Ci.

## CHAPTER VII. DECONTAMINATION, LEAKING PACKAGES AND ACCIDENTS

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(1) If a package containing radioactive substances is broken or is visibly leaking or is involved in an accident during carriage, the vehicle or affected area shall be isolated so as to prevent all contact of persons with radioactive substances and, when possible, shall be duly marked off or surrounded by barriers. No-one shall be authorised to stay within the isolated area until qualified persons arrive to supervise the handling and salvage work. The sender and authorities concerned shall be notified immediately. Notwithstanding these provisions, the presence of radioactive substances shall not be considered as a bar to operations for the rescue of people or fire-fighting.

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(2) If radioactive substances have leaked, have been spilled or have been scattered in any way whatever in a place, area or on to goods or equipment used in storage, qualified persons shall be called in as soon as possible to direct decontamination operations. The place, area or equipment thus contaminated shall only be put back into service when its use has been declared free from danger by qualified persons.

(3) Except as provided for in paragraph (4) any vehicles, equipment or part thereof, which have been contaminated in the course of carriage of radioactive substances shall be decontaminated as soon as possible by a qualified person and shall not be reused unless the non-fixed radioactive contamination is below the levels specified in Table XIX and the vehicles, equipment or part thereof have been declared safe in respect of residual radiation levels by a qualified person.

(4) Vehicles or compartments used for the bulk transport or tank transport of low specific activity substances, or for the transport of packages of low specific activity substances carried as a full load or for the transport of low level solid radioactive substances as a full load shall not be used for other goods until decontaminated as specified in paragraph (3).

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### APPENDIX A.7

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Reserved

### APPENDIX A.8

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Reserved

### APPENDIX A.9

#### Provisions relating to danger labels

3900

(1) Labels Nos. 1, 2A, 2B, 2C, 2D, 3, 4, 4A, 5, 6A, 6B and 6C shall be in the form of a square of 10 cm side standing on a corner. They have a black line 5 mm in the edge and running parallel to it. Labels to be affixed to fixed tanks (tank-vehicles and tank-trailers) shall be of not less than 30 cm side.

(2) Labels Nos. 7, 8 and 9 shall be rectangular, of standard format A5 (148 × 210 mm). For packages, these dimensions may be reduced to a format not less than A7 (74 × 105 mm).

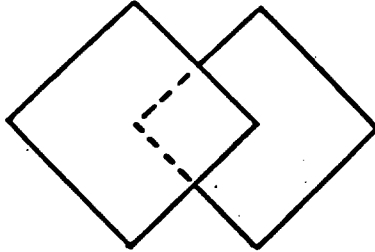
(3) An inscription, in figures or letters, concerning the nature of the danger may be placed on the lower part of the labels.

3901

(1) Danger labels, where they are required under the provisions of this Annex, must be stuck on packages and

fixed tanks or affixed in some other suitable manner. Only where the state of the outside of a package does not permit this should labels be stuck on cards or tablets securely attached to the package. On outer packagings and fixed tanks, indelible danger markings corresponding exactly to the prescribed models may be used instead of labels.

(2) Where a package is required to bear two labels of the same model, the labels shall be affixed in the manner indicated hereafter:



(3) It is the sender's duty to affix the labels to packages, and, where appropriate, to fixed tanks and containers.

## 2. Explanation of symbols

The danger labels prescribed for substances and articles of Classes 1 to 8 (see annexed plate) have the following meanings:

- No. 1 (black bomb on orange ground): liable to explosion; prescribed in marginals 2117 (1) and (2), 2145 and 2563;
- No. 2A (black flame on red ground): danger of fire (inflammable liquids); prescribed in marginals 2224 (3), 2316 (3), 2478 (2), 2307 (1) and 2632 (1);
- No. 2B (black flame on ground of equidistant alternate red and white vertical stripes): danger of fire (inflammable solids); prescribed in marginal 2414 (1);
- No. 2C (black flame on white ground, lower triangle of label red): substance liable to spontaneous ignition; prescribed in marginal 2443 (1);
- No. 2D (black flame on blue ground): danger of emission of inflammable gases on contact with water; prescribed in marginal 2478 (1);
- No. 3 (flame over a circle, black on yellow ground): oxidizing substance or organic peroxide; prescribed in marginals 2511 (1) and 2563 (1);
- No. 4 (death's head on cross-bones, black on white ground): toxic substance: to be kept apart in vehicles and at loading, unloading or transloading points from foodstuffs and other articles for consumption; prescribed in marginals 2307 (1), 2316 (3), 2632 (1) and 2643 (3);

No. 4A (St. Andrew's Cross on ear of corn, black on white background): harmful substance: to be kept apart from foodstuffs in vehicles and at loading, unloading or transloading points;

prescribed in marginals 2632 (1) and 2643 (3);

No. 5 (liquid dripping from a test-tube on to a plate and from another test-tube on to a hand; black on white ground, lower triangle of label black with a white border): corrosive substance;

prescribed in marginals 2511 (1), 2824 (1) and 2835 (3);

No. 6A (stylized trefoil, inscription RADIOACTIVE, a vertical stripe in the lower half, with following text: Contents ... Activity ...): radioactive substance in packages of Category I - WHITE; in the event of damage to the packages, danger to health by ingestion or inhalation of, or contact with, spilled contents;

Symbol and inscriptions black on white ground, vertical stripe red; prescribed in schedules 5 to 12 as appropriate and in marginal 3656 (1), (2) and (3);

No. 6B (like the foregoing, but with two vertical stripes in the lower half and the following text: Contents ... Activity ...): radioactive substance in packages of Category II - YELLOW; packages to be kept away from packages containing undeveloped

radiographic or photographic plates or films; in the event of damage to packages, danger to health by ingestion or inhalation of, or contact with, spilled contents, and risk of external irradiation at a distance;

Symbol and inscriptions black; upper half of ground yellow; lower half of ground white; vertical stripes red; prescribed in schedules 5 to 12 as appropriate and in marginal 3656 (1), (2) and (3);

No. 6C (like the foregoing, but with three vertical stripes in the lower half): radioactive substance in packages of Category III - YELLOW; packages to be kept away from packages containing undeveloped

radiographic or photographic plates or films; in the event of damage to packages, danger to health by ingestion or inhalation of, or contact with, spilled contents, and risk of external irradiation at a distance;

Symbol and inscriptions black; prescribed in schedules 5 to 12 as appropriate and in marginal 3656 (1), (2) and (3);

No. 7 (open black umbrella on white ground): keep dry;

prescribed in marginal 2478 (1);

No. 8 (two black arrows on white ground): this side up: label to be affixed, with arrows pointing upwards, on two opposite sides of the package;

prescribed in marginals 2117 (2), 2224 (2), 2307 (3), 2414 (2), 2443 (2) and (3), 2478 (3), 2511 (2), 2563 (2), 2632 (2), 2664, 2709 (3), 2824 (2) and (3);

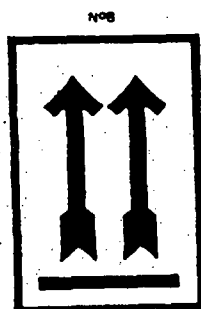
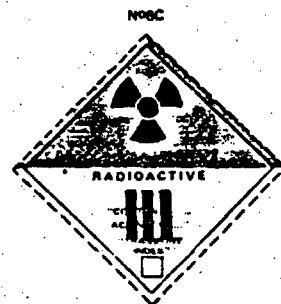
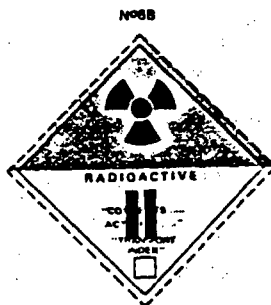
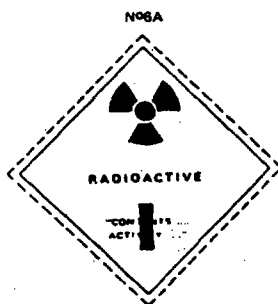
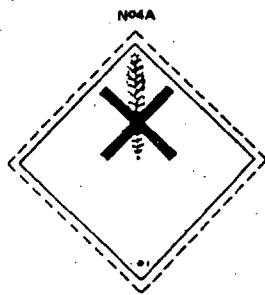
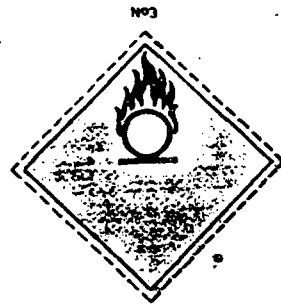
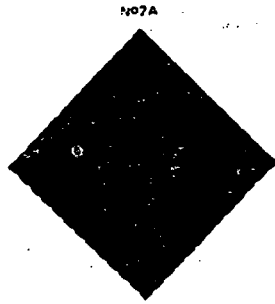
No. 9 (red wineglass on white ground): handle with care, or: do not drop.

prescribed in marginals 2117 (2), 2182, 2224 (1), (2) and (3), 2307 (3), 2414 (2), 2443 (3), 2478 (3), 2511 (2), 2562 (2), 2632 (2), 2664, 2709 (3) and 2824 (2);

3902

3903  
- 3999

APPENDICE A9  
DANGER LABELS  
(See marginal 19021)  
Reproduction on reduced scale



ECONOMIC COMMISSION FOR EUROPE  
INLAND TRANSPORT COMMITTEE

European Agreement

concerning the international carriage  
of dangerous goods by road (ADR)  
and protocol of signature

done at Geneva on 30 September 1957

VOLUME III  
(Annex B)

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1978

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FOREWORD

The text below comprises, in addition to the Agreement itself and the Protocol of signature, the annexes in the form in which they entered into force on 29 July 1968 as well as the amendments thereto up to 1 October 1978.

EUROPEAN AGREEMENT CONCERNING THE  
INTERNATIONAL CARRIAGE OF DANGEROUS  
GOODS BY ROAD (ADR)

ANNEX B

PROVISIONS CONCERNING TRANSPORT EQUIPMENT AND  
TRANSPORT OPERATIONS

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CHAPTER II SPECIAL PROVISIONS  
APPLICABLE TO THE  
CARRIAGE OF DANGEROUS  
SUBSTANCES OF  
CLASSES I TO VII

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Class IIIb	Inflammable solids	32000 "
Class IIIc	Oxidizing substances	33000 "
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**ANNEX B  
PROVISIONS CONCERNING TRANSPORT EQUIPMENT AND TRANSPORT OPERATIONS**

	4000 9999 10 000
Plan of the Annex	
This Annex comprises:	
(a) general provisions applicable to the carriage of dangerous substances of all Classes (Chapter I);	
(b) special provisions applicable to the carriage of dangerous substances of Classes 1 to 8 (Chapter II);	
(c) Appendices as follows:	
– Appendix B.1a concerning fixed tanks (tank - vehicles), demountable tanks and batteries of receptacles;	
– Appendix B.1b concerning tank-containers;	
– Appendix B.1c concerning fixed tanks and demountable tanks in reinforced plastics;	
– Appendix B.1d relating to requirements concerning the materials and construction of fixed tanks, of demountable tanks, and of shells of tank - containers, intended for the carriage of deeply - refrigerated liquefied gases of Class 2;	
– Appendix B.2 concerning electrical equipment;	
– Appendix B.3 containing a model certificate of approval for vehicles;	
– Appendix B.4 containing tables concerning the carriage of substances of Class 7 and a model label to be affixed to vehicles carrying these substances;	
– Appendix B.5 containing the list of substances mentioned under marginal 10 500 (2)	
(2) The general provisions of Chapter I and the special provisions of Chapter II are divided into sections with the following headings:	
Section 1. General (this section contains, inter alia, the provisions concerning authorizations for the carriage of goods in bulk, in containers or in tanks);	
Section 2. Special requirements to be fulfilled by vehicles and their equipment;	
Section 3. General service provisions;	
Section 4. Special provisions concerning loading, unloading and handling (this section contains the provisions concerning methods of despatch, restrictions on forwarding and prohibitions on mixed loading);	
Section 5. Special provisions concerning the operations of vehicles;	
Section 6. Transitional provisions, derogations, and provisions peculiar to certain countries.	
Applicability of other regulations, national or international	10001
(1) If the vehicle carrying out a transport operation subject to the provisions of ADR is conveyed over a section of the journey otherwise than by road haulage, then any national or international regulations which govern the car-	

riage of dangerous goods on that section by the mode of transport used for conveying the road vehicle shall alone be applicable to that section of the journey.

(2) In cases where a transport operation subject to the provisions of ADR is likewise subject over the whole or a part of the road journey to the provisions of an international convention which regulates the carriage of dangerous goods by a mode of transport other than road carriage by virtue of clauses extending the applicability of that convention to certain motor - vehicle services, then the provisions of that international convention shall apply, over the journey in question, concurrently with those of ADR which are not incompatible therewith; the other clauses of ADR shall not apply over the journey in question.

Applicability of the provisions of Chapter I of this Annex

10002

Where provisions of Chapter II or of the Appendices to this Annex conflict with provisions of Chapter I, those provisions of Chapter I shall not apply.

Nevertheless

(a) the provisions of marginal 10 100 shall take precedence over those of Chapter II;

(b) the provisions of marginal 10 403 shall take precedence over the prohibitions on mixed loading prescribed in the Sections 4 of Chapter II.

10 003-  
10 099

Chapter I  
**GENERAL PROVISIONS APPLICABLE TO THE CARRIAGE OF DANGEROUS SUBSTANCES OF ALL CLASSES**  
(see, however, marginal 10002)

Section 1

General

Scope of this Annex

10100

(1) Annex A exempts from the provisions of the present Annex carriage performed under the conditions (of packaging, weight, etc.) laid down in marginals 2201a, 2301a, 2401a, 2431a, 2471a, 2501a and 2801a.

(2) (a) Limited quantities of dangerous substances in packages may be carried without application of the provisions of this Annex relating:

– to the types of vehicles (marginals «...104» of Chapters I and II, and marginals 11 105 and 11 106 of Chapter II concerning Classes 1a, 1b and 1c);

– to the crews of vehicles and to supervision (Marginals «...171» of Chapters I and II);

– to the carriage of passengers (Marginal 10 172);

– to instructions in writing (Marginals 10 181 (1) (b), 10 185 and 61 185);

– to the special certificate of approval for vehicles (marginals 10 182 and 11 182);

– to the special requirements to be fulfilled by vehicles and their equipment (all Sections 2 of Chapters I and II), subject, however, to compliance with the provisions of marginal 21 212;

– to places of loading and unloading (marginals 11 407, 21 407 and 61 407); and

– to the operation of vehicles (all Sections 5 of Chapters I and II), subject, however, to compliance with the provisions of marginal 61 515.

Section 1

(b) The exemptions under (a) above shall apply to the loading on one transport unit of:

10 100  
(contd.)

1. One or more of the following dangerous substances, whatever the weight on condition that there are no other dangerous substances of ADR in the transport unit

Class 1a	– empty packagings of 15°
Class 1c	– safety matches of 1° (a);
Class 3	– empty receptacles of 6°;
Class 4.1	– substances of 9° and 10°;
Class 4.2	– empty packagings of 14° and 15°;

- Class 4.3 – empty receptacles of 5°;  
 Class 5.1 – empty packagings of 11°;  
 Class 5.2 – empty packagings of 99°;  
 Class 6.1 – empty packagings of 91° and 92°;  
 Class 6.2 – articles of 12°; and  
 Class 8 – sodium sulphide of 36° and empty receptacles of 51°;

2. One only of the dangerous substances listed below, on condition that the gross weight of all the packages containing the dangerous substance does not exceed the weight shown and that there are no other dangerous substances of ADR in the transport unit

- Class 1b – articles of 2° (b) or 4°: 100 kg;  
 Class 1c – slow - combustion fuses of 3°: 100 kg;  
 Class 2 – cyanogen chloride of 3° (ct): 5 kg;  
 phosgene (carbonyl chloride) of 3° (at): 25 kg;  
 – fluorine of 1° (at): 50 kg;  
 Class 3 – diethyl ether, carbon disulphide of 1° (a) or mixtures of 1° (b) such as collodions and semi - collodions containing diethyl ether: 3 kg;  
 – acetaldehyde, acetone or acetone mixtures of 5°: 75 kg  
 Class 4.1 – sulphur of 2° (a), naphthalene of 11° (b): 250 kg;  
 Class 4.3 – calcium carbide of 2° (a), calcium silicide of 2° (d) or manganese calcium silicide of 2° (d): 1,000 kg;  
 Class 5.2 – substances of 45°, 46° (a), 47° (a) and (b) packed in conformity with the provisions of marginal 2559: 2 kg\*;  
 (not including the weight of the refrigerating system, if any)  
 Class 5.2 (contd.) Section 1  
 – substances of 1° to 22°, 30° and 31° packed in conformity with the provisions of marginal 2561: 5kg; and  
 – substances of 1° to 22°, 30°, 31° and 40° packed in conformity with the provisions of marginals 2553 to 2556 and 2558: 10 kg;  
 Class 6.1 – substances of 41°, 61° and 62°, 71° to 75°, 83° and 84°: 100 kg;  
 Class 8 – substances of 6° (a), 7°, 9°, 11°, 12°, 14°, 15°, 22° 23° 34° and 35°: 10 kg;

3. One or more dangerous substances listed below of the same Class, on condition that the total gross weight of all the packages containing each dangerous substance does not exceed the weight indicated:

- Class 1a – any dangerous substance of the Class other than those listed in 1 above: 5 kg;  
 Class 1b – any article of the Class other than those listed in 2 above: 10 kg;  
 Class 1c – any dangerous substance of the Class other than those listed in 1 and 2 above: 15 kg;  
 Class 2 – any dangerous substance of the Class other than those listed in 2 above: 300 kg;  
 Class 3 – any substance of the Class other than those listed in 1 and 2 above: 250 kg;  
 Class 4.1 – any substance of the Class other than those listed in 1 and 2 above: 50 kg;  
 Class 4.2 – substances of the Class other than those of 1°, 2°, 3° and 4° and the

empty packagings listed in 1 above: 250 kg;

- Class 4.3 – any substance of the Class other than those listed in 1 and 2 above: 10 kg;  
 Class 6.1 – any substance of the Class other than those listed in 1 and 2 above: 5 kg;  
 Class 6.2 – any substance of the Class other than those listed in 1 above: 300 kg; and  
 Class 8 – any substance of the Class other than those listed in 1 and 2 above: 250 kg;

#### Section 1

(3) For the purposes of paragraph (2) above, the weights of liquids or gases carried in the ordinary fixed tanks of vehicles for propelling the vehicles or operating their special - purpose equipment (e.g. refrigerating equipment) and for ensuring their safety shall not be taken into account. 10100

(4) The only provisions of Chapter I of this Annex which are applicable to the carriage of dangerous substances of Class 6.2 shall be those of Chapter II which relate to this Class and those of the marginals of this Chapter I which are expressly rendered applicable by the aforesaid provisions of Chapter II.

(5) Derogations from the provisions of this Annex may be made in the case of emergency transport to save human life.

#### Definitions 10101

(1) For the purposes of this Annex: 10102

- the term «competent authority» means the authority designated as such in each country and in each specific case by the Government;

- the term «fragile package» means a package containing a fragile receptacle (i.e. a receptacle made of glass, porcelain, stoneware or similar materials) which is not enclosed in a packaging with complete sides protecting it effectively against shock

[see also Annex A, marginal 2001(5)];

- the term «gas» means a gas or vapour;

- the term «dangerous substances», when used alone, means the substances and articles designated as being substances and articles of ADR;

- the term «RID» means the International Regulations concerning the Carriage of Dangerous Goods by Rail [Annex 1 to the International Convention concerning the Carriage of Goods by Rail (CIM)];

- the term «carriage in bulk» means the carriage of a solid substance without packaging;

- the term «carriage in bulk» means the carriage of a solid substance without packaging;

- the term «container» means an article of transport equipment (lift van, demountable tank or other similar structure)

- of a permanent character and accordingly strong enough to be suitable for repeated use;

- specially designed to facilitate the carriage of goods, by one or more means of transport, without breakage of load;

- fitted with devices permitting its ready handling, particular when being transloaded from one means of transport to another;

- so designed as to be easy to fill and empty, and having an internal volume of not less than one cubic metre;

- the term «container» does not cover conventional packagings, or vehicles, or tank containers;

- the term «large container» means a container having an internal volume of more than 3 cubic metres;

- the term «small container» means a container having an internal volume of not less than 1 cubic metre and not more than 3 cubic metres;

\* Not including the weight of the refrigerating system, if any.



- the term «tank-container» means an article of transport equipment conforming to the definition of the term «container» given above and built to contain liquid, gaseous, powdery or granular substances but having a capacity of more than 0.45 cubic metres;

- the term «battery of receptacles» means an assembly comprising a number of receptacles (called «elements») whose individual or average capacity is over 150 litres and which are interconnected by a manifold and permanently mounted on a frame [for frames of gas cylinders, see Annex A, marginal 2212(d)];

- the term «demountable tank» means a tank, other than a fixed tank, a tank-container or a battery of receptacles, which has a capacity of over 1.000 litres, is not designed for the carriage of goods without breakage of load, and normally cannot be handled except when it is empty;

- the term «fixed tank» means a tank which is structurally attached to a vehicle (which then becomes a tank-vehicle) or is an integral part of the frame of such vehicle;

- the term «tank», when used alone, means a tank-container or a tank of a capacity exceeding 1 m<sup>3</sup> which may be a fixed tank, a demountable tank or a battery of receptacles. (See, however, a limitation of the meaning of the word «tank» in the provisions common to the B.1 Appendices, marginal 200.000(2));

- the term «transport unit» means a motor vehicle without an attached trailer, or a combination consisting of a motor vehicle and an attached trailer;

- the term «closed vehicle» means a vehicle having a body capable of being closed;

- the term «open vehicle» means a vehicle the platform of which has no superstructure or is merely provided with side boards and a tailboard;

- the term «sheeted vehicle» means an open vehicle provided with a sheet to protect the load;

- the term «tank-vehicle» means a vehicle built to carry liquids, gases, or powdery or granular substances and comprising one or more fixed tanks;

- the term «battery-vehicle» means a tank-vehicle comprising a number of fixed tanks (called «elements») interconnected by a manifold.

(2) For the purposes of this Annex, tanks [see definition (1) above] are not placed on the same footing as receptacles, the term «receptacle» being used in a restrictive sense. Provisions concerning receptacles apply to fixed tanks, batteries of receptacles, demountable tanks and tank-containers only if this is expressly stipulated.

(3) The term «full load» means any load originating from one sender, for which the use of a vehicle or a large container is exclusively reserved and all operations for loading and unloading which are carried out in conformity with the instructions of the sender or consignee [see marginal 10 108].

(4) Unless expressly stated otherwise, the sign «%» or the expression «per cent» in this Annex represents:

(a) in the case of mixtures of solids or of liquids, and also in the case of solutions and of solids wetted by a liquid: a percentage by weight based on the total weight of the mixture, the solution or the wetted solid;

(b) in the case of gaseous mixtures: a percentage by volume based on the total volume of the gaseous mixture.

(5) All weights mentioned for packages in this Annex are, unless otherwise specified, gross weights. The weight of containers or tanks used for the carriage of goods is not included in the gross weight.

(6) Pressures of all kinds relating to receptacles (such as test pressure, internal pressure, safety-value opening pressure) are always indicated in kg/cm<sup>2</sup> gauge pressure (pressure in excess of atmospheric pressure); however, the vapour pressure of substances is always expressed in kg/cm<sup>2</sup> absolute pressure.

(7) Where this Annex specifies a degree of filling for receptacles or tanks, that degree of filling is always referred to a temperature of the substances of 15°C unless some other temperature is indicated.

#### Types of vehicles

10103

(1) A transport unit loaded with dangerous substances may in no case include more than one trailer or semi-trailer.

10104

(2) Special provisions concerning the types of vehicles to be used for the carriage of certain dangerous substances will, where appropriate, be found in Chapter II of this Annex (see also the marginals dealing with carriage in containers, the carriage of solid substances in bulk, carriage in tanks, and tanks).

(3) Packages comprising packagings made of materials sensitive to moisture shall be loaded on to closed or on to sheeted vehicles.

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#### Full Load

Where the provisions relating to carriage as a «full load» are applied, the competent authorities may require the vehicle or large container used for such carriage to be loaded at only one point and unloaded at only one point.

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#### Carriage in bulk

(1) Solid dangerous substances may not be carried in bulk unless this mode of carriage is expressly authorized for the said substances by the provisions of Chapter II of this Annex, and then only under the conditions stipulated by those provisions. Nevertheless, empty packagings, uncleaned, may be carried in bulk if this mode of carriage is not explicitly prohibited by the requirements of Annex A, Part II.

(2) For carriage in bulk in containers, see marginal 10118 (2) and (5).

10112

10117

10118

#### Carriage in containers

Note: The provisions concerning carriage in tank-containers will be found in the marginals headed «Carriage in tanks».

(1) The carriage of packages in containers is authorized.

(2) Substances may not be carried in bulk in containers unless their carriage in bulk is expressly authorized (see marginal 1011 1); small containers must be of the closed type and have complete walls.

(3) Large containers must meet the requirements concerning the body of the vehicle which are laid down in this Annex for the load in question; the body of the vehicle need not then satisfy those provisions.

(4) Subject to the provisions of the last phrase in (3) above, the fact that dangerous substances are enclosed in one or more containers shall not affect the conditions required to be met by the vehicle by reason of the nature and quantities of the dangerous substances carried.

(5) If the dangerous substances carried in a container are such that, under Annex A, one or more danger labels are required to be affixed to the packages containing them, the same label or labels shall be affixed to the outside of the container containing those substances in packages or in bulk. However, label No. 8 need not be affixed if the container comprises a device or inscription clearly showing which way up it should be kept.

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#### Carriage in tanks

(1) Dangerous substances may be carried in tanks only if this mode of carriage is expressly authorized for those substances by the provision of Chapter II of this Annex; carriage must then comply with the provision of this Annex. Reinforced-plastics tanks may be used only if their use is expressly authorized in Chapter II. The temperature of the substance carried shall not exceed 50°C at the time of filling. See marginal 10500 for the marking and labelling of vehicles.

(2) If the substances carried in a demountable tank, a battery of receptacles or a tank-container are such that, under Annex A, one or more danger labels are required to be affixed to the packages containing them, the same

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label or labels shall be affixed to the outside of the demountable tank, battery of receptacles or tank-container. However, label No. 8 need not be affixed if the tank comprises a device or inscription clearly showing which way up it should be kept.

#### Tanks

(1) The provisions concerning the design, inspection, filling and use of fixed tanks, demountable tanks and batteries of receptacles, and various provisions concerning tank-vehicles and their use, will be found in Appendix B.1a and, so far as the design of fixed tanks, demountable tanks and batteries of receptacles intended for the carriage of refrigerated liquefied gases of Class 2 is concerned, in Appendix B.1d (for the approval of tank-vehicles, see marginal 10182).

(2) The provisions concerning the construction, items of equipment, type approval, tests, marking, etc. of tank-containers are to be found in Appendix B.1b and, so far as the construction of tank-containers intended for the carriage of deeply-refrigerated liquefied gases of Class 2 is concerned, in Appendix B.1d.

(3) The provisions concerning the construction of fixed tanks and demountable tanks in reinforced plastics are to be found in Appendix B.1c.

(4) The provisions common to the B.1 Appendices are to be found in marginal 200000.

(5) For receptacles, see Annex A.

#### Crews of vehicles: Supervision

(1) Where the provisions of this Annex concerning specific goods require the driver to be accompanied by an assistant, the assistant must be able to take over from the driver.

#### Section 1

(2) The requirements of this marginal relating to supervision during the time when a vehicle is parked shall apply only to dangerous substances carried in quantities in excess of the exemption limits.

Transport units carrying dangerous goods for which the exemption limit is less than 1,000 kg shall be supervised at all times in order to prevent any malicious act and to alert the driver and the competent authorities in the event of loss or fire.

Transport units carrying dangerous goods for which the exemption limit is 1,000 kg or more shall either be supervised or alternatively may be parked, unsupervised in an isolated position in the open in a secure depot or secure factory premises. If such facilities are not available, the transport unit, after having been properly secured, may be parked in an isolated position meeting the requirements of paragraphs (i), (ii) or (iii) below. The parking facilities permitted in paragraph (ii) shall be used only if those described in paragraph (i) are not available, and those described in paragraph (iii) may be used only if facilities described in paragraphs (i) and (ii) are not available.

(i) A vehicle park supervised by an attendant who has been notified of the nature of the load and the whereabouts of the driver.

(ii) A public or private vehicle park where the transport unit is not likely to suffer damage from other vehicles, or

(iii) A suitable open separated from the public highway and human habitation, where the public do not normally pass or assemble.

#### Carriage of passengers

No passengers not members of the vehicle's crew may be carried in transport units conveying dangerous substances.

#### Transport documents

(1) In addition to the documents required under other

regulations, the following documents shall be carried on the transport unit:

(a) the transport documents prescribed in Annex A, marginal 2002(3) and (4), covering all the dangerous goods carried; and

(b) instructions, as prescribed in marginal 10185, relating to all the dangerous substances carried.

(2) Where the provisions of this Annex require the following documents to be drawn up, the said documents shall likewise be carried on the transport unit:

(a) the special certificate of approval referred to in marginal 10182, for each vehicle; and

(b) the permit authorizing the transport operation.

#### Approval of vehicles

(1) Tank-vehicles and, where so required under the provisions of Chapter II of this Annex, other vehicles shall be subject to technical inspection in their country of registration to make sure that they conform to the provisions of this Annex, including those of its Appendices, and the general safety regulations (concerning brakes, lighting etc.) in force in their country of origin; if these vehicles are trailers or semi-trailers coupled behind a drawing vehicle, the drawing vehicle shall be subject to technical inspection for the same purposes.

(2) A special certificate of approval shall be issued by the competent authority of the country of registration for each vehicle whose inspection yields satisfactory results. It shall be drawn up in the language or one of the languages of the country issuing it, and also, if that language is not English, or French, or German, in English, French or German, unless agreements concluded between the countries concerned in the transport operation provide otherwise. It shall conform to the model shown in Appendix B.3.

(3) A special certificate of approval issued by the competent authorities of one Contracting Party for a vehicle registered in the territory of that Contracting Party shall be accepted, so long as its validity continues, by the competent authorities of the other Contracting Parties.

(4) The validity of special approval certificates shall expire not later than one year after the date of the technical inspection of the vehicle preceding the issue of the certificate. However, in the case of tanks subject to compulsory periodic inspection this provision shall not have the result of requiring tightness (leakproofness) tests, hydraulic pressure tests or internal inspections of tanks to be carried out at intervals shorter than those laid down in Appendix B.1a and B.1c.

#### Instructions in writing

(1) As a precaution against any accident or emergency that may occur or arise during carriage, the driver shall be given instructions in writing specifying concisely:

(a) the nature of the danger inherent in the dangerous substances being carried, and the safety measures that need to be taken to avert it;

(b) the action to be taken and treatment to be given in the event of persons coming into contact with the goods being carried or with any substances which might escape therefrom;

(c) the measures to be taken in case of fire and, in particular, the fire-fighting equipment or equipment not to be used;

(d) the measures to be taken in case of breakage or deterioration of packagings or of the dangerous substances being carried, particularly where such dangerous substances have spilled over the road.

(2) These instructions shall be prepared for each dangerous substance or Class of dangerous substances by the manufacturer or the sender, in a language of the country of origin; where that language is not the same as those of the countries of transit or destination, the instructions shall also be drawn up in the language of those countries. A set of these instructions shall be kept in the driver's cab.

(3) These instructions shall be supplied to the carrier at the latest when the transport order is given, so as to

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enable him to take all necessary steps to ensure that the employees concerned are aware of these instructions and are capable of carrying them out efficiently.

### Section 2

Special requirements to be fulfilled by vehicles and their equipment

Rear protection for vehicles carrying fixed tanks, demountable tanks or batteries of receptacles

A bumper sufficiently resistant to rear impacts shall be fitted over the full width of the tank at the rear of the vehicle. There shall be a clearance of at least 100 mm between the rear wall of the tank and the rear of the bumper, this clearance being measured from the rearmost point of the tank wall or from projecting fittings or accessories in contact with the substance being carried.

Fire-fighting appliances

(1) Every transport unit carrying dangerous substances shall be equipped with

(a) at least one portable fire extinguisher of adequate total capacity, suitable for fighting a fire in the engine or in any other part of the transport unit, and such that, if it is used to fight a fire in the load, it does not aggravate the fire and, if possible, controls it; however, if the vehicle is equipped with a fixed fire extinguisher, automatic or easily brought into action, for fighting a fire in the engine, the portable extinguisher need not be suitable for fighting a fire in the engine;

(b) in addition to the equipment prescribed under (a) above, at least one portable fire extinguisher of adequate total capacity, suitable for fighting a fire in the load, and such that, if it is used to fight a fire in the engine or in any other part of the transport unit, it does not aggravate the fire and, if possible, controls it;

(2) The fire-extinguishing agents contained in the fire extinguisher with which a transport unit is equipped shall be such that they are not liable to release toxic gases into the driver's cab or under the influence of the heat of the fire.

(3) Where a transport unit comprises a trailer and the laden trailer is uncoupled and left on the public highway, at a distance from the drawing vehicle, the trailer shall be equipped with at least one fire extinguisher conforming to the provisions of sub-paragraph (1) (b) of this marginal.

### Section 2

Electrical equipment

The provisions concerning the electrical equipment of vehicles carrying various dangerous substances will be found in Appendix B.2.

Miscellaneous equipment

(1) Every transport unit carrying dangerous goods shall be equipped with:

(a) a tool kit for emergency repairs to the vehicle;

(b) for each vehicle, at least one scotch of a size suited to the weight of the vehicle and to the diameter of the wheels;

(c) two amber lights. These lights shall be independent of the electrical equipment of the vehicle and be so designed that their use cannot cause the goods being carried to ignite; they shall be steady or flashing.

(2) The provisions of sub-paragraph (1) (c) of this marginal shall not apply in the territory of the United Kingdom.

### Section 3

General service provisions

Fire-fighting appliances

The crew of the vehicle must know how to use the fire-fighting appliances.

Portable lighting apparatus

A vehicle may not be entered by persons carrying lighting apparatus comprising a flame. In addition, the lighting apparatus used shall not exhibit any metal surface liable to produce sparks.

Prohibition of smoking

Smoking shall be prohibited during handling operations, in the vicinity of packages awaiting handling, near halted vehicles, and inside the vehicles.

### Section 4

Special provisions concerning loading, unloading and handling

Limitation of the quantities carried

The fact that dangerous substances are enclosed in one or more containers shall not affect the weight limitations laid down by this Annex regarding carriage in a single vehicle or in a single transport unit.

Prohibition of mixed loading on one vehicle

Unless the contrary is explicitly prescribed by the provisions of the Sections 4 of Chapter II of this Annex, the prohibitions of mixed loading on one vehicle shall not apply to consignments of goods packed together in the manner permitted by the provisions on mixed packing contained in Annex A.

Compliance with the prohibitions on mixed loading shall be based on the danger labels of Appendix A.9, which shall be affixed to packages in accordance with the requirements laid down for the various Classes in Annex A.

Prohibition of mixed loading in one container

The prohibitions of mixed loading on one vehicle shall also be observed within each container.

Prohibition of mixed loading with goods contained in a container

For the purpose of the application of the prohibitions of mixed loading on one vehicle, no account shall be taken of substances contained in closed containers with complete sides.

Cleaning before loading

All the provisions in this Annex which relate to the cleaning of vehicles before loading shall also apply to the cleaning of containers.

Handling and stowage.

(1) The various components of a load comprising dangerous substances shall be suitably stowed on the vehicle and wedged by appropriate means to prevent them from being displaced in any way in relation to each other and to the walls of the vehicle.

(2) If the load comprises goods of different categories the packages of dangerous substances shall be separated from the other packages.

(3) All the provisions in this Annex which relate to the loading and unloading of vehicles and to the stowage and handling of substances shall also apply to the loading, stowage and unloading of containers on to and from vehicles.

(4) Nothing whatsoever may be loaded on top of a fragile package.

(5) A driver or a driver's assistant may not open a package containing dangerous substances.

Cleaning after unloading

(1) If, when a vehicle which has been loaded with packed

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dangerous substances is unloaded, some of the contents are found to have escaped from the packagings, the vehicle shall be cleaned as soon as possible and in any case before reloading.

(2) Vehicles which have been loaded with dangerous substances in bulk shall be suitably cleaned before reloading unless the new load consists of the same dangerous substance as did the preceding load.

(3) All the provisions of this Annex which relate to the cleaning or decontamination of vehicles shall also apply to the cleaning or decontamination of containers.

Loading and unloading of dangerous substances in containers.

The provisions of this Annex which relate to the loading and unloading of vehicles and the stowage and handling of dangerous substances shall also apply to the loading and unloading of dangerous substances in containers.

Running the engine during loading or unloading

Except where the engine has to be used to drive the pumps or other appliances for loading or unloading the vehicle and the laws of the country in which the vehicle is operating permit such use, the engine shall be shut off during loading and unloading operations.

#### Section 5

Special provisions concerning the operation of vehicle

Vehicle signs

(1) Transport units carrying dangerous substances specified in the ... 500 marginals shall display two rectangular reflectorized orange-coloured plates of 40 cm base and not less than 30 cm high, set in a vertical plane. The plates shall have a black border not more than 15 mm wide. They shall be affixed one at the front and the other at the rear of the transport unit, both perpendicular to the longitudinal axis of the transport unit. They shall be clearly visible.

Note. The colour of the orange plates in conditions of normal use should have chromaticity co-ordinates lying within the area on the chromaticity diagram formed by joining the following co-ordinates:

Chromaticity co-ordinates of points at the corners of the area on the chromaticity diagram.				
x	0.52	0.52	0.578	0.618
y	0.38	0.40	0.422	0.38

Luminance factor of reflectorized colour:  $B_r \geq 0.12$ .  
Reference centre E, Standard Illuminant C,  
normal incidence  $45^\circ$  and viewed at  $0^\circ$ .  
Co-efficient of reflex luminous intensity at an angle of illumination of  $5^\circ$ , viewed at  $0.2^\circ$ : not less than 20 candelas per lux per  $m^2$ .

(2) Transport units fixed tanks carrying only one of the substances listed in Appendix B.5 shall display orange-coloured plates as prescribed above, on which the identification numbers shown in that Appendix shall appear.

(3) However, where two different substances are carried in a transport unit consisting of a tank-vehicle drawing a tank-trailer, the vehicle and the trailer shall each display at both front and rear an orange-coloured plate bearing the respective identification numbers of the substances being carried.

(4) Where a number of different substances are carried on a tank-vehicle in separate tanks or tank-compartments, orange-coloured plates identically similar to those prescribed in paragraph (1), set parallel to the longitudinal axis of the vehicle and bearing the appropriate identifica-

tion numbers, shall be so displayed on the sides of each tank or tank-compartment as to be clearly visible. In this case the plates prescribed in paragraph (1) above shall display no number.

(5) The identification numbers shall be made up of black digits 100 mm high and of 15 mm stroke thickness. The hazard-identification number shall be inscribed in the upper part of the plate and the substance-identification number in the lower part; they shall be separated by a horizontal black line, 15 mm in stroke width, extending from side to side of the plate at mid height (see Appendix B.5). The identification numbers shall be indelible and shall remain legible after 15 minutes' engulfment in fire.

(6) The foregoing requirements are also applicable to empty tanks, uncleaned and not degassed. After the dangerous substances have been unloaded and the tanks been cleaned and degassed, the orange-coloured plates shall no longer be visible.

(7) Tank-vehicles shall also bear on both sides and at the rear the labels prescribed in Section 5 of each Class.

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Parking in general

No transport unit carrying dangerous substances may be parked without the parking brake's being applied.

Parking at night or when visibility is poor

(1) If a vehicle is parked at night, or when visibility is poor, and its lights are not working, the amber lights referred to in marginal 10 260 (1)(c) shall be placed on the road,

one about 10 m ahead of the vehicle, and the other about 10 m to the rear of the vehicle.

(2) The provisions of this marginal shall not apply in the territory of the United Kingdom.

Parking of a vehicle constituting a special danger

Without prejudice to the measures prescribed in marginal 10 505 above, if the nature of the dangerous substances carried in the parked vehicle constitutes a source of special danger to road-users (e.g. in the event of substances dangerous to pedestrians, animals or vehicles spilling over the road) and the crew of the vehicle is unable to eliminate the danger quickly, the driver shall alert the nearest competent authorities, or cause them to be alerted, immediately. He shall also, where necessary, take the measures prescribed in the instructions provided for in marginal 10 185.

Other provisions

As to provisions not included in this Chapter or in Chapter II of this Annex which concern the operation of vehicles carrying dangerous goods, the relevant measures adopted in this sphere by each Contracting Party on the basis of its domestic legislation and relating to domestic carriage shall be applicable to international carriage using its territory.

#### Section 6

Transitional provisions, derogations, and provisions peculiar to certain countries

Rapid procedure for authorizing derogations for the purpose of trials

For the purpose of carrying out the trials necessary with a view to amending the provisions of this Annex in order to adapt them to technological and industrial developments, the competent authorities of the Contracting Parties may agree directly among themselves to authorize certain transport operations in their territories by temporary derogation from the provisions of this Annex. The authority which has taken the initiative with respect to the temporary derogation so granted shall notify the competent service of the United Nations Secretariat of the derogation,

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which service shall bring it to the attention of the Contracting Parties.

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## Chapter II

### SPECIAL PROVISIONS APPLICABLE TO THE CARRIAGE OF DANGEROUS SUBSTANCES OF CLASSES 1 to 8

Classes 1a Explosive substances and articles

1b Articles filled with explosive substances

1c Limiters, fireworks and similar goods

#### Section 1

#### General

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-11 103

#### Types of vehicles

(See also marginals 11 105 and 11 106)

Dangerous substances of Classes 1a, 1b and 1c may be carried only in closed vehicles or in sheeted vehicles fitted with side boards and a tailboard. The sheet of a sheeted vehicle must be of impermeable material not readily inflammable. It must be tautened so as to cover the vehicle on all sides, with an overlap of not less than 20 cm down the sides of the vehicle, and be kept in position by lockable metal bars or chains.

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#### Categories of vehicles

For the purposes of this Annex, transport units authorized to carry dangerous substances of Classes 1a, 1b and 1c are classified as follows:

(1) «A» transport units: Transport units whose engines use a liquid fuel with a flash-point below 55° C.

(2) «B» transport units: Transport units whose engines use a liquid fuel with a flash-point of 55° C or more; this category B comprises the following sub-categories:

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#### Classes 1a, 1b and 1c

##### (a) «B.I.» transport units:

These have either no trailer or a trailer meeting the following conditions:

its coupling device is quickly detachable and is robust; and

it is fitted with an effective braking device acting on all the wheels, actuated by the drawing vehicle's service-brake control, and automatically stopping the trailer in the event of breakage of the coupling.

##### (b) «B.II.» transport units:

These have the following characteristics in addition to those of sub-category B.I.:

##### 1. Engine and exhaust system

The engine and the exhaust system are placed forward of the front wall of the body. The exhaust-pipe outlet is directed outwards from the vehicle.

##### 2. Fuel tank

The fuel tank is placed well away from the engine, the electric wiring and the exhaust-gas piping, and in such a manner that in the event of leakage from the tank the fuel drains directly on to the ground and cannot reach the load of explosives. The fuel tank is well away from the storage battery, or is at least separated from it by a leak-proof partition. It is so placed as to be so far as possible protected in a collision. The engine is not gravity-fed.

#### 3. Driver's cab

No inflammable material has been used in the construction of the driver's cab, except in the seating equipment.

Classes 1a, 1b and 1c

##### (c) «B.III.» transport units

These have all the characteristics of sub-category B.II and, in addition, their body exhibits the following features:

1. It is closed and has a continuous surface; it is separated from the driver's cab by a space of not less than 15 cm; it is robustly constructed in such a manner and of such materials that it adequately protects the goods carried; the materials used for the lining are incapable of producing sparks; the insulating and heat-resisting properties of the body are at all points at least equivalent to those of a partition consisting of a layer of asbestos board 5 mm thick between two metal walls or to those of a partition consisting of an outer metal wall lined with a layer of fire-proofed wood 10 mm thick.

2. The door or doors are provided with a lock and key; all joints and closures are of overlapping type. The door or doors must be so constructed as to reduce the strength of the body as little as possible.

#### Restrictions on the use of vehicles of certain categories

11106

(1) «A» transport units may carry only articles of Class 1b, 2° (b), 4° (a), (b) and (e), and of Class 1c, 1° (a) and 3°.

No special limitation of weight is prescribed for such carriage.

(2) «B.I.» transport units may carry

(a) without special weight limitations, articles of Class 1b, 2° (b) and 4°, and of Class 1c, 1° (a) and 3°;

(b) subject to the weight limitations prescribed in marginal 11 401, the dangerous substances referred to in that marginal.

(3) The provisions relating to restrictions, in the light of the weight and nature of the load, on the use of «B.II.» and «B.III.» transport units will be found in marginal 11 401.

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#### Carriage in containers

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Small containers shall satisfy the requirements prescribed in respect of the body of the vehicle for the transport operation concerned; it will then not be necessary for the body of the vehicle to satisfy those requirements.

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#### Crews of vehicles: Supervision

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(1) A driver's assistant shall be carried on every transport unit. If the national regulations so provide, the competent authority of a contracting country may require an approved official to be carried in the vehicle at the carrier's expense.

(2) The provisions of marginal 10 171 (2) shall apply only to the dangerous goods listed below in quantities exceeding those specified below:

Class 1a: Substances and articles of 1° - 14°: 5 Kg;

Class 1b: Articles of 1° (b), (c) and (d), 5° - 7° and 9° - 11°: 50 Kg; and

Class 1c: Articles of 21° - 23°: 50 Kg.

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#### Approval of vehicles

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The requirements of marginal 10 182 shall be applicable to «B.III.» transport units.

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## Section 2

Special requirements to be fulfilled by vehicles and their equipment	
Materials to be used in the construction of vehicle bodies	11200
In the construction of the body, no materials shall be used which are likely to form dangerous compounds with the explosives carried (e.g. lead in the case of the carriage of hexyl, picric acid, picrates, explosive organic nitro-compounds soluble in water, or explosives of an acid nature [see also marginal 11 105 (2) (c)].	
	11201
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Driver's cab	11216
[See marginal 11 105 (2) (b) 3.]	
	11217
	- 11224
Combination of drawing vehicle and trailer	11225
[See marginal 11 105 (2) (a)]	
	11226
	- 11230
Engine and exhaust system	11231
[See marginal 11 105 (2) (b) 1.]	
	11232
	- 11239
Fire-fighting appliances	11240
The provisions of marginal 10 240 (1) (b) and (3) shall not apply to the carriage of dangerous substances of Class 1c, 1° to 3°, 5° to 20°, 24°, 25° and 27°.	
	11241
	11250
Electrical equipment	11251
(1) The rated voltage of the electric lighting system shall not exceed 24 V.	
(2) No circuit shall be installed inside the bodies of «B.II» and «B.III» transport units.	
(3) The provisions of Appendix B.2, marginal 220 000(2), shall not apply to the electrical equipment of vehicles carrying articles of Class 1c, 1° (a) and 3°, or carrying articles of Class 1c, 1° (b) in a quantity not exceeding 500 kg.	
(4) The provisions of Appendix B.2, marginal 220 000 (2) (a) and (c), shall not apply to the electrical equipment of vehicles carrying dangerous substances of Class 1c, 2°, 5° to 20°, 24°, 25° and 27°, or carrying articles of Class 1c, 1° (b) in a quantity exceeding 500 kg.	
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## Section 3

General service provisions (No special provisions)	11300
	- 11399

## Classes 1a, 1b and 1c

## Section 4

Special provisions concerning loading unloading and handling	
Method of despatch and restrictions on forwarding	11 400
Substances of Class 1a, 13° and 14° (a) and (b), may	

be carried only as a complete load. However, packages weighing not more than 10 kg and handed over for carriage in a quantity not exceeding 100 Kg may be carried otherwise than as a complete load.

## Limitation of the quantities carried.

11 401

The quantity of dangerous substances of Classes 1a, 1b and 1c which may be carried on one transport unit shall be limited as follows (see also Marginals 11 402 and 11 403 as regards the prohibition of mixed loading).

## (1) A «B.I» transport unit may carry only

- (a) one of the loads authorized by marginals 11 106 (1) and (2) (a); or
- (b) not more than 500 Kg of articles of Class 1c, 1° (b); or
- (c) not more than 300 Kg of substances of Class 1a, 12°; or
- (d) not more than 100 Kg of substances of Class 1a 11°, 13° and 14°.

## (2) A «B.II» transport unit may carry only

- (a) one of the loads authorized in (1) above for «B.I» transport units; or
- (b) not more than 500 Kg of substances of Class 1a, 1° to 10° and 12°; of articles of Class 1b, 1° to 4° and 6° to 11°; or of dangerous substances of Class 1c. However, substances of Class 1a, 3°, 4° and 5° must be packed in accordance with what is prescribed for consignments carried otherwise than as a complete load.

## (3) A «B.III» transport unit may carry only

- (a) one of the loads authorized in (2) above for «B.II» transport units; or,
- (b) provided that the weight of the load, of dangerous substances does not exceed 90 per cent of the weight of the load of ordinary goods declared permissible for the vehicle by the competent authority of the country of registration of the vehicle, not more than 9,000 kg of the dangerous substances of Classes 1a, 1b or 1c per articulated vehicle or vehicle without trailer, or than 15,000 kg of those dangerous substances per transport unit of another kind. However, if the load includes one or more substances of Class 1a, 11°, 13° or 14° or one or more substances of Class 1b, 5°, 6° and 11°, these limits shall be reduced to 6,000 kg and 10,000 kg respectively.

## Prohibition of mixed loading on one vehicle

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(1) Substances and articles of Class 1a shall not be loaded together on one vehicle with:

- (a) articles of Class 1b enclosed in packages bearing two labels conforming to model No 1; with
- (b) packages bearing a label of any of the models Nos 2D, 4, 4A, 6A, 6B and 6C; or with
- (c) packages bearing a label or two labels or any of the models Nos. 2A, 2B, 2C and 5.

(2) Articles of Class 1b enclosed in packages bearing a label conforming to model No 1 shall not be loaded together on one vehicle with:

- (a) articles of Class 1b enclosed in packages bearing two labels conforming to model No 1; with
- (b) packages bearing a label of any of the models Nos 2D, 4, 4A, 6A, 6B and 6C; or with
- (c) packages bearing a label or two labels of any of the models Nos 2A, 2B, 2C, 3 and 5.

(3) Articles of Class 1b enclosed in packages bearing two labels conforming to model No 1 shall not be loaded together on one vehicle with:

- (a) substances or articles of Classes 1a, 1b or 1c enclosed in packages bearing a label conforming to model No 1; or with
- (b) the substances indicated under (2) (b) and (2) (c) above,

(4) Articles of Class 1c enclosed in packages bearing a label conforming to model No 1 shall not be loaded together in one vehicle with:

- (a) articles of Class 1b enclosed in packages bearing two labels conforming to model No 1; with
- (b) packages bearing a label of any of the models Nos. 2D, 4, 4A, 6A, 6B and 6C; or with
- (c) packages bearing a label or two labels of any of the models Nos. 2A, 2B, 2C, 3 and 5.

Prohibition of mixed loading with goods contained in a container 11 405

(1) The prohibitions of mixed loading of goods laid down in marginal 11 403 shall apply within each container.

(2) The provisions of marginal 11 403 shall apply as between the dangerous substances contained in a container and the other dangerous substances loaded on the same vehicle, whether or not the latter substances are enclosed in one or more other containers.

Places of loading and unloading

(1) The following operations are prohibited:

(a) loading or unloading dangerous substances of Classes 1a, 1b and 1c in a public place in a built-up area without special permission from the competent authorities;

(b) loading or unloading dangerous substances of the said Classes in a public elsewhere than in a built-up area without prior notice there of having been given to the competent authorities, unless the said operations are justified for serious reasons of safety.

(2) If, for any reason, handling operations have to be carried out in a public place, then:

— substances and articles of different kinds shall be separated according to the labels; and

packages fitted with handles or supports shall be kept flat.

Cleaning before loading

Before dangerous substances of Classes 1a, 1b, or 1c are loaded, all remnants of straw, rags, paper and similar materials, and all iron objects (nails, screws, etc) not being an integral part of the body of the vehicle, shall be removed.

Handling and stowage

(1) The use of readily inflammable materials for stowing packages in vehicles is prohibited.

(2) Packages containing dangerous substances of Classes 1a, 1b and 1c shall be loaded in such a manner that they can be unloaded one by one at the point of destination without its being necessary to rearrange the load.

(3) Packages shall be so stowed in the vehicle that they cannot be displaced therein. They shall be protected against any friction or impact. If casks are carried lying on their sides, they shall be so arranged that their longitudinal axis lies parallel to that of the vehicle, and wooden wedges shall be applied to prevent any lateral movement.

#### Section 5

Special provisions concerning the operation of vehicles

Vehicle signs

The provisions of marginal 10 500, paragraphs (1) and (6), shall apply to the carriage of dangerous substances of Classes 1a, 1b and 1c.

Halts for passage through Customs

When a transport unit or convoy of vehicles carrying dangerous substances of Classes 1a, 1b, and 1c is to pass a frontier Customs post, the transport unit (or convoy) shall stop at least 50 m from the Customs post. The driver's assistant shall proceed to the Customs post to inform the authorities of the arrival of the transport unit (or convoy) carrying dangerous substances.

Halts of limited duration for service requirements

So far as is possible, halts, for service requirements shall not be made near inhabited places or places of resort. A halt near such a place may not be prolonged except with the agreement of the competent authorities.

Convoys

(1) When vehicles carrying dangerous substances of Classes 1a, 1b and 1c travel in convoy, a distance of not less than 80 m shall be maintained between each transport unit and the next.

(2) If, for any reason, the convoy is obliged to halt and if, in particular, loading or unloading operations have to be carried out in a public place, a distance of not less than 50 m shall be maintained between the halted vehicles.

(3) The competent authorities may lay down rules for the order or composition of convoys.

11 521  
11 599

#### Section

Transitional provisions, derogations, and provisions peculiar to certain countries

11 600  
11 604  
11605

Transitional provisions

By derogation from article 4, paragraph 2, of the Agreement, vehicles which were in service in the territory of a Contracting Party at the time of the entry into force of this Annex or were put into service there within two months after its entry into force may be used for the international carriage of dangerous substances of Classes 1a, 1b and 1c only during a period of one year from such entry into force if their design and equipment do not fully satisfy the requirements laid down in this Annex for such carriage.

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11 610

Provisions peculiar to certain countries.

The carriage of dangerous substances of Classes 1a, 1b and 1c shall be subject in the territory of the United Kingdom to the regulations in force in that country at the time of carriage.

11 611  
20 999

#### Class 2

Gases: compressed, liquefied or dissolved under pressure

##### Section 1

##### General

21000-  
21117  
21118

Carriage in containers

The carriage in small containers of packages containing gases of 7<sup>o</sup>(a) and 8<sup>o</sup>(a) is prohibited.

21119-  
21120  
21121

Carriage in tanks

(1) Gases of Class 2 other than those listed below may be carried in fixed tanks, in demountable tanks, or in batteries of receptacles: fluorine and silicon tetrafluoride [1<sup>o</sup>(a t)]; nitric oxide [1<sup>o</sup>(c t)]; mixtures of hydrogen with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume; mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume [2<sup>o</sup>(b t)]; mixtures of hydrogen with not more than 10 per cent diborane by volume; mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent diborane by volume [2<sup>o</sup>(c t)]; boron chloride, chlorine trifluoride, nitrosyl chloride, sulphuryl fluoride and tungsten hexafluoride [3<sup>o</sup>(a t)]; methylsilane [3<sup>o</sup>(b)]; arsine, dichlorosilane, dimethylsilane, hydrogen selenide and trimethylsilane [3<sup>o</sup>(b t)]; cyanogen, cyanogen chloride and ethylene oxide [3<sup>o</sup>(c t)]; mixtures of methylsilanes [4<sup>o</sup>(b t)]; ethylene oxide containing not more than 50 per cent methyl formate by weight [4<sup>o</sup>(c t)]; silane [5<sup>o</sup>(b)]; substances of 5<sup>o</sup>(b t) and (c t); dissolved acetylene [9<sup>o</sup>(c)]; and gases of 12<sup>o</sup> and 13<sup>o</sup>.

11 415  
11 499

11 500

11 501

11 507

11 508

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11 520

#### Class 2

(2) Cases of Class 2 other than those listed below may be carried in tank-containers: fluorine and silicon tetrafluoride

21121

ride [1°(a t)]; nitric oxide [1°(c t)]; mixtures of hydrogen with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume; mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume [2°(b t)]; mixtures of hydrogen with not more than 10 per cent diborane by volume; mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent diborane by volume [2°(c t)]; boron chloride, chlorine trifluoride, nitrosyl chloride, sulphuryl fluoride and tungsten hexafluoride [3°(a t)]; methylsilane [3°(b)]; arsine, dichlorosilane, dimethylsilane, hydrogen selenide and trimethylsilane [3°(b t)]; cyanogen, cyanogen chloride and ethylene oxide [3°(c t)]; mixtures of methylsilanes [4°(b t)]; ethylene oxide containing not more than 50 per cent methyl formate by weight [4°(c t)]; silane [5°(b)], and the gases of 12° and 13°. However, chlorine and phosphine [3°(a t)] shall not be carried in tank-containers of a cubic capacity exceeding 1 m<sup>3</sup>.

(3) Tank-containers containing substances of 1°(b); 2°(b); 3°(b); chloroethane (ethyl chloride) or dimethyl ether of 3°(b t); substances of 3°(c); vinyl bromide or methyl vinyl ether of 3°(c t); or substances of 4°(b), 4°(c), 5°(b), 5°(c), 6°(c), 7°(b) or 8°(b) shall bear on both their sides a label conforming to model No. 2A.

Tank-containers containing oxygen of 1°(a); boron trifluoride of 1°(a t); mixtures containing more than 20 per cent oxygen by volume, of 2°(a); nitrous oxide of 5°(a); nitrous oxide or oxygen of 7°(a); or liquid air or mixtures containing more than 20 per cent oxygen by weight of 8°(a), shall bear on both their sides a label conforming to model No.

Tank-containers containing ammonia, bromomethane, chlorine or sulphur dioxide, of 3°(a t), or ethylene oxide containing not more than 10 per cent by weight carbon dioxide, of 4°(c t), shall bear on both their sides a label conforming to model No. 4.

Tank-containers containing gases of 1°(b t) or 2°(b t), or dimethylamine, ethylamine, hydrogen sulphide, methylamine, methyl chloride, methyl mercaptan, or trimethylamine, of 3°(b t), shall bear on both their sides labels conforming to models Nos. 2A and 4.

Tank-containers containing nitrous dioxide or phosgene of 3°(a t) shall bear on both their sides labels conforming to models Nos. 3 and 4.

Tank-containers containing hydrogen bromide of 3°(a t) or hydrogen chloride of 5°(a t) shall bear on both their sides labels conforming to models Nos. 4 and 5.

#### Class 2

##### Empty tanks

(1) For empty fixed tanks, empty batteries of receptacles and empty demountable tanks, see Annex A, marginal 2201, 14°, Note 1.

(2) For tank-containers, see marginal 212 177.

##### Crews of vehicles: Supervision

The provisions of marginal 10 171 (2) shall apply only to the dangerous goods listed below in quantities exceeding the weights indicated:

– boron trifluoride and fluorine [1°(a t)]; the substances of 3°(a t); of 3°(b t) other than dimethyl ether and ethyl chloride; and of 3°(c t); hydrogen chloride of 5°(a t); and the deeply-refrigerated liquefied gases of 7°(a) and 8°(a): 1,000 kg

– the substances of 3°(b); dimethyl ether and ethyl chloride of 3°(b t); vinyl chloride of 3°(c); the substances of

4°(b); and the inflammable liquefied gases of 7°(b) and 8°(b): 10,000 kg

21172-  
21199

#### Class 2

##### Section 2

Special requirements to be fulfilled by vehicles and their equipment

21200-  
21211  
21212

##### Ventilation

If packages containing gases of 1° to 6° and 9°(c) are carried in a closed vehicle, the vehicle shall be provided with adequate ventilation.

21213-  
21230  
21231

##### Engine and exhaust system

The engine of a vehicle carrying a gas of Class 2 in a fixed tank, in a demountable tank or in a battery of receptacles, and where appropriate the engine driving the decanting pump, shall be so equipped and placed, and the exhaust pipes so directed or protected, as to avoid any danger to the load through heating or ignition.

21232-  
21239  
21240

##### Fire-fighting appliances

The provisions of marginal 10 240 (l) (b) and (3) shall not apply to carriage other than that of inflammable gases or articles listed in marginal 220 002, or of empty packagings of 14° which have contained such gases.

21241-  
21250  
21251

##### Electrical equipment

The provisions of appendix B.2 shall not apply to carriage other than that of inflammable gases or articles listed in marginal 220002, or of empty packagings of 10° which have contained such gases.

21252-  
21259  
21260

##### Special equipment

When compressed gases or liquefied gases harmful to the respiratory organs of entailing a poison risk and identified by the letter «t» in the list of substances are being carried, the crew of the vehicle shall be provided with gas masks (respirators) of a type appropriate to the gases being carried.

21261-  
21299

#### Class 2

##### Section 3

General service provisions

21129-  
21170  
21171

##### Portable lighting apparatus

When inflammable gases or articles listed in marginal 220002 are being carried, a closed vehicle may not be entered by persons carrying lighting apparatus other than portable lamps so designed and constructed that they cannot ignite any gases which may have penetrated into the interior of the vehicle.

21300-  
21352  
21353

21354-  
21399



## Class 2

## Section 4

Special provisions concerning loading, unloading, and handling

Method of dispatch and restrictions on forwarding 21400

Carbon dioxide and nitrous oxide of 7°(a), mixtures containing carbon dioxide and nitrous oxide of 8°(a), and the gases of 7°(b) and 8°(b) may be carried only in fixed tanks, in demountable tanks, in batteries of receptacles or in tank-containers.

Prohibition of mixed loading on one vehicle

Articles of Class 2 enclosed in packages bearing a label conforming to model No.2A shall not be loaded together on one vehicle with substances or articles of Classes 1a, 1b or 1c enclosed in packages bearing a label or two labels conforming to model No. 1.

Places of loading and unloading

(1) The following operations are prohibited:

(a) loading or unloading the following substances in a public place in a built-up area without special permission from the competent authorities: hydrogen bromide, chlorine, nitrogen dioxide, sulphur dioxide or phosgene [3°(a t)]; hydrogen sulphide [3°(b t)]; and hydrogen chloride [5°(a t)];

(b) loading or unloading the substances listed under (a) above in a public place elsewhere than in a built-up area without prior notice there of having been given to the competent authorities, unless the said operations are justified for serious reasons of safety.

(2) If for any reason handling operations have to be carried out in a public place, then:

- substances and articles of different kinds shall be separated according to the labels; and
- packages fitted with means of handling shall be kept flat while being handled.

## Class 2

Handling and stowage

(1) Packages shall not be thrown or subjected to impact.

(2) Receptacles shall be so stowed in the vehicle that they cannot overturn or fall and that the following requirements are met:

(a) the cylinders referred to in marginal 2212 (1) (a) shall be laid parallel to or at right angles to the longitudinal axis of the vehicle; however, those situated near the forward transverse wall shall be laid at right angles to the said axis.

Short cylinders of large diameter (about 30 cm and over) may be stowed longitudinally with their valve-protecting devices directed towards the middle of the vehicle.

Cylinders which are sufficiently stable or are carried in suitable devices effectively preventing them from overturning may be placed upright.

Cylinders which are laid flat shall be so welded or attached that they cannot shift;

(b) receptacles containing gases of 7°(a) or 8°(a) shall always be placed in the position for which they were designed and be protected against any possibility of being damaged by other packages.

## Class 2

## Section 5

Special provisions concerning the operation of vehicles

Vehicle signs 21500

(1) The provisions of marginal 10 500, paragraphs (1) and (6) shall apply to the carriage of dangerous substances of Class 2. The provisions of paragraphs (2) to (5) shall additionally apply to the carriage of substances listed in Appendix B.5.

(2) Fixed tanks containing or (empty tanks, uncleaned) having contained substances listed in Appendix B.5 shall in addition bear the following labels on both sides and at the rear:

Air, liquefied	3
Ammonia, anhydrous	4
Butadiene	2A
Butane	2A
Butylene	2A
Chlorine	4
Cyclopropane	2A
Dimethyl ether	2A
Ethyl chloride	2A
Ethylene	2A
Ethylene, liquid (refrigerated)	2A
Hydrocarbons, mixtures of (Mixtures A, A0, A1, B and C)	2A
Hydrogen bromide	4+5
Hydrogen chloride	4+5
Isobutane	2A
Isobutylene	2A
Methane, liquid (refrigerated)	2A
Methylamine, anhydrous	4
Methyl bromide	4
Methyl chloride	2A+4
Methyl vinyl ether	2A
Natural gas, liquid (refrigerated)	2A
Nitrogen dioxide NO <sub>2</sub>	3+4
Nitrous oxide N <sub>2</sub> O	3
Oxygen (refrigerated)	3
Phosgene	3+4
Propylene	2A
Trimethylamine, anhydrous	2A+4
Vinyl chloride	2A

21401-  
21402  
21403

21404-  
21406  
21407

21408-  
21413

21414

21415-  
21499

## Class 2

Halts of Limited duration for service requirements 21509

In the carriage of dangerous substances of Class 2 other than those of 1°, (a) and (at); 7° (a); 8° (a); and 10°, halts for service requirements shall so far as possible not be made near inhabited places or places of resort. A halt near such a place may not be prolonged except with the agreement of the competent authorities.

21510

21599

## Class 2

## Section 6

Transitional provisions, derogations and provisions peculiar to certain countries

21600

21609

Provisions peculiar to certain countries 21610

The carriage of dangerous substances of Class 2 shall be subject in the territory of the United Kingdom to the regulations in force in that country at the time of carriage.

21611

30999

<p style="text-align: center;">Class 3</p> <p style="text-align: center;">Inflammable Liquids</p> <p style="text-align: center;">Section 1 General</p> <p>Carriage in containers</p> <p style="padding-left: 20px;">Fragile packages within the meaning of marginal 10102 (1) may not be carried in small containers.</p> <p>Carriage in tanks</p> <p style="padding-left: 20px;">(1) All the liquids of Class 3 except nitromethane (3°) may be carried in fixed tanks and in demountable tanks.</p> <p style="padding-left: 20px;">(2) All substances of Class 3 except nitromethane (mononitromethane) (3°) may be carried in tank-containers,</p> <p style="padding-left: 20px;">(3) The following substances may be carried in reinforced-plastics tanks conforming to the provisions of Appendix B.1c:</p> <p style="padding-left: 40px;">Crude petroleum and other crude oils; volatile products from the distillation of crude petroleum and of other crude oils (1°(a)).</p> <p style="padding-left: 40px;">Semi-heavy products from the distillation of petroleum and of other crude oils (3°).</p> <p style="padding-left: 40px;">Heating oils and diesel oils (4°).</p> <p>Empty tanks</p> <p style="padding-left: 20px;">(1) To be accepted for carriage, empty fixed tanks and empty demountable tanks which have contained inflammable liquids of Class 3 shall be closed in the same manner and leak-proof in the same degree as though they were full.</p> <p style="padding-left: 20px;">(2) For tank-containers, see marginal 212177.</p> <p>Crews of vehicles; Supervision</p> <p style="padding-left: 20px;">The provisions of marginal 10171 (2) shall apply only to the dangerous goods listed below in quantities exceeding those specified below:</p>	<p>31000</p> <p>31117</p> <p>31118</p> <p>31119</p> <p>31120</p> <p>31121</p> <p>31122</p> <p>31127</p> <p>31128</p> <p>31129</p> <p>31170</p> <p>31171</p> <p>31172</p> <p>31199</p> <p>31200</p> <p>31215</p> <p>31216</p> <p>31217</p> <p>31230</p> <p>31231</p> <p>31232</p>	<p>petrol engine shall be fitted with a filter capable of serving as a flame-trap.</p> <p>Fuel tank</p> <p style="padding-left: 20px;">The fuel tank supplying the engine of a vehicle carrying a liquid of 1° in a fixed tank or in a demountable tank shall be so placed that it is protected so far as possible against forceful impact and that in the event of leakage of fuel the latter can drain directly to the ground. The fuel tank shall in no circumstances be placed directly above the exhaust pipe. If the tank contains petrol, it shall be equipped with an efficient flametrap fitting the filler hole or with a device by which the filler hole can be kept hermetically closed.</p> <p>Electrical equipment</p> <p style="padding-left: 20px;">The provisions of Appendix B.2, marginal 220000, shall not apply to the carriage of dangerous substances of Class 3 other than inflammable liquids of 1°, 2° and 3° and acetaldehyde, acetone and acetone mixtures of 5°.</p>	<p>31233</p> <p>31234</p> <p>31235</p> <p>31236</p> <p>31250</p> <p>31251</p> <p>31252</p> <p>31299</p> <p style="text-align: center;">Class 3</p> <p style="text-align: center;">Section 3</p> <p style="text-align: center;">General service provisions</p> <p>31300</p> <p>31352</p> <p>31353</p> <p>Use of portable lighting apparatus</p> <p style="padding-left: 20px;">A closed vehicle may not be entered by persons carrying lighting apparatus other than portable lamps so designed and constructed that they cannot ignite any gas which may have penetrated into the interior of the vehicle.</p> <p>31354</p> <p>31399</p> <p style="text-align: center;">Class 3</p> <p style="text-align: center;">Section 4</p> <p style="text-align: center;">Special provisions concerning loading, unloading and handling</p> <p>31400</p> <p>31402</p> <p>31403</p> <p>Prohibition of mixed loading on one vehicle</p> <p style="padding-left: 20px;">(1) Liquids of Class 3 enclosed in packages bearing a label or two labels conforming to model No. 2A shall not be loaded together on one vehicle with substances or articles of Classes 1a, 1b or 1c enclosed in packages bearing a label or two labels conforming to model No. 1.</p> <p style="padding-left: 20px;">(2) Substances of Class 3 enclosed in packages bearing two labels conforming to model No. 2A shall not be loaded together on one vehicle with:</p> <p style="padding-left: 40px;">(a) substances of Classes 5.1 or 5.2 enclosed in packages bearing two labels conforming to model No. 3; or with</p> <p style="padding-left: 40px;">(b) liquids of Class 8 enclosed in packages bearing two labels conforming to model No. 5.</p> <p>31404</p> <p>31413</p> <p>31414</p> <p>Handling and stowage</p> <p style="padding-left: 20px;">The use of readily inflammable materials for stowing packages in vehicles is prohibited.</p> <p>31415</p> <p>31416</p> <p>Precautions against electrostatic charges</p> <p style="padding-left: 20px;">Before filling or emptying reinforced-plastics tanks with substances with a flash point of 55° C or lower, measures shall be taken in order to establish a good electrical connexion from the vehicle chassis to earth.</p> <p style="padding-left: 20px;">The filling rate for substances with a flash point of 55° C or lower shall be limited so as to avoid the generation of unsafe electrostatic charges.</p> <p>31417</p> <p>31418</p> <p>31499</p>
<p style="text-align: center;">Class 3</p> <p style="text-align: center;">Section 2</p> <p style="padding-left: 20px;">Special requirements to be fulfilled by vehicles and their equipment</p> <p>Cab</p> <p style="padding-left: 20px;">No readily-inflammable material shall be used in the construction of the cabs of vehicles carrying, liquids of 1° in fixed tanks or in demountable tanks.</p> <p>Engine and exhaust system</p> <p style="padding-left: 20px;">The engine of a vehicle carrying a liquid of 1° in a fixed tank or a demountable tank shall be so constructed and placed, and the exhaust pipe so directed or protected, as to avoid any danger to the load through heating or ignition.</p> <p>Air-intake piping</p> <p style="padding-left: 20px;">In the case of vehicles carrying liquids of 1° in fixed tanks or in demountable tanks, the intake pipe of every</p>	<p>31200</p> <p>31215</p> <p>31216</p> <p>31217</p> <p>31230</p> <p>31231</p> <p>31232</p>	<p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p>	<p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p>

Class 3 Section 5		(2) These same substances may also be carried in tank-containers.	41122 41127 41128
Special provisions concerning the operation of vehicles Vehicle signs	31500	Class 4.1 Empty tanks For tank-containers, see marginal 212177.	41129 41170 41171
(1) The provisions of marginal 10500, paragraphs (1) and (6), shall apply to the carriage of substances of 1°, 3°, 4° and 5°. The provisions of paragraphs (2) to (5) shall also apply to the carriage of substances listed in Appendix B.5.		Crews of vehicles; Supervision	
(2) Fixed tanks containing substances listed in Appendix B.5 shall in addition bear on both sides and at the rear a label conforming to model No. 2A; those containing or (empty tanks, uncleaned) having contained acrylaldehyde (acrolein) or chloroprene (chlorobutadiene [1° (a)] or methanol (methyl alcohol) (5°) shall in addition bear labels conforming to model No. 4.	31501 31599	(1) A driver's assistant shall be carried on every transport unit carrying more than 300 kg of substances of 6°. (2) The provisions of marginal 10171 (2) shall apply only to the dangerous goods listed below in quantities exceeding those specified below: The substances of 7°(a), (b) and (c): 1,000 kg.	41172 41199
Class 3 Section 6		Class 4.1 Section 2	
Transitional provisions, derogations, and provisions peculiar to certain countries	31600 31604 31605	Special requirements to be fulfilled by vehicles and their equipment	41200 41250 41251
Transitional provisions		Electrical equipment	
Tanks which were in service in the territory of a Contracting Party at the time of the entry into force of the Agreement under article 7, paragraph 1, or were put into service there within two months after its entry into force, may be used for the international carriage of dangerous substances during a period of three years from such entry into force even if their design and equipment do not fully satisfy the requirements laid down in Appendix B.1.		The provisions of Appendix B.2, marginal 220000, shall not apply to carriage other than that of substances of 3° to 7°.	41252 41299
Provisions peculiar to certain countries	31606 31609 31610	Class 4.1 Section 3	
The carriage of liquids of Class 3 whose flash-point is below 23° C shall be subject in the territory of the United Kingdom to the regulations in force in that country at the time of carriage.		General service provisions	41300 41399
Class 4.1 Inflammable solids		(No special provisions)	
Section 1 General		Class 4.1 Section 4	
Types of vehicles	31611 40999	Special provisions concerning loading, unloading and handling	
Packages containing substances of 4° to 8° shall be loaded on to closed vehicles or on to sheeted vehicles.		Method of despatch and restrictions on forwarding	41400
Carriage in bulk		Sulphur in the melted state [2°(b)] and naphthalene in the melted state [11°(c)] may be carried only in tank-vehicles and tank-containers.	41401 41402 41403
(1) Sulphur of 2° (a) may be carried in bulk.		Prohibition of mixed loading on one vehicle	
(2) Naphthalene of 11° (a) and (b) may be carried in bulk; it must in that case be carried in closed vehicles with a metal body or in sheeted vehicles with a non-inflammable sheet and either having a metal body or having a sheet of closely-woven material spread on the floor. For the carriage of naphthalene of 11°(a), the floors of vehicles shall be protected by an oil-proof lining.	41000 41103 41104	(1) Substances of Class 4.1 enclosed in packages bearing a label or two labels conforming to model No. 2B shall not be loaded together on one vehicle with substances or articles of Classes la, lb or lc enclosed in packages bearing a label or two labels conforming to model No.1.	
Carriage in containers		(2) Substances of Class 4.1 enclosed in packages bearing two labels conforming to model No. 2B shall not be loaded together on one vehicle with:	
For the carriage of naphthalene of 11°(a) and (b), small wooden containers shall be fitted with an oil-proof lining.	41105 41110 41111	(a) substances of Classes 5.1 or 5.2 enclosed in packages bearing two labels conforming to model No. 3; or with	
Carriage in tanks		(b) liquids of Class 8 enclosed in packages bearing two labels conforming to model No. 5.	41404 41499
(1) Sulphur (2°), phosphorus sesquisulphide, phosphorus pentasulphide (8°) and naphthalene (11°) may be carried in fixed tanks or in demountable tanks.		Class 4.1 Section 5	
	41112 41117 41118	Special provisions concerning the operation of vehicles Vehicle signs	41500
		(1) The provisions of marginal 10500, paragraphs (1) and (6), shall apply to the carriage of substances of 2°(b), 4° to 8° and 11°(c). The provisions of paragraphs (2) to (5) shall also apply to the carriage of substances listed in Appendix B.5.	
	41119 41120 41121	(2) Fixed tanks containing or (empty tanks, uncleaned) having contained substances listed in Appendix B.5 shall in addition bear on both sides and at the rear a label conforming to model No. 2B.	41501 41599
		Section 6	
		Transitional provisions, derogations, and provisions peculiar to certain countries	41600 41999
		(No special provisions)	

<p style="text-align: center;">Class 4.2 Substances liable to spontaneous combustion Section 1 General</p>	<p style="text-align: center;">Section 4 Special provisions concerning loading, unloading and handling</p>	<p style="text-align: right;">42400 42402 42403</p>
<p>Types of vehicles</p> <p>42104</p> <p>42105 42110 42111</p>	<p>Prohibition of mixed loading on one vehicle</p> <p>(1) Substances of Class 4.2 enclosed in packages bearing a label or two labels conforming to model No.2 C shall not be loaded together on one vehicle with substances or articles of Classes 1a, 1b or 1c enclosed in packages bearing a label or two labels conforming to Model No. 1.</p> <p>(2) Substances of 4° enclosed in packages bearing two labels conforming to model No. 2 C shall not be loaded together on one vehicle with:</p> <p>(a) substances of Classes 5.1 or 5.2 enclosed in packages bearing two labels conforming to model No. 3; or with</p> <p>(b) liquids of Class 8 enclosed in packages bearing two labels conforming to model No. 5.</p>	<p style="text-align: right;">42404 42413 42414</p>
<p>Carriage in bulk</p> <p>Substances of 5°, dust from blast-furnace filters [6°(a)] and substances of 10° may be carried in bulk. Substances of 5° and 10° shall in that case be carried in closed vehicles with a metal body, and dust from blast-furnace filters in closed vehicles with a metal body or in sheeted vehicles with a metal body.</p>	<p>(a) substances of Classes 5.1 or 5.2 enclosed in packages bearing two labels conforming to model No. 3; or with</p> <p>(b) liquids of Class 8 enclosed in packages bearing two labels conforming to model No. 5.</p>	<p style="text-align: right;">42404 42413 42414</p>
<p>Carriage in tanks</p> <p>(1) White or yellow phosphorus (1°) and newly-quenched charcoal, powdered or granulated, (8°) may be carried in fixed tanks or in demountable tanks.</p> <p>(2) White or yellow phosphorus (1°), aluminium alkyls, halides and hydrides of aluminium alkyls (3°) and newly-quenched charcoal, powdered or granulated, (8°) may be carried in tank-containers.</p>	<p>Handling and stowage</p> <p>(1) Receptacles and packages containing substances of 1° and 3° must not be subjected to impact. They shall be so placed in the vehicle that they cannot overturn or fall or be displaced in any way.</p> <p>(2) The use of readily inflammable materials for stowing packages in vehicles is prohibited.</p>	<p style="text-align: right;">42415 42499</p>
<p>Empty tanks</p> <p>(1) To be accepted for carriage, empty fixed tanks and empty demountable tanks which have contained phosphorus of 1° shall either</p> <p>- be filled with nitrogen, in which case the transport document shall be required to certify that the tank, after closure, is gas-tight; or</p> <p>- be filled to not less than 96 per cent of their capacity with water; between 1 October and 31 March this water shall contain, in a concentration making it impossible for the water to freeze during carriage, one or more non-corrosive anti-freezing agents not liable to react with phosphorus.</p> <p>(2) For tank-containers, see 212177 and 212474.</p>	<p>Section 5 Special provisions concerning the operation of vehicles Vehicle signs</p> <p>(1) The provisions of marginal 10500, paragraphs (1) and (6), shall apply to the carriage of substances of 1° to 4° and 6°. The provisions of paragraphs (2) to (5) shall also apply to the carriage of substances listed in Appendix B.5.</p> <p>(2) Fixed tanks containing or (empty tanks, uncleaned) having contained substances listed in Appendix B.5 shall in addition bear on both sides and at the rear a label conforming to model No. 2C.</p>	<p style="text-align: right;">42500</p>
<p>Crews of vehicles; Supervision</p> <p>(1) A driver's assistant shall be carried on every transport unit carrying substances of 1°, 2°, 3° and 4°.</p> <p>(2) The provisions of marginal 10171 (2) shall apply only to the dangerous goods listed below in quantities exceeding those specified below:</p> <p>- The substances of 1° - 3°, powder of zirconium of 6°(a) and metals in a pyrophoric form of 6°(d): 10,000kg</p>	<p>Section 6 Transitional provisions, derogations, and provisions peculiar to certain countries</p> <p>(No special provisions)</p>	<p style="text-align: right;">42501 42599</p>
<p style="text-align: center;">Section 2 Special requirements to be fulfilled by vehicles and their equipment</p>	<p style="text-align: center;">Class 4.3 Substances which give off inflammable gases on contact with water Section 1 General</p>	<p style="text-align: right;">42600 42999</p>
<p>Electrical equipment</p> <p>The provisions of Appendix B.2, marginal 220000, shall not apply to the carriage of dangerous substances of Class 4.2.</p>	<p>Class 4.3 Substances which give off inflammable gases on contact with water Section 1 General</p> <p>Types of vehicles</p> <p>Dangerous substances of Class 4.3. in packages shall be loaded on to closed or sheeted vehicles. However, receptacles containing calcium carbide [2°(a)] may also be loaded on to open vehicles.</p>	<p style="text-align: right;">43000- 43103 43104</p>
<p style="text-align: center;">Section 3 General service provisions</p>	<p>Carriage in bulk</p> <p>Calcium carbide [2°(a)] and calcium silicide in lumps [2°(d)] may be carried in bulk in vehicles equipped with movable or fixed receptacles which must conform to the general conditions of packing set forth in marginal 2472 (1), (2) and (3). Such receptacles must be so designed that the openings used for loading or unloading can be closed hermetically.</p>	<p style="text-align: right;">43105- 43110 43111</p>
<p>(No special provisions)</p>	<p>(No special provisions)</p>	<p style="text-align: right;">42122 42127 42128</p>
<p style="text-align: center;">Section 2 Special requirements to be fulfilled by vehicles and their equipment</p>	<p style="text-align: center;">Class 4.3 Substances which give off inflammable gases on contact with water Section 1 General</p>	<p style="text-align: right;">42122 42127 42128</p>
<p>Electrical equipment</p> <p>The provisions of Appendix B.2, marginal 220000, shall not apply to the carriage of dangerous substances of Class 4.2.</p>	<p>Class 4.3 Substances which give off inflammable gases on contact with water Section 1 General</p> <p>Types of vehicles</p> <p>Dangerous substances of Class 4.3. in packages shall be loaded on to closed or sheeted vehicles. However, receptacles containing calcium carbide [2°(a)] may also be loaded on to open vehicles.</p>	<p style="text-align: right;">42172 42170 42171</p>
<p style="text-align: center;">Section 3 General service provisions</p>	<p>Carriage in bulk</p> <p>Calcium carbide [2°(a)] and calcium silicide in lumps [2°(d)] may be carried in bulk in vehicles equipped with movable or fixed receptacles which must conform to the general conditions of packing set forth in marginal 2472 (1), (2) and (3). Such receptacles must be so designed that the openings used for loading or unloading can be closed hermetically.</p>	<p style="text-align: right;">42172 42170 42171</p>
<p>(No special provisions)</p>	<p>(No special provisions)</p>	<p style="text-align: right;">42300 42399</p>

## Carriage in containers

Small containers used for the carriage in bulk of the substances referred to in marginal 43111 shall conform to the provisions of that marginal concerning vehicles and the receptacles of vehicles.

43404-  
43413  
43414

## Handling and stowage

Packages shall be so stowed in the vehicle that they cannot be displaced therein. They shall be protected against any friction or impact. While packages are being handled, special measures shall be taken to prevent them from coming into contact with water.

## Carriage in tanks

(1) Sodium, potassium, and alloys of sodium or potassium [1°(a)], and trichlorosilane (silicochloroform) (4°), may be carried in fixed tanks or in demountable tanks.

43415-  
43499

(2) These same substances may also be carried in tank-containers.

## Class 4.3

## Section 5

Special provisions concerning the operation of vehicles

43122-  
43127

## Class 4.3

## Vehicle signs

43500

## Empty tanks

(1) To be accepted for carriage, empty tanks and empty demountable tanks which have contained sodium, potassium or alloys of sodium and potassium [1°(a)] shall be closed in the same manner and leak-proof in the same degree as though they were full.

(2) For tank-containers, see marginal 212177.

43123

(1) The provisions of marginal 10500, paragraphs (1) and (6), shall apply to the carriage of dangerous substances of Class 4.3. The provisions of paragraphs (2) to (5) shall also apply to the carriage of substances listed in Appendix B.5.

(2) Fixed tanks containing or (empty tanks, uncleaned) having contained substances listed in Appendix B.5 shall in addition bear on both sides and at the rear a label conforming to model No. 2D.

43129-  
43170  
4317143501-  
43599

## Crews of vehicles; Supervision

(1) A driver's assistant shall be carried on every transport unit carrying substances of Class 4.3 other than calcium carbide [2°(a)] and calcium silicide [2°(d)].

(2) The provisions of marginal 10171 (2) shall apply only to the dangerous goods listed below in quantities exceeding those specified below:

— The alkali metals and substances containing alkali metals of 1°, alkali metal hydrides of 2°(b) and trichlorosilane (silicochloroform) of 4°: 10,000 kg

## Class 4.3

## Section 6

Transitional provisions, derogations, and provisions peculiar to certain countries

43600-  
50999

(No special provisions)

43172-  
43199

## Class 5.1

## Oxidizing substances

## Section 1

## General

## Special requirements to be fulfilled by vehicles and their equipment

43200-  
4329951000  
-51110

(No special requirements)

## Class 4.3

## Section 3

General service provisions

## Carriage in bulk

51111

(1) Substances of 4° to 6° and 7° (a) may be carried in bulk as a complete load.

(2) Substances of 4° and 5° shall be carried in open metal «vat vehicles» (vehicules cuves) covered with an impermeable non-inflammable sheet, or in metal containers [see marginal 51118 (2)].

(3) Substances of 6° and 7° (a) and (b) shall be carried in closed vehicles or in vehicles covered with an impermeable non-inflammable sheet, the vehicles being so constructed either that the substance cannot come into contact with wood or any other combustible material or that the entire surface of the floor and walls, if combustible, has been provided with an impermeable and incombustible surfacing or treated with substances rendering the wood incombustible.

(No special provisions)

## Class 4.3

## Section 4

## Special provisions concerning loading, unloading and handling

43400-  
43402  
4340351112  
-51117

## Prohibition of mixed loading on one vehicle

Substances of Class 4.3 shall not be loaded together on one vehicle with substances or articles of Classes 1a, 1b or 1c enclosed in packages bearing a label or two labels conforming to model No. 1.

## Carriage in containers

51118

(1) Fragile packages within the meaning of marginal 10102 (1) and those containing hydrogen peroxide or

solutions of hydrogen peroxide (1°) or tetranitromethane (2°) may not be carried in small containers.

(2) Containers intended for the carriage of substances of 4° and 5° shall be made of metal, be leak-proof, be covered with a lid or an impermeable sheet resistant to combustion, and be so constructed that the substances held in the containers cannot come into contact with wood or any other combustible material.

(3) Containers intended for the carriage of substances of 6° and 7° (a) and (b) shall be covered with a lid or an impermeable sheet resistant to combustion and be so constructed either that the substances held in the containers cannot come into contact with wood or any other combustible material or that the entire surface of the floor and walls, if made of wood, has been provided with an impermeable surfacing resistant to combustion or has been coated with sodium silicate or a similar substance.

51119

-51120

#### Carriage in tanks

(1) Substances of 1° to 3°; solutions of 4° (also powdery sodium chlorate in the moist or the dry state); and hot aqueous solutions of ammonium nitrate of 6° (a) in a concentration of more than 80 per cent but not more than 93 per cent on condition that:

(a) the pH value, measured in a 10 per cent aqueous solution of the substance carried, is between 5 and 7, and that

(b) the solutions not containing any combustible substance in a quantity greater than 0.2 per cent or any chlorine compound in such quantity that the chlorine content exceeds 0.02 per cent may be carried in fixed tanks and in demountable tanks.

(2) The substances of 1° to 3°, the solutions of 4° and moist sodium chlorate of class 5.1 may be carried in tank-containers.

(3) Solutions of 4° (a), may be carried in reinforced-plastics tanks conforming to the provisions of Appendix B.1c.

51121

51122

-51127

#### Empty tanks

(1) To be accepted for carriage, empty fixed tanks and empty demountable tanks which have contained substances of Class 5.1 shall be closed in the same manner and leak-proof in the same degree as though they were full.

(2) For tank-containers, see marginal 212177.

(3) Empty fixed tanks and empty demountable tanks which have contained a chlorate, a perchlorate, a chlorite (4° and 5°), an inorganic nitrate (8°) or substances of 9° and 10° and have residues from their previous contents adhering to the outside are not to be accepted for carriage.

51128

51129

- 51170

#### Crews of vehicles: Supervision

51171

(1) A driver's assistant shall be carried on every transport unit carrying substances of Class 5.1, 1°, 2° and 3°

(2) The provisions of marginal 10171 (2) shall apply only to the dangerous goods listed below in quantities exceeding those specified below:

- The substances of 1° to 3° and 9° (a): 10.000 kg

51172

- 51199

Class 5.1

Section 2

Special requirements to be fulfilled by vehicles and their equipment

(No special requirements)

51200

51215

Cab

51216

The following provisions shall apply to the carriage of liquids of 1° in fixed tanks or in demountable tanks:

(1) unless the driver's cab is made of fire-proof materials, a metal shield of the same width as the same tank shall be fitted at the back of the cab;

(2) any windows in the back of the driver's cab or in the metal shield shall be hermetically closed. They shall be made of fire-resistant safety glass and have fire-proof frames; and

(3) there shall be a clear space of not less than 15 cm between the tank and the driver's cab or the shield.

Vehicle body

51217

For the carriage of liquids of 1° in fixed tanks or in demountable tanks, no wood (unless covered with metal or a suitable synthetic material) shall be used in the construction of any part of the vehicle situated to the rear of the shield prescribed in marginal 51216 (1).

51218

-51230

Engine

51231

For the carriage of liquids of 1° in fixed tanks or in demountable tanks, the engine and (except where the vehicle is driven by a diesel engine) the fuel tank shall be placed forward of the rear wall of the driver's cab or of the shield, or shall if placed otherwise be specially protected.

51232

-51259

Special equipment

51260

Vehicles carrying liquids of 1° in fixed tanks or in demountable tanks shall carry on board a tank having a capacity of about 30 litres of water. The water tank shall be placed as securely as possible, and there shall be admixed to the water it contains an anti-freeze preparation which does not attack the skin or the mucous membranes and does not react chemically with the load.

51261

- 51299

Class 5.1

Section 3

General service provisions

51300

-51302

Precautions with respect to articles of consumption

51305

In vehicles and at places of loading, unloading or transloading, tetranitromethane of 2o, barium chlorate of 4° (b), barium perchlorate of 4° (b), barium nitrate and lead nitrate of 7° (c), inorganic nitrites of 8°, barium dioxide of 9° (b) and barium permanganate of 9° (c) shall be kept away from foodstuffs and other articles of consumption

51304

51399

<p>Class 5.1</p> <p>Section 4</p> <p>Special provisions concerning loading, unloading and handling</p>	<p>Class 5.2</p> <p>Organic peroxides</p> <p>Section 1</p> <p>General</p>	<p>52000-52103-52104</p>
<p>51400</p> <p>51402</p> <p>51403</p> <p>Prohibition of mixed loading on one vehicle</p> <p>(1) Substances of Class 5.1 enclosed in packages bearing a label or two labels conforming to model No. 3 shall not be loaded together on one vehicle with substances of Classes 1a, 1b or 1c enclosed in packages bearing a label or two labels conforming to model No.1.</p> <p>(2) Substances of Class 5.1 enclosed in packages bearing two labels conforming to model No.3 shall not be loaded together on one vehicle with:</p> <p>(a) substances of Classes 3, 4.1 or 4.2 enclosed in packages bearing two labels conforming to models Nos. 2A, 2B or 2C; or with</p> <p>(b) liquids of Class 8 enclosed in packages bearing two labels conforming to model No. 5.</p>	<p>Types of vehicles</p> <p>(1) Substances of 1° to 22°, 30° and 31° shall be loaded on to closed or sheeted vehicles. Substances of 45° to 55° enclosed in protective packagings filled with a refrigerant shall be loaded on to closed or sheeted vehicles. If the vehicles used are closed they shall be adequately ventilated. Sheeted vehicles shall be fitted with side boards and a tailboard. The sheets of these vehicles shall be of a impermeable material not readily inflammable.</p> <p>(2) Where, by reason of the provisions of marginal 52400, substances are required to be carried in insulated, refrigerated or mechanically-refrigerated vehicles, those vehicles shall satisfy the requirements of marginal 52248.</p>	<p>52105-52117-52118</p>
<p>51404</p> <p>-51413</p> <p>51414</p> <p>Handling and stowage</p> <p>(1) Packages containing substances of Class 5.1 shall be placed flat on their bottoms. In addition, receptacles containing liquids of Class 5.1 shall be so wedged that they cannot overturn.</p> <p>(2) The use of readily inflammable materials for stowing packages in vehicles is prohibited.</p>	<p>Carriage in containers</p> <p>Fragile packages within the meaning of marginal 10102 (1) shall not be carried in small containers.</p> <p>Carriage in tanks</p> <p>(1) Substances of 1°, 10°, 14°, 15° and 18° may be carried in fixed tanks and in demountable tanks.</p> <p>(2) These substances may also be carried in tank containers.</p>	<p>52119-52120-52121</p>
<p>51415</p> <p>Cleaning after unloading</p> <p>After unloading, vehicles which have been carrying substances of 4° to 6° and 7° (a) and (b) in bulk shall be copiously swilled.</p>	<p>Class 5.2</p> <p>Empty tanks</p> <p>(1) To be accepted for carriage, empty fixed tanks and empty demountable tanks of 99° shall be closed in the same manner and leak-proof in the same degree as though they were full.</p> <p>(2) For tank-containers, see marginal 212177.</p>	<p>52122-52127</p>
<p>Class 5.1</p> <p>Section 5</p> <p>Special provisions concerning the operation of vehicles</p> <p>Vehicle signs</p> <p>(1) The provisions of marginal 10500, paragraphs (1) and (6), shall apply to the carriage of substances of 1°, 2°, 3° of chlorates and inorganic chlorate weedkillers of 4° (a), barium perchlorate of 4° (b), substances of 8° and go (b), and barium permanganate of 9° (c). the provisions of paragraphs (2) to (5) shall also apply to the carriage of substances listed in Appendix B.5.</p> <p>(2) fixed tanks containing or (empty tanks, uncleaned) having contained substances listed in Appendix B.5 shall in addition bear on both sides and at the rear a label conforming to model No. 3.</p>	<p>51416</p> <p>-51499</p> <p>51500</p> <p>Crews of vehicles: Supervision</p> <p>(1) A driver's assistant shall be carried on every transport unit loaded with substances of 46° (a), 47° (a) and 49° (a) and on every transport unit loaded with more than 2,000 kg of substances of 45°, 46°(b) and (c), 50°, 51° to 53° and 55°.</p> <p>(2) The provisions of marginal 10171 (2) shall apply only to the dangerous goods listed below in quantities exceeding those specified below:</p>	<p>52128</p> <p>52129-52170-52171</p>
<p>Class 5.1</p> <p>Section 6</p> <p>Transitional provisions, derogations, and provisions peculiar to certain countries</p> <p>(No special provisions)</p>	<p>Group A. Substances of 4°, 8°(a), 9°(a), 13°(a) and 17°(a) : 1,000 kg</p> <p>Group C. Substances of 35° : 1,000 kg</p> <p>Group E. Substances of 46°(a), 47°(a) and 49°(a) : 100 kg</p> <p>Substances of 45°, 46°(b) and (c), 47°(b), 48°, 49°(b), 50°-55° : 2,000 kg</p>	<p>51501-51999</p> <p>51600-51999</p>
		<p>52172-52199</p>

Class 5.2		Class 5.2	
Section 2			
Special requirements to be fulfilled by vehicles and their equipment			
	52200-5224752248	(3) The use of liquid air liquid oxygen as a refrigerant is prohibited.	52400 (contd)
Insulated, refrigerated and mechanically - refrigerated vehicles		(4) The temperature of refrigeration shall be so selected as to avoid any danger which might arise from the separation of phases.	
Insulated, refrigerated and mechanically - refrigerated vehicles used by reason of the requirements of marginal 52400 shall conform to the following provisions:		Limitation of the quantities carried	52401
(a) the vehicle used shall be such and be so equipped as regards its insulation and source of cold that the maximum temperature prescribed in marginal 52400 is not exceeded whatever the atmospheric conditions may be;		A transport unit shall not carry more than 750 kg of substances of 46° (a), 47° (a) and 49° (a), no more than 5,000 kg of substances of 45°, 46° (b) and (c), 47° (b), 48°, 49°(b), 50° to 53° and 55°, no more than 10,000 kg of substances of 54°.	
(b) the vehicle shall be so equipped that vapours from the substances carried cannot penetrate into the cab;			
(c) a suitable device shall be provided enabling the temperature prevailing in the loading space to be determined at any time from the driver's cab;			
(d) the loading space shall be provided with vents or ventilating valves if there is any risk of a dangerous excess pressure arising therein. Care shall be taken where necessary to ensure that refrigeration is not impaired by the vents or ventilating valves;			
(e) the refrigerant used shall not be inflammable;			52402
(f) the refrigerating appliance of a mechanically - refrigerated vehicle shall be capable of operating independently of the engine used to propel the vehicle.		Prohibition of mixed loading on one vehicle	52403
		Substances of Class 5.2 shall not be loaded together on one vehicle with:	
		(a) substances or articles of Classes 1a, 1b or 1c enclosed in packages bearing a label or two labels conforming to model No. 1; with	
		(b) substances of Classes 3, 4.1 or 4.2 enclosed in packages bearing two labels conforming to models Nos. 2A, 2B or 2C; or with	
		(c) liquids of Class 8 enclosed in packages bearing two labels conforming to model No. 5.	
			52404
		Cleaning before loading	52412
		Vehicles for the carriage of packages containing substances of Class 5.2 shall be carefully cleaned.	52413
		Handling and stowage	
	52249-52299	(1) Packages containing substances of Class 5.2 shall be loaded in such a manner that they can be unloaded one by one at the point of destination without its being necessary to rearrange the load.	52414
Class 5.2		(2) Packages containing substances of Class 5.2 shall be kept upright and be so secured and fixed that they cannot overturn or fall. They shall be protected against any damage which might be caused by other packages.	
Section 3		Class 5.2	
General service provisions			
(No special provisions)	52300-52399	(3) The use of readily inflammable materials for stowing packages in vehicles is prohibited.	52414 (contd)
		(4) Packages containing substances of Group E shall not be placed on top of other goods; in addition, they shall be so stowed as to be readily accessible.	
Class 5.2		(5) Substances of Group E shall be loaded and unloaded without intermediate storage, and shall in the event of transloading be transferred directly from one vehicle to another. The prescribed maximum temperatures shall not be exceeded during such handling (see marginal 52400 (1))	
Section 4			
Special provisions concerning loading, unloading and handling		Class 5.2	
Method of despatch and restrictions on forwarding	52400	Section 5	
(1) Substances of Group E shall be forwarded in such manner that the ambient temperatures indicated below are not exceeded:		Special provisions concerning the operation of vehicles	
substances of 45°	: maximum	temperature	
» 46°(a)	: »	+10°C	
» 46°(b) and (c)	: »	-10°C	
» 47°(a)	: »	-10°C	52415
» 47°(b)	: »	-10°C	52499
» 48°	: »	+ 2°C	
» 49°(a)	: »	-10°C	
» 49°(b)	: »	-10°C	
» with phlegmatizer	: »	+ 2°C	
» with solvent	: »	- 5°C	
» 50°	: »	0°C	
» 51°	: »	0°C	
» 52°	: »	+20°C	
» 53°	: »	-10°C	
» 54°	: »	+20°C	
» 55°	: »	+10°C	
(2) Where substances of Group E are not carried in mechanically - refrigerated vehicles, the quantity of refrigerant in the protective packaging shall be so proportioned that the temperatures specified in paragraph (1) above are not exceeded at any time during carriage, which term here includes loading and unloading.		Vehicle signs	52500
		(1) The provisions of marginal 10500, paragraphs (1) and (6), shall apply to the carriage of dangerous substances of Class 5.2. The provisions of paragraphs (2) to (5) shall apply to substances listed in Appendix B.5.	
		(2) Fixed tanks containing or (empty tanks, uncleaned) having contained substances listed in Appendix B.5 shall in addition bear on both sides and at the rear a label conforming to model No. 3.	
			52501
		Halts of limited duration for service requirements	52508
		During the carriage of substances of 46° (a), 47° (a) and 49° (a), halts for service requirements shall so far as	52509



possible not be made near inhabited places or places of resort. A halt near such a place may not be prolonged except with the agreement of the competent authorities. The same rule shall apply where one transport unit is loaded with more than 2,000 kg of substances of 45°, 46° (b) and (c), 48°, 49° (b) and 50° to 55°.

	52510
Class 5.2	52599
Section 6	
Transitional provisions,	
derogations and provisions peculiar to certain countries	
(No special provisions)	52600
	60999
Class 6.1	
Toxic substances	
Section 1	
General	

#### Carriage in bulk

(1) Substances of 41° and 73° may be carried in bulk as a complete load.

(2) Substances of 41° shall be carried in closed or sheeted vehicles and those of 73° in open, sheeted or movable-roof vehicles

61 000  
-61 110  
61 111

#### Carriage in containers

Fragile packages within the meaning of marginal 10 102 (1) may not be carried in small containers.

61 112  
-61 117  
61 118

#### Carriage in tanks

(1) The following substances may be carried in fixed tanks or in demountable tanks:

(a) the highly toxic substances listed by name in 1° (b) to 5°;

(b) the toxic substances, carried in the liquid state, of 11°(a); 12°, (b) to (e); 13°(b); 14°; 52°; 81°(a); and 82°(a); and substances assimilable to them;

(c) the other toxic and harmful substances carried in the liquid state, of 11° to 13°; 21° to 23°; 31°, (b) and (c); 32° (b); 61°; 62°; 81° to 83°; and substances assimilable to them; and

(d) the powdery or granular toxic and harmful substances of 21° to 23°; 31° (a); 41°; 62°; 71° to 75°; 82° to 84°; and substances assimilable to them.

(2) The following substances of marginal 2601 may be carried in tank-containers:

Acrylonitrile (2°(a)), acetonitrile (methyl cyanide) (2°(b)), aqueous solutions of ethyleneimine (3°), allyl chloride (4°(a)), methyl chloroformate (4°(b)), ethyl chloroformate (4°(c)), 2-cyanopropane-2-ol (acetone cyanhydrin) (11°(a)), aniline (11° (b)), 1-chloro-2,3-epoxypropane (epichlorohydrin) (12°(a)), 2,2-dichlorodiethyl ether (chloroethyl ether, 2-chloroethyl ether) (12°(f)), allyl alcohol (13° (a)), dimethyl sulphate (13° (d)), phenol (13° (c)), lead alkyls (14°), 2-bromophenylacetone (bromobenzyl cyanide) (21°(a)), phenylcarbylamine chloride (21°(b)), 2,4-diisocyanatotoluene (21°(c)), and its mixtures with 2,6-diisocyanatotoluene (which are assimilated to it), allyl isothiocyanate (21°(d)), chloroanilines (21°(e)), mononitroanilines and dinitroanilines (21°(f)), naphthylamines (21°(g)), 2,4-diaminotoluene (21°(h)), dinitrobenzenes (21°(i)), chloronitrobenzenes (21°(k)), mononitrotoluenes (21°(l)), dinitrotoluenes (21°(m)), nitroxylenes (21°(n)), toluidines (21°(o)), xylydines (21°(p)), cresols (22°(a)), xylenols (22°(b)), xylyl bromide (23°(a)), phenacyl chloride (w-chloroacetophenone) (23°(b)), phenacyl bromide (w-bromoacetophenone) (23°(c)), 4-chloroacetophenone (methyl p-chlorophenylketone) (23°(d)), symmetrical dichloroacetone (23°(e)), solutions of inorganic cyanides (31°(b)), ethylene dibromide (symmetrical dibromoethane) (61°(a)),

and carbon tetrachloride, chloroform and methylene chloride (which are assimilated to it), methyl chloroacetate (61°(e)), ethyl chloroacetate (61°(f)), benzyl chloride (61°(k)), benzene trichloride which is assimilated to substances of 62°, and substances and preparations used as pesticides (81° - 83°).

#### Tanks

The outside of the tanks must not be contaminated with toxic substances.

#### Empty tanks

(1) To be accepted for carriage, empty fixed tanks and empty demountable tanks must not be contaminated on the outside with toxic substances; they shall be closed in the same manner and leak-proof in the same degree as though they were full.

(2) For tank containers, see marginal 212 177.

(3) Empty demountable tanks and empty tank-containers of 91°, if forwarded otherwise than as a full load, shall bear labels conforming to model No 4 (see Annex A, Appendix A.9).

#### Crews of vehicles: Supervision

(1) A driver's assistant shall be carried on every transport unit carrying more than one metric ton of substances of Class 6.1 1° to 5° and 14°, or more than 250 kg of fragile packages containing these substances.

(2) The provisions of paragraph 10 171 (2) shall apply only to the dangerous goods listed below in quantities exceeding those specified below:

- The substances of 1° - 5° : 1,000 kg
- The substances of 11°(a), 12°(a), (b) and (d), 13° (a) and (b), 14° and 81° : 5,000 kg

#### Instructions in writing

Where substances of 14°, or receptacles which have contained them, are carried, the text of the written instructions shall specify, inter alia, the following:

«(A) Precautions to be observed

The substance being carried is highly toxic. In the event of leakage from one of the receptacles the following precautions should be taken:

1. avoid:

- (a) contact with the skin;
- (b) inhalation of vapours;
- (c) introduction of the liquid into the mouth;

2. when drums which are torn open or damaged or wetted with liquid are being handled, the use of the following is compulsory:

- (a) respirators;
- (b) gloves made of rubber or some suitable plastics material;
- (c) boots made of rubber or some suitable plastics material.

In the event of a serious accident involving obstruction of the public highway, it is essential that persons arriving to clear the site should be warned of the danger incurred.

(B) Action to be taken

All practicable steps, including the use of the notices referred to in marginal 61 260, shall be taken to keep persons at a distance of not less than 15 metres from the site of the accident; the notices contained in the equipment box shall be set up round the enclosure and onlookers shall be kept away.

The respirators, gloves and boots will enable one person to approach the load and verify its condition.

Should any of the drums be torn open, the following should be done:

- (a) additional respirators, gloves and boots with which to equip the worker should be procured urgently;
- (b) drums still intact should be set aside;
- (c) the liquid spilled on the vehicle or on the ground should be neutralized by copious swilling with an aqueous

61 122  
-61 126  
61 127

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61 129  
-61 170  
61 171

61 172  
-61 184  
61 185

solution of potassium permanganate (a neutralizing agent a bottle of which is kept in the equipment box); the solution is easily prepared by stirring 0.5 kg of permanganate with 15 litres of water in a bucket; swilling should be carried out several times, because it takes 2 kg of potassium permanganate to neutralize completely 1 kg of the substance being carried.

Where practicable, the best way to decontaminate the area is to pour petrol over the spilled fluid and ignite it.

(C) Important notice

In case of accident, one of the first steps which must be taken is to notify by telegram or telephone ... (insert here the addresses and telephone numbers of the establishments to be notified in each of the countries in whose territory carriage is to take place).

A vehicle which has been contaminated with the substance carried shall not be put back into service until it has been decontaminated under the supervision of a competent person. Any wooden parts of the vehicle which have been attacked by the substance carried shall be removed and burnt.»

61 186  
-61 199

Section 2

Special requirements to be fulfilled  
by vehicles and their equipment

61 200  
61 239  
-61 240

Fire-fighting appliances

The provisions of marginal 10 240 (1)(b) and (3) shall not apply to the carriage of dangerous substances of Class 6.1.

61 241  
-61 250  
61 251

Electrical equipment

(1) The provisions of Appendix B.2, marginal 220 000, shall not apply to the carriage of dangerous substances of Class 6.1.

(2) However, vehicles carrying liquids of 14° in fixed tanks or in demountable tanks shall be fitted with a switch enabling the entire electric circuit to be opened (cut-out switch). The switch shall be situated near the storage batteries. The electrical equipment shall satisfy the provisions of marginal 220 000 (2)(c) 2.

61 252  
-61 259  
61 260

Special equipment

Whenever substances of 14° or receptacles having contained them are carried, the driver shall, when he is given the transport document, at the same time be given a portable equipment box fitted with a handle and containing:

—three copies of the written instructions specifying the action to be taken in the event of an accident or incident occurring during carriage (see marginal 61 185);

—two pairs of gloves and two pairs of boots made of rubber or some suitable plastics material;

—two respirators with an activated-charcoal cartridge of 500 cm<sup>3</sup> capacity;

—a bottle (made of bakelite, for example) containing 2 kg of potassium permanganate and bearing the inscription «dissolve in water before use»;

Class 6.1

—six fibreboard notices bearing the inscription «DAN GER - volatile poison spilled. Do not approach without respirator» in the language or languages of each of the countries in whose territory carriage takes place.

-61260

This equipment box shall be kept in the driver's cab in a place where it can easily be found by the decontamination team.

61261  
61299

Section 3

General service provisions

61300  
61301  
61302

Action to be taken in the event of accident

(See marginal 61 185)

Precautions with respect to articles of consumption 61303

In vehicles and at places of loading, unloading or transloading, dangerous substances of Class 6.1 shall be kept from foodstuffs and other articles of consumption.

61304  
61352  
61353

Portable lighting apparatus

The provisions of marginal 10353 shall not apply.

61354

Prohibition of smoking

The provisions of marginal 10374 shall not apply.

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Section 4

Special provisions concerning loading,  
unloading and handling

Method of despatch and restrictions on forwarding 61400

The substances referred to under 2° (a) (acrylonitrile) and 61° (1) (1-chloro-1-nitropropane) may be carried in non-returnable metal drums [see marginal 2604(1) (b)2 and 2623(2)(d)] only as a complete load on open vehicles.

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61402

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Prohibition of mixed loading on one vehicle

Substances of Class 6.1 enclosed in packages bearing a label conforming to models Nos. 2A, 4 or 4A shall not be loaded together on one vehicle with substances or articles of Classes Ia, Ib or Ic enclosed in packages bearing a label or two labels conforming to model No. 1.

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Places of loading and unloading

(1) The following operations are prohibited:

(a) loading or unloading substances of 1° to 5°, 13°(b) 14° and 81° in a public place in a built-up area without special permission from the competent authorities;

(b) loading or unloading the said substances in a public place elsewhere than in a built-up area without prior notice thereof having been given to the competent authorities, unless the said operations are justified for serious reasons of safety.

(2) If, for any reason, handling operations have to be carried out in a public place, then substances and articles of different kinds shall be separated according to the labels.

61408

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Cleaning after unloading

(1) After unloading, vehicles which have been carrying substances of 41° and 73° in bulk shall be copiously swilled.

(2) A vehicle which has been contaminated with substances of 14° or with a mixture thereof shall not be put back into service until it has been decontaminated under the supervision of a competent person. Any wooden parts of the vehicle which have been attacked by substances of 14° shall be removed and burnt.

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Section 5

Special provisions concerning the operation of vehicles  
Vehicle signs

61500

(1) The provisions of marginal 10500, paragraphs (1) and (6), shall apply to the carriage of substances of 1° to 5°, 11° to 14°, 21° to 23°, 31° to 33°, 41°, 51° to 54°, 61°, 62°, 81° and 82°. The provisions of paragraphs (2) to (5) shall also apply to the carriage of substances listed in Appendix B.5.

(2) Whenever substances of 14° are carried, the vehicle shall display on each side a warning notice to the effect that, if any liquid escapes, the greatest caution must be exercised and the vehicle must not be approached without gas-mask, gloves and boots of rubber or of some suitable plastics material.

(3) Fixed tanks containing substances listed in Appendix B.5 shall in addition bear on both sides and at the

rear a label conforming to model No. 4. Those containing or (empty tanks, uncleaned) having contained acetonitrile, 2-cyanopropan-2-ol (acetone cyanohydrin), allyl chloride or acrylonitrile shall in addition bear labels conforming to model No. 2A.

#### Halts of limited duration for service requirements

Halts for service requirements shall so far as possible not be made near inhabited places or places of resort. A halt near such a place may not be prolonged except with the agreement of the competent authorities.

#### Protection against action of sun

During the period April to October inclusive, when a vehicle carrying hydrocyanic acid [1°(a)] is stationary the packages shall, if the legislation of the country in which the vehicle is halted so requires, be effectively protected against the action of the sun, e.g. by means of sheets placed not less than 20 cm above the load.

### Section 6

Transitional provisions, derogations, and provisions peculiar to certain countries

#### Transitional provisions

Pursuant to the last sentence of article 4, paragraph 2, of the Agreement, vehicles which were in service in the territory of a Contracting Party at the time of the entry into force of the Agreement under article 7, paragraph 1, or were put into service there within two months after its entry into force, may be used for the international carriage of substances of 14° only during a period of two years from such entry into force if their design and equipment do not fully satisfy the requirements laid down in this Annex for such carriage.

### Class 6.2

Repugnant substances and substances liable to cause infection

#### Section 1

##### General

#### Application of Chapter 1 of this Annex

The only provisions of this Annex other than those of Sections 1 to 6 below which apply to the carriage of dangerous substances of Class 6.2 are those of marginals 10001, 10100, 10102, 10111, 10118, 10181(1)(a), 10404, 10405, 10413, 10414, 10415 and 10419.

#### Carriage in bulk

(1) Substances of 1°, 2°, 3° and 5° may be carried in bulk. Substances of 9° may not be carried otherwise than in bulk.

(2) When they are in bulk

(a) substances of 1°(a) and (c) and 2° shall be loaded on to specially fitted covered vehicles equipped with ventilating installations. During the months from November to February these substances may also be loaded on to open vehicles on condition that they been sprayed with suitable disinfectants to remove their bad odour;

(b) the following shall be loaded on to open vehicles; substances of 1°(b), after being sprayed with suitable disinfectants to remove their bad odour; substances of 3°; substances of 5°, after being sprayed with limewash so that no putrid odour is discernible; and substances of 9°.

### Class 6.2

(3) In addition, when they are loaded on to open vehicles, they shall be covered with:

(a) a sheet impregnated with suitable disinfectants and itself covered with a second sheet: substances of 1°(a) and (c) and 2°;

(b) a sheet or tarred or bituminized fibreboard (and sprayed with suitable disinfectants): fresh horns, claws, hoofs or bones [1°(b)];

(c) a sheet: substances of 3°, unless they are sprayed with suitable disinfectants to prevent any bad odour; and

(d) a sheet: substances of 9°.

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Carriage in containers

The carriage of substances of 9° in small containers is prohibited.

Crews of Vehicles; Supervision

The provisions of marginal 10171 (2) shall not apply.

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### Class 6.2

#### Section 2

Special requirements to be fulfilled by vehicles and their equipment

(No special requirements)

61.600

61.604

61605

### Class 6.2

#### Section 3

General service provisions

Precautions with respect to articles of consumption

In vehicles and at places of loading, unloading and transloading, dangerous substances of Class 6.2 other than substances of 7° and than substances of 8° packed in conformity with the provisions of Annex A, marginal 2659 (2) (a) or (b), shall be kept away from foodstuffs and other articles of consumption.

61606

61999

### Class 6.2

#### Section 4

Special provisions concerning loading, unloading and handling

62000

62099

62100

Prohibition of mixed loading on one vehicle

Substances of 9° and 10° shall not be loaded together on one vehicle with dangerous substances of Class 5.2.

62101

62110

62111

Cleaning after unloading

After unloading, vehicles which have been carrying substances of Class 6.2 in bulk shall be copiously swilled and treated with suitable disinfectants.

### Class 6.2

#### Section 5

Special provisions concerning the operation of vehicles

(No special provisions)

### Class 6.2

#### Section 6

Transitional provisions, derogations and provisions peculiar to certain countries

(No special provisions)

62111

62112

62117

62118

62119

62170

62171

62172

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62200

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62300

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62304

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62400

62402

62403

62404

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70999

Class 7			
Radioactive Substances			
Section 1			
General			
Carriage	71000		
For details see the relevant schedule in marginal 2703.			
	71001		81112
	71170		-81117
	71171		
Crews of vehicles: supervision			
The provisions of marginal 10171 (2) shall apply to all substances, in whatever quantity. However, the provisions of marginal 10171 (2) need not be applied where:			
(a) the loaded compartment is locked and the packages carried are otherwise protected against any illicit unloading, and			
(b) the dose rate does not exceed 0.5 mR/h at any accessible point on the surface of the vehicle.			
	71172		
	71199		
Class 7			
Section 2			
Special requirements to be fulfilled by vehicles and their equipment			
Provisions	71200		81119
For details see the relevant schedule in marginal 2703.			-81120
	71201		
	71299		
Section 3			
General Service Provisions			
Provisions	71300		
For details see the relevant schedule in marginal 2703.			
	71301		
	71373		
	71374		
Prohibition of smoking			
The provisions of marginal 10374 shall not apply.			
	71375		
	71399		
Section 4			
Special provisions concerning loading, unloading and handling			
Provisions	71400		
For details see the relevant schedule in marginal 2703.			
	71401		81122
	71499		-81127
Section 5			
Special provisions concerning the operation of vehicles			
Vehicle signs	71500		81128
(1) Marginal 10500 shall not apply.			
(2) Every road vehicle carrying radioactive substances shall bear on the outside of each side wall and of the rear wall a label conforming to the model shown in Appendix B.4, marginal 240010. If loading is done by the sender, it shall be his duty to affix these labels to the vehicles.			
	71501		
	71506		
	71507		
Parking of a vehicle constituting a special danger			
(See, in addition to marginal 10507, marginal 3695 of Appendix A.6).			
	71508		81129
	71599		81170
Section 6			
Transitional provisions, derogations, and provisions peculiar to certain countries			
	71600		
(No special provisions).	80999		
Class 8			
Corrosive substances			
Section 1			
General			
	81000		
	-81110		
Carriage in bulk	81111		
(1) Lead sludge containing sulphuric acid [1° (e)] and			
bisulphates (13°) may be carried in bulk as a full load.			
(2) For such carriage, the body of the vehicle shall be lined with lead or with a sufficient thickness of paraffin-waxed or tarred fibreboard, and if the vehicle is sheeted the sheet shall be so placed that it cannot touch the load.			
			81118
Carriage in containers			
(1) Fragile packages within the meaning of marginal 10102 (1) and those containing dangerous substances of 1° to 7°, 9°, 14°, 33° and 41° shall not be carried in small containers.			
(2) Small containers used for the carriage of bisulphates (13°) in bulk shall be lined with lead or with a sufficient thickness of paraffin			
-waxed or tarred fibreboard.			
(3) The carriage in bulk in small containers of lead sludge containing sulphuric acid of 1° (e) is prohibited.			
			81119
			-81120
Carriage in tanks			
			81121
(1) All substances of marginal 2801 or covered by a collective heading may, if their physical state so permits, be carried in fixed tanks or in demountable tanks.			
(2) these same substances may also be carried in tank-containers. However, hydrogen fluoride (anhydrous hydrofluoric acid) [6° (a)] may not be carried in tank-containers of a cubic capacity exceeding 1 m <sup>3</sup> .			
(3) The following may be carried in reinforced-plastics tanks conforming to the provisions of Appendix B.1c: substances of 1° (b), (c) and (d) and 2° (b) and (c), solutions of hydrochloric acid of 5°, and substances of 32°, 37° and 41°.			
Class 8			
			81122
			-81127
Empty tanks			
			81128
(1) Empty fixed tanks and empty demountable tanks of 51° shall be closed in the same manner and leak-proof in the same degree as though they were full. Fixed tanks which have contained bromine (14°) shall be hermetically closed.			
(2) For tank-containers, see marginal 212177.			
(3) Tank-containers and demountable tanks which have contained hydrofluoric acid (6°) or bromine (14°) shall bear a label conforming to model No.5 (Appendix A.9). They shall have no traces of acid or bromine on the outside.			
			81129
			81170
Crews of vehicles; Supervision			
			81171
(1) A driver's assistant shall be carried on every transport unit carrying more than 250 kg of dangerous substances of Class 8 in fragile packages, or more than three metric tons of substances of 6°, 7°, 11°, 14°, 22°, 31°, 32° and 37°.			
(2) The provisions of marginal 10171 (2) shall apply only to the dangerous goods listed below in quantities exceeding those specified below:			
Chlorosulphonic acid, chlorides and oxychlorides of sulphur, and silicon tetrachloride, of 11° (a), antimony pentafluoride of 15° (b), bromine trifluoride and bromine pentafluoride of 15° (d), acetyl chloride, acetyl bromide and benzoyl chloride of 22°, and hydrazine in aqueous solutions containing not more than 72% hydrazine, of 34°: 10.000 kg.			
Bromine of 14°: 1.00 kg.			
			81172
			-81199

Class 8		Cleaning before loading	
Section 2		Vehicles for the carriage of packages containing substances of 2° (a) and 3° (a) shall be carefully cleaned and, in particular, cleared of any combustible waste (straw, hay, paper, etc.).	
Special requirements to be fulfilled by vehicles and their equipment		Handling and stowage	81414
	81200	(1) All packages containing substances of 2° (a) and 3° (a) shall rest on a stout floor, be placed with their openings at the top, and be so wedged that they cannot overturn.	
	-81239	(2) The use of readily inflammable materials for stowing such packages in vehicles is prohibited.	
Fire-fighting appliances	81240	(3) Fragile packages shall be so wedged so as to prevent any displacement and any spilling of the contents.	
The provisions of marginal 10240 (1) (b) and (3) shall not apply to the carriage of dangerous substances of Class 8 other than those of 2° (a) and 3° (a).			
	81241		81415
	-81250		-81499
Electrical equipment	81251	Class 8	
The provisions of Appendix B.2, marginal 220000, shall not apply to the carriage of dangerous substances of Class 8 other than those of 2° (a) and 3° (a).		Section 5	
	81252	Special provisions concerning the operation of vehicles	
	-81299	Vehicle signs	81500
Class 8		(1) The provisions of marginal 10500, paragraphs (1) and (6), shall apply to the carriage of substances of 1° to 7°, 9°, 11°, 12°, 14°, 15°, 21° (b), (c) and (e), 22°, 31° to 35°, 37° and 41°. The provisions of paragraphs (2) to (5) shall also apply to substances listed in Appendix B.5.	
Section 3		(2) Fixed tanks containing or (empty tanks, uncleaned) having contained substances listed in Appendix B.5 shall in addition bear on both sides and at the rear a label conforming to model No.5.	
General service provisions			
	81300		
	-81352		
Portable lighting apparatus	81353		81501
The provision of marginal 10353 shall not apply.			-81599
	81354	Class 8	
	-81373	Section 6	
Prohibition of smoking	81374	Transitional provisions, derogations, and provisions peculiar to certain countries	
The provisions of marginal 10374 shall not apply.		(No special provisions)	81600
	81375		199999
	81399		
Class 8		APPENDICES	
Section 4		PROVISIONS COMMON TO THE B.1 APPENDICES	
Special provisions concerning loading, unloading, and handling		(1) The scope of application of the various B.1 Appendices is as follows:	200000
	81400	(a) Appendix B.1a applies to tanks other than tank-containers;	
	-81402	(b) Appendix B.1b applies to tank-containers;	
Prohibition of mixed loading on one vehicle	81043	(c) Appendix B.1c applies to tanks, other than batteries of receptacles and tank-containers, made of reinforced plastics;	
(1) Substances of Class 8 enclosed in packages bearing a label or two labels conforming to model No.5 shall not be loaded together on one vehicle with substances or articles of Classes 1a, 1b or 1c enclosed in packages bearing a label or two labels conforming to model No.1.		(d) for receptacles, see the relevant requirements of Annex A (Packages); and	
(2) Liquids of Class 8 enclosed in packages bearing two labels conforming to model No.5 shall not be loaded together in one vehicle with:		(e) Appendix B.1d is concerned with the materials and construction of fixed tanks, of demountable tanks, and of shells of tank-containers, intended for the carriage of deeply - refrigerated liquefied gases of Class 2.	
(a) substances of Classes 3, 4.1 or 4.2 enclosed in packages bearing two labels conforming to models Nos. 2A, 2B or 2C; or with		(2) By derogation from the definition given in marginal 10102 (1), the term «tank» when used alone in Appendix B.1a and Appendix B.1c does not cover tank-containers. However, some of the requirements of Appendix B.1a may be made applicable to tank-containers by the provisions of Annex B and Appendix B.1b.	
(b) substances of Classes 5.1 or 5.2 enclosed in packages bearing two labels conforming to model No.3.		(3) It is recalled that marginal 10121 (1) prohibits the carriage of dangerous substances in tanks except where such carriage is expressly authorized. The B.1 Appendices are therefore confined to provisions applicable to tanks or	
	81404		
	-81412		
	81413		

tank-containers used for transport operations which are expressly allowed.

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211099

211103-  
211119

Appendix B.1a  
PROVISIONS CONCERNING FIXED TANKS  
(TANK-VEHICLES), DEMOUNTABLE TANKS  
AND BATTERIES OF RECEPTACLES

Note: Chapter I sets out the requirements applicable to fixed tanks (tank-vehicles), demountable tanks and batteries of receptacles intended for the carriage of substances of any Class. Chapter II contains special requirements supplementing or modifying the requirements of Chapter I.

Chapter I  
REQUIREMENTS APPLICABLE TO ALL CLASSES

Section 1  
General; scope; definitions

These requirements shall apply to fixed tanks (tank-vehicles), demountable tanks and batteries of receptacles used for the carriage of liquid, gaseous, powdery or granular substances. 211100

(1) In addition to the vehicle proper, or the units of running gear used in its stead, a tank-vehicle comprises one or more shells, their items of equipment and the fittings for attaching them to the vehicle or to the running-gear units. 211101

(2) When attached to the carrier vehicle, the demountable tank or battery of receptacles shall meet the requirements prescribed for tank-vehicles.

In the following requirements. 211102

(1) (a) «shell» means the tank proper (including the openings and their closures);

(b) «service equipment of the shell» means the filling, discharge, venting, safety, heating and heat-insulating devices and the measuring instruments;

(c) «structural equipment» means the reinforcing, fastening, protective and stabilizing members external or internal to the shell;

(2) (a) «calculation pressure» means a notional pressure which is used to calculate the thickness of the walls of the shell. It is equal to the test pressure except in relation to certain dangerous goods for which a special, higher calculation pressure is laid down. External or internal reinforcing devices shall not be taken into account in this calculation;

Appendix B.1a

(b) «maximum working pressure» means the highest of the following three pressures: 211102

1. the highest effective pressure allowed in the shell during filling (maximum filling pressure allowed);

2. the highest effective pressure allowed in the shell during discharge (maximum discharge pressure allowed);

3. the effective pressure to which the shell is subjected by its contents (including such extraneous gases as it may contain) at the maximum working temperature;

(c) «test pressure» means the highest effective pressure applied during the pressure test of the shell;

(d) «filling pressure» means the highest pressure actually built up in the shell when it is being filled under pressure;

(e) «discharge pressure» means the highest pressure actually built up in the shell when it is being discharged under pressure;

(3) «Leakage test» or «leakproofness test» means the test which consists in subjecting the shell to an effective internal pressure equal to the maximum working pressure,

but not less than 0.2 kg/cm<sup>2</sup> (gauge pressure), by a procedure approved by the competent authority.

Section 2  
Construction

The materials used shall meet the following requirements 211120

(1) Shells shall be made of suitable metallic materials which, unless other temperature ranges are prescribed in the various Classes, shall be resistant to brittle fracture and to fissuring corrosion under tensile stress between -20°C and +50°C.

(2) For welded shells only materials of faultless weldability and whose adequate impact strength at an ambient temperature of -20°C can be guaranteed, particularly in the welds and the zones adjacent thereto, shall be used.

(3) Welds shall be skilfully made and shall afford the fullest safety.

With regard to the execution and checking of weld beads, see also marginal 211127 (7).

Appendix B.1a

Shells whose minimum wall thicknesses have been determined in accordance with marginal 211127 (3) to (6) shall be checked by the methods described in the definition of the weld coefficient 0.8. 211120 (contd)

(4) The materials of shells, or of their protective linings in contact with the contents, shall not contain substances liable to react dangerously with the contents, to form dangerous compounds, or substantially to weaken the material.

(5) The protective lining shall be so designed that its leakproofness remains unimpaired whatever the deformation liable to occur in normal carriage [211127 (1)].

(6) If contact between the substance carried and the material used for the construction of the shell entails a progressive decrease in the thickness of the walls, this thickness shall be increased at manufacture by an appropriate amount. This additional thickness to allow for corrosion shall not be taken into consideration in calculating the thickness of the shell walls.

(1) Shells, their attachments and their service and structural equipment shall be designed to withstand without loss of contents (other than quantities of gas escaping through any degassing vents): 211121

– static and dynamic stresses in normal carriage;  
– prescribed minimum stresses as defined in marginals 211125 and 211127.

(2) In the case of vehicles in which the shell constitutes a stressed self-supporting member, the shell shall be designed to withstand the stresses thus imposed in addition to stresses from other sources.

The pressure on which the wall thickness of the shell is based shall not be less than the calculation pressure, but the stresses referred to in marginal 211121 shall also be taken into account. 211122

Unless specially prescribed otherwise in the various Classes, the following particulars shall be taken into account in the design of shells: 211123

(1) gravity-discharge shells intended for the carriage of substances having at 50°C a total pressure (i.e. vapour pressure plus partial pressure of inert gases, if any) of not more than 1.1 kg/cm<sup>2</sup> (absolute) shall be designed to a calculation pressure of twice the static pressure of the substance to be carried, but not less than twice the static pressure of water;

## Appendix B.1a

(2) pressure - filled or pressure - discharge shells intended for the carriage of substances having at 50°C a total pressure (i.e. vapour pressure plus partial pressure of inert gases, if any) of not more than 1.1 kg/cm<sup>2</sup> (absolute) shall be designed to a calculation pressure equal to 1.3 times the filling or discharge pressure;

(3) shells - whatever their filling or discharge system - intended for the carriage of substances having at 50°C a total pressure (i.e. vapour pressure plus partial pressure of inert gases, if any) of not less than 1.1 and not more than 1.75 kg/cm<sup>2</sup> (absolute) shall be designed to a calculation pressure of at least 1.5 kg/cm<sup>2</sup> (gauge pressure), or 1.3 times the filling or discharge pressure, whichever is the higher;

(4) shells - whatever their filling or discharge system - intended for the carriage of substances having at 50°C a total pressure (i.e. vapour pressure plus partial pressure of inert gases, if any) of more than 1.75 kg/cm<sup>2</sup> (absolute) shall be designed to a calculation pressure equal to the higher of the following two pressures:

- 1.5 times the total pressure at 50°C, less 1 kg/cm<sup>2</sup>, subject to a minimum of 4 kg/cm<sup>2</sup> (gauge);
- 1.3 times the filling or discharge pressure.

Tanks intended to contain certain dangerous substances shall be provided with special protection which shall be determined for the various Classes.

At the calculation pressure, the stress  $\sigma$  (sigma) at the most severely stressed point of the shell shall not exceed the material - dependent limits prescribed below. Allowance shall be made for any weakening due to the welds. In addition, in choosing the material and determining wall thickness, the maximum and minimum filling and working temperatures should be taken into account.

(1) For metals and alloys exhibiting a clearly-defined yield point or characterized by a guaranteed conventional yield stress ( $R_e$ ) (generally 0.2 per cent of residual elongation and, in the case of austenitic steels, 1 per cent of maximum elongation):

- (a) where the ratio  $R_e/R_m$  is not more than 0.66:  
( $R_e$  = apparent yield stress, or 0.2 per cent proof stress or 1 per cent proof stress in the case of austenitic steels;)

## Appendix B.1a

$R_m$  = guaranteed minimum tensile strength:

$$\sigma \leq 0.75 R_e$$

(b) Where the ratio  $R_e/R_m$  exceeds 0.66:

$$\sigma \leq 0.5 R_m$$

(2) For Metals and alloys exhibiting no clearly - defined apparent yield stress and characterized by a guaranteed minimum tensile strength  $R$ .

$$\sigma \leq 0.43 R_m$$

(3) For steel, the elongation at fracture shall be not less than

$$\frac{1,000}{\text{determined tensile strength in Kg/mm}^2}$$

but in any case it shall be not less than 16 per cent for fine - grained steels and not less than 20 per cent for other steels. For aluminium alloys the elongation at fracture shall be not less than 12 per cent.<sup>1</sup>

<sup>1</sup> In the case of sheet metal the axis of the tensile testpiece shall be at right angles to the direction of rolling. The permanent elongation at fracture ( $l = 5d$ ) shall be measured on a test - piece of circular cross - section in which the gauge length  $l$  is equal to five times the diameter  $d$ ; if test - pieces of rectangular section are used, the gauge length shall be calculated by the formula  $l = 5.65\sqrt{F_0}$ , where  $F_0$  is the initial cross - sectional area of the test piece.

211123  
(contd)

Tanks intended for the carriage of liquids having a flash - point of or below 55°C and for the carriage of inflammable gases shall be connected to all parts of the vehicle by equipotential connexion and shall be capable of being electrically earthed. Any metal contact capable of causing electrochemical corrosion shall be avoided.

Shells and their fastenings shall withstand the stresses specified in paragraph (1), and the wall thicknesses of shells shall be at least as determined in accordance with paragraphs (2) to (6) below.

(1) The shells and their fastenings shall be capable of absorbing, under the maximum permissible load, the following stresses:

- in the direction of travel: twice the total weight;
- at right angles to the direction of travel: the total weight;
- vertically upwards: the total weight.
- vertically downwards: twice the weight.

Under the stresses defined above, the stress at the most severely stressed point of the shell and its fastenings shall not exceed the value  $\sigma$  defined in Marginal 211 125.

(2) The thickness of the cylindrical wall of the shell shall be at least equal to that obtained by the following formula:

$$e = \frac{R \times D}{200 \times \sigma \times \lambda} \text{ mm,}$$

where  $P$  = calculation pressure in kg/mm<sup>2</sup>;

$D$  = internal diameter of shell in mm;

$\sigma$  = permissible stress, as defined in marginal 211 125 (1), (a) and (b), and (2), in Kg/mm<sup>2</sup>; and

$\lambda$  = a coefficient, not exceeding 1, allowing for any weakening due to welds.

The thickness shall in no case be less than that defined in paragraphs (3) to (6) below.

(3) The walls and ends of shells of circular cross section not more than 1.80 m in diameter, <sup>2</sup> other than those referred to in paragraph (6), shall not be less than 5mm thick if of mild steel<sup>3</sup>, or of equivalent thickness if of another metal. If the diameter exceeds 1.80m, this thickness shall be increased to 6 mm if the shell is of mild steel, <sup>3</sup> or to an equivalent thickness if the shell is of another metal. «Equivalent thickness» means the thickness obtained by the following formula:

$$e_1 = \frac{10 \times e_0}{(R_{m1} \times A_1)^{1/2}} \sqrt{4}$$

(4) Where protection of the shell against damage through lateral impact or overturning is provided, the competent authority may allow the aforesaid minimum thicknesses to be reduced in proportion to the protection provided; however, the said thicknesses shall not be less than 3 mm in the case of mild steel, <sup>3</sup> or than an equivalent thickness in the case of other materials, for shells not more than 1.80 m in diameter <sup>2</sup> For shells with a diameter exceeding 1.80 m<sup>2</sup> the aforesaid minimum thickness shall be increased to 4 mm in the case of mild steel <sup>3</sup> and to an equivalent thickness in the case of other metal. «Equivalent thickness» means the thickness obtained by the following formula:

<sup>2</sup> For shells not of circular cross - section, for example box - shaped or elliptical shells, the indicated diameters shall correspond to those calculated on the basis of a circular cross - section of the same area. For such shapes of cross - section the radius of convexity of the shell wall shall not exceed 2,000 mm at the sides or 3,000 mm at the top and bottom.

<sup>3</sup> «Mild steel» means a steel having a minimum breaking strength between 37 and 44 kg/mm<sup>2</sup>.

$$e_1 = \frac{10 \times e_0}{(Rm_1 \times A_1)^{1/3}} \quad 4$$

Note: The following measures or equivalent measures may be adopted to protect the shell against damage:

(a) The shell may be provided on both sides, at a height situated between its centreline and its lower half, with protection against lateral impact consisting of a rolled metal girder extending at least 25 mm beyond the extreme outer edge of the shell. This girder shall be of such cross-section that if it is of mild steel<sup>3</sup> or a stronger material it has a section modulus of at least 5 cm<sup>3</sup>, the force being directed horizontally and at right angles to the direction of travel. If weaker materials are used, the section modulus shall be increased proportionately to the limits of elongation. Protection against overturning may take the form of strengthening rings, protective canopies, or transverse or longitudinal members so shaped that in the event of overturning no damage is caused to the fittings and accessories mounted on the upper part of the shell.

(b) There is also protection:

1. Where shells are made with double walls, the space between the latter being evacuated of air. The aggregate thickness of the outer metal wall and the shell wall shall correspond to the minimum wall thickness prescribed in paragraph (3), and the minimum thickness of the wall of the shell itself shall not be less than the minimum thickness prescribed in paragraph (4);

2. where the shells are made with double walls with an intermediate layer of solid materials at least 50 mm thick, the outer wall having a thickness of at least 0.5 mm if it is made of mild steel<sup>3</sup> and at least 2 mm if it is made of a plastics material reinforced with glass fibre. Solid foam (with an impact-absorption capacity like that, for example, of polyurethane foam of about 400 Kg/m<sup>3</sup> density) may be used as the intermediate layer of solid material.

(5) The thickness of tank shells designed in accordance with marginal 211 123 (1) which either are of not more than 5,000 litres capacity or are divided into leak-proof compartments of not more than 5,000 litres unit capacity may be adjusted to a level which, unless prescribed otherwise in the various Classes, shall however not be less than the appropriate value shown in the following table:

Maximum radius of curvature of shell (m)	capacity of shell or shell compartment (m <sup>3</sup> )	Minimum thickness (mm) Mild steel
≤	≤5.0	3
2 - 3	≤3.5	3
	>3.5 but ≤5.0	4

Where a metal other than mild steel is used, the thickness shall be determined by the equivalence formula given in paragraph (3). The thickness of the partitions and surge-plates shall in no case be less than that of the shell.

(6) Surge-plates and partitions shall be dished, with a depth of dish of not less than 10 cm, or shall be corrugated, profiled or otherwise reinforced to give equivalent strength. The area of the surge-plate shall be at least

70 per cent of the cross-sectional area of the tank in which the surge-plate is fitted.

(7) The manufacturer's qualification for performing welding operations shall be one recognized by the competent authority. Welding shall be performed by skilled welders using a welding process whose effectiveness (including any heat treatments required) has been demonstrated by test. Non-destructive tests shall be carried out by radiography or by ultrasound and must confirm that the quality of the welding is appropriate to the stresses.

In determining the thickness of the shell walls in accordance with paragraph (2), the following values of the coefficient lambda (λ) should be adopted for the welds:

0.8: where the weld beads are so far as possible inspected visually on both faces and are subjected to a non-destructive spot check with particular attention to connexions;

0.9: where all longitudinal beads throughout their length, all connexions, 25 per cent of circular beads, and welds for the assembly of large-diameter items of equipment are subjected to non-destructive checks. Beads shall be checked visually on both sides as far as possible;

1.0: where all beads are subjected to non-destructive checks and are so far as possible inspected visually on both sides. A weld test-piece shall be removed.

where the competent authority has doubts regarding the quality of weld beads, it may require additional checks.

(8) Measures shall be taken to protect shells against the risk of deformation as result of a negative internal pressure.

(9) The thermal insulation shall be so designed as not to hinder access to, or the operation of, filling and discharge devices and safety valves.

#### Stability

The overall width of the ground-level bearing surface (distance between the outer points of contact with the ground of the right-hand tyre and the left-hand tyre of same axle) shall be at least equal to 90 per cent of the height of the centre of gravity of the laden tank-vehicle. In an articulated vehicle the weight on the axles of the load-carrying unit of the laden semi-trailer shall not exceed 60 per cent of the nominal total laden weight of the complete articulated vehicle.

### Section 3

#### Items of equipment

The items or equipment, wherever situated, shall be so arranged as to be protected against the risk of being wrenched off or damaged during carriage or handling. They shall possess a degree of safety adapted to and comparable to that of the shells themselves, and shall in particular:

- be compatible with the substances carried; and
- meet the requirements of marginal 211 121.

As many operating parts as possible shall be served by the smallest possible number of apertures in the shell wall.

The leakproofness of the items of equipment shall be ensured even in the event of overturning of the vehicle.

Gaskets shall be made of material compatible with the substance carried and shall be replaced as soon as their effectiveness is impaired, for example as a result of ageing.

Gaskets ensuring the leakproofness of operating parts needing to be manipulated during normal use of the vehicle shall be so designed and arranged that manipulation of the operating part in which they are incorporated does not damage them.

#### Appendix B.1a

Every bottom-discharge shell, and in the case of compartmented bottom-discharge shells every compartment, shall be equipped with two mutually independent shut-off devices mounted in series, the first taking the form of an

211131

<sup>4</sup> This formula is derived from the general formula

$$e_1 = e_0 \sqrt{\frac{Rm_0 \times A_0}{Rm_1 \times A_1}}^{1/3}$$

where  $Rm_0 = 37$ ;

$A_0 = 27$  for the mild steel of reference;

$Rm_1 =$  minimum tensile strength of the metal chosen, in kg/mm<sup>2</sup>; and

$A_1 =$  minimum elongation of the metal chosen on fracture under tensile stress, in per cent.



internal stop-valve<sup>5</sup> mounted, with its seating, inside the shell and the second that of a sluice-valve or other equivalent device, at each end of the discharge pipe-socket. The internal stop-valve shall be operable from above or from below. If possible, the setting - open or closed - of the internal stop-valve shall be capable of being verified from the ground in both cases. The controls of the internal stop-valve shall be so designed as to prevent any inadvertent opening through impact or unconsidered action. The internal shut-off device must continue to be effective in the event of damage to the external control.

The position and/or direction of closure of the sluice-valves must be clearly apparent.

In order to avoid any loss of contents in the event of damage to the external filling and discharge fittings (pipes, lateral shut-off devices), the internal stop-valve and its seating shall be protected against the danger of being wrenched off by external stresses or shall be so designed as to withstand them. The filling and discharge devices (including flanges or threaded plugs) and protective caps (if any) shall be capable of being secured against any inadvertent opening.

The shell or each of its compartments shall be provided with an opening large enough to permit inspection.

Shells intended for the carriage of substances all the openings for which are above the surface level of the liquid may be equipped, in the lower part of the body, with a cleaning aperture (first-hole). This aperture must be capable of being sealed by a flange so closed as to be leakproof and whose design must be approved by the competent authority or by a body designated by that authority. 211132

Shells intended for the carriage of liquids having a vapour pressure of not more than 1.1 kg/cm<sup>2</sup> (absolute) at 50° C shall have a venting system and a safety device to prevent the contents from spilling out if the shell overturns; otherwise they must conform to the requirements of marginals 211134 or 211135. 211133

Shells intended for the carriage of liquids having a vapour pressure of not less than 1.1 and not more than 1.75 kg/cm<sup>2</sup> (absolute) at 50° C shall have a safety valve set at not less than 1.5 kg/cm<sup>3</sup> gauge pressure and which must be fully open at a pressure not exceeding the test pressure; otherwise they must conform to the requirements of marginal 211135. 211134

#### Appendix B.1a

Shells intended for the carriage of liquids having a vapour pressure of not less than 1.75 and not more than 3 kg/cm<sup>2</sup> (absolute) at 50° C shall have a safety valve set at not less than 3 kg/cm<sup>2</sup> gauge pressure and which must be fully open at a pressure not exceeding the test pressure; otherwise they must be hermetically closed.<sup>6</sup> 211135

No movable parts such as covers, closures, etc., which are liable to come into frictional or percussive contact with aluminium shells intended for the carriage of inflammable liquids having a flash-point of or below 55° C or for the carriage of inflammable gases may be made of unprotected corrodible steel. 211136

211137-  
211139

#### Section 4

##### Type approval

The competent authority or a body designated by that 211140

authority shall issue in respect of each new type of tank a certificate attesting that the prototype tank, including the shell fastenings which it has surveyed, is suitable for the purpose for which it is intended and meets the construction requirements of Section 2, the equipment requirements of Section 3 and the conditions peculiar to the Classes of substances carried.

The test results, the substances for the carriage of which the tank is approved, and its approval number as a prototype shall be recorded in a test report.

This approval shall be valid for tanks manufactured according to this prototype without modification.

211141-  
211149

#### Section 5

##### Tests

Tanks and their equipment shall, either together or separately, undergo an initial inspection before being put into service. This inspection shall include a check that the tank conforms to the approved prototype, a check of the design characteristics, an external and internal examination, a hydraulic pressure test at the test pressure indicated on the data plate, and a check of satisfactory operation of the equipment. 211150

##### Appendix. B.1a

The hydraulic pressure test shall be carried out before the installation of such thermal insulation as may be necessary. If the shells and their equipment are tested separately, they shall be jointly subjected to a leakproofness test after assembly. 211150

Tanks shall undergo periodic inspections at fixed intervals. 211151

The periodic inspections shall include an external and internal examination and, as a general rule, a hydraulic pressure test.<sup>7</sup> Sheathing for thermal insulation and the like shall be removed only to the extent required for reliable appraisal of the shell's characteristics.

The maximum intervals between periodic inspections shall be six years.

In addition, a leakproofness test and a check of the satisfactory operation of all the equipment shall be carried out every three years.

The tests, inspections and checks in accordance with marginals 211150 and 211151 shall be carried out by the expert approved by the competent authority. Certificates shall be issued showing the results of these operations. 211152

When the safety of the shell or of its equipment may be impaired as a result of repairs, alterations or accident, an exceptional check shall be carried out by the competent authority or by the expert approved by that authority. 211153

211154-  
211159

#### Section 6

##### Marking

Every shell shall be fitted with a corrosion-resistant metal plate permanently attached to the shell in a place readily accessible for inspection. The following particulars at least shall be marked on the plate by stamping or by any other similar method. These particulars may be engraved directly on the walls of the shell itself, if the walls are so reinforced that the strength of the shell is not impaired: 211160

<sup>6</sup> «Hermetically closed shells» means shells whose openings are hermetically closed and which are not equipped with safety valves, frangible disc or other similar safety devices. Shells having safety valves preceded by a frangible disc shall be deemed to be hermetically closed.

<sup>7</sup> In special cases, and with the agreement of the expert approved by the competent authority, the hydraulic pressure test may be replaced by a pressure test using another liquid or a gas, where such an operation does not entail any danger.

<sup>5</sup> Save as may be otherwise provided in the case of shells intended for the carriage of certain crystallizable or highly viscous substances, of deeply refrigerated liquefied gases, or of powdery or granular substances.

Appendix B.1a

approval number;  
 manufacturer's name or mark;  
 manufacturer's serial number;  
 year of manufacture;  
 test pressure in kg/cm<sup>2</sup> cm (gauge pressure);  
 capacity in litres - in the case of multiple-element shells,  
 the capacity of each element;  
 design temperature (only if above +50° C) or below -20°  
 C);  
 date (month and year) of initial test and most recent pe-  
 riodic test; and  
 stamp of the expert who carried out the tests.

211160

In addition, the maximum working pressure allowed  
 shall be inscribed on pressure-filled or pressure-discharge  
 shells.

The following particulars shall be inscribed on the tank-  
 vehicle itself or on a plate:

211161

name of operator;  
 unladen weight; and  
 permissible maximum weight.

In addition, tank-vehicles shall bear the prescribed  
 danger labels.

Section 7

Operation

The thickness of the walls of the shell shall not, throu-  
 ghout its use, fall below the minimum figure prescribed in  
 marginal 211127 (2).

211170

Shells shall not be loaded with any dangerous  
 substances other than those for whose carriage they have  
 been approved. Foodstuffs may not be carried in these  
 shells unless the necessary measures have been taken to  
 prevent any danger to public health.

211171

The following degrees of filling shall not be exceeded in  
 shells intended for the carriage of liquids at ambient tem-  
 peratures:

211172

(1) (a) where inflammable substances not presenting ad-  
 ditional risks (e.g. toxic or corrosive properties) are loaded  
 in shells with a venting system, with or without safety  
 valves:

$$\text{degree of filling} = \frac{100}{1 + \alpha(50-t_f)} \text{ or } \frac{100}{1 + 35\alpha} \% \text{ of}$$

capacity;

Appendix B.1a

(b) where toxic or corrosive substances, whether or not  
 presenting a fire risk, are loaded in shells with a venting  
 system, with or without safety valves:

211172

$$\text{degree of filling} = \frac{98}{1 + \alpha(50-t_f)} \text{ or } \frac{98}{1 + 35\alpha} \% \text{ of}$$

capacity;

(c) where low-concentration inflammable substances  
 and low-concentration acids and lyes are loaded in closed  
 shells:

$$\text{degree of filling} = \frac{97}{1 + \alpha(50-t_f)} \text{ or } \frac{97}{1 + 35\alpha} \% \text{ of}$$

capacity;

(d) where high-concentration toxic substances and high-  
 concentration acids and lyes are loaded in closed shells:

$$\text{degree of filling} = \frac{95}{1 + \alpha(50-t_f)} \text{ or } \frac{95}{1 + 35\alpha} \% \text{ of}$$

capacity.

(2) In these formulae,  $\alpha$  represents the mean coefficient  
 of cubic expansion of the liquid between 15° and 50° C, i.e.  
 for a maximum variation in temperature of 35° C.

$$a \text{ is calculated by the formula: } a = \frac{d_{15} - d_{50}}{35 \times d_{50}}$$

where  $d_{15}$  and  $d_{50}$  are the densities of the liquid at 15° C  
 and 50° C respectively and  $t_f$  is the mean temperature of  
 the liquid at the time of filling.

(3) The provisions of paragraph (1) above shall not  
 apply to shells whose contents are, by means of a heating  
 device, maintained at a temperature above 50° C during  
 carriage. In such a case the degree of filling at the outset  
 shall be such, and the temperature so regulated, that the  
 shell is not full to more than 95 per cent of its capacity at  
 any time during carriage, and that the filling temperature is  
 not exceeded.

(4) Where hot substances are loaded, the temperature of  
 the outer surface of the shell or of the thermal insulation  
 shall not exceed 70° C during carriage.

Appendix B.1a

Where shells intended for the carriage of liquids<sup>8</sup> are not  
 divided by partitions or surge-plates into sections of not  
 more than 7.500 litres' capacity, they shall be filled to not  
 less than 80 per cent of their capacity unless they are prac-  
 tically empty.

211173

Shells shall be closed in such a way that the contents  
 cannot run out uncontrolled. The leakproofness of the shell  
 closures, particularly in the upper part of the dip-tube,  
 shall be verified by the sender after the shell has been fil-  
 led.

211174

Where several closure systems are fitted in series, that  
 nearest to the substance being carried shall be closed first.

211175

No dangerous residue shall adhere to the outside of  
 shells during carriage, whether they are full or empty.

211176

To be accepted for carriage, empty shells must be  
 closed in the same manner and leakproof in the same  
 degree as though they were full.

211177

The connecting pipes between independent but inter-  
 connected shells of a transport unit shall be empty during  
 carriage.

211178

Flexible filling and discharge pipes which are not per-  
 manently connected to the shell shall be empty during car-  
 riage.

211179

Section 8

Transitional measures

Transitional measures

211180

Fixed tanks (tank-vehicles), demountable tanks and bat-  
 teries of receptacles built before 1 October 1978 and not

<sup>8</sup> For the purposes of this provision, substances whose efflux time  
 at 20° C from a DIN cup with a 4-mm orifice does not exceed 10  
 minutes (corresponding to an efflux time of less than 96 sec. at  
 20° C from a No. 4 Ford cup, or to less than 2,680 centistokes)  
 shall be deemed to be liquids.

conforming to the requirements of this Appendix may, if they were built in conformity with the requirements of ADR, be used during a period of six years from 1 October 1978. Fixed tanks (tank-vehicles), demountable tanks and batteries of receptacles intended for the carriage of gases of Class 2 may however be used for 12 years from the same date if the periodic-test requirement is complied with.

On the expiry of this period the aforesaid units may be kept in service if the equipment of the shell meets the present requirements. The thickness of the shell wall, except in the case of shells intended for the carriage of gases of Class 2, 7° and 8°, shall be appropriate to a calculation pressure of not less than 4 kg/cm<sup>2</sup> (gauge pressure) in the case of mild steel and of not less than 2 kg/cm<sup>2</sup> (gauge pressure) in the case of aluminium and aluminium alloys. For other than circular cross-sections of tanks, the diameter to be used as a basis for calculation shall be that of a circle whose area is equal to that of the real cross-section of the tank.

#### Appendix B.1a

The periodic tests for fixed tanks (tank-vehicles), demountable tanks and batteries of receptacles kept in service under these transitional provisions shall be conducted in accordance with the provisions of Section 5 and with the pertinent special provisions for the various Classes. Unless the earlier provisions prescribed a higher test pressure, a test pressure of 2 kg/cm<sup>2</sup> (gauge pressure) shall suffice for aluminium shells and aluminium-alloy shells.

Fixed tanks (tank-vehicles), demountable tanks and batteries of receptacles which meet these transitional provisions may be used during a period of 15 years from 1 October 1978 for the carriage of the dangerous goods for which they have been approved. This transitional period shall not apply to fixed tanks (tank-vehicles), demountable tanks and batteries of receptacles intended for the carriage of substances of Class 2, or to fixed tanks (tank-vehicles), demountable tanks and batteries of receptacles whose wall thickness and items of equipment meet the requirements of this Appendix.

#### Appendix B.1a Chapter II

#### SPECIAL REQUIREMENTS SUPPLEMENTING OR MODIFYING THE REQUIREMENTS OF CHAPTER I Class 2

Gases: compressed, liquefied or dissolved under pressure

##### Section 1

General: scope: definitions

##### Section 2 Construction

Shells intended for the carriage of substances of 1o to 6° and 9° shall be made of steel. By derogation from marginal 211125(3), a minimum elongation at fracture of 14 per cent may be accepted in the case of weldless shells.

The requirements of Appendix B.1d, marginals 214250 to 214285, shall apply to the materials and construction of shells intended for the carriage of gases of 7o and 8o.

Shells intended for the carriage of chlorine or phosgene [3°(at)] shall be designed for a pressure of at least 22 Kg/cm (gauge pressure).

##### Section 3

##### Items of equipment

The discharge pipes of shells shall be capable of being closed not only by the devices prescribed in marginal 211131 but in addition by means of a blank flange or some other equally reliable device.

Shells intended for the carriage of liquefied gases may be provided with, in addition to the openings prescribed in marginal 211131, openings for the fitting of gauges, including pressure gauges, and thermometers and with bleed holes, as required for their operation and safety.

Safety devices shall meet the following requirements:

(1) Filling and discharge openings of shells intended for the carriage of liquefied inflammable and/or toxic gases shall be equipped with an instant-closing internal safety device which closes automatically in the event of an inadvertent movement of the tank. It must also be possible to close the device by remote control.

(2) All openings, other than those accommodating safety valves and than closed bleed holes, of shells intended for the carriage of liquefied inflammable and/or toxic gases shall, if their nominal diameter is more than 1.5 mm, be equipped with an internal shut-off device.

(3) By derogation from the provisions of paragraphs (1) and (2), shells intended for the carriage of deeply-refrigerated inflammable and/or toxic liquefied gases may be equipped with external devices in place of internal devices if the external devices afford protection at least equivalent to that afforded by the wall of the shell.

(4) If the shells are equipped with gauges, the latter shall not be made of a transparent material in direct contact with the substance carried. If there are thermometers, they shall not project directly into the gas or liquid through the shell wall.

(5) Shells intended for the carriage of chlorine or sulphur dioxide [3° (at)] or methyl mercaptan or hydrogen sulphide [3° (bt)] shall not have any opening below the surface level of the liquid. In addition, cleaning apertures (fist-holes) as referred to in marginal 211132 shall not be permitted.

(6) Filling and discharge openings situated in the upper part of shells shall be equipped not only with what is prescribed in paragraph (1), but in addition with a second, external, closing device. This device shall be capable of being closed by a blank flange or some other equally reliable device.

Safety valves shall meet the following requirements:

(1) Shells intended for the carriage of gases of 1° to 6° and 9° may be provided with not more than two safety valves whose aggregate clear cross-sectional area of passage at the seating or seatings shall be not less than 20 cm<sup>2</sup> per 30 m<sup>3</sup> or part there of of the receptacle's capacity. These valves shall be capable of opening automatically at a pressure of between 0.9 and 0.1 times the test pressure of the shell to which they are fitted. They shall be of such a type as to resist dynamic stresses, including liquid surge. The use of dead-weight or counter-weight valves is prohibited.

Shells intended for the carriage of gases of 1o to 9o harmful to the respiratory organs or entailing a poison risk<sup>v</sup> shall not have safety valves unless the safety valves are preceded by a frangible disc. In the latter case the arrangement of the frangible disc and the safety valve shall be required to be satisfactory to the competent authority.

Where tank-vehicles are intended for carriage by sea, the provisions of this paragraph shall not prohibit the fitting of safety valves conforming to the regulations governing that mode of transport.

(2) Shells intended for the carriage of gases of 7o and 8o shall be equipped with two independent safety valves, each so designed as to allow the gases formed by evaporation during normal operation to escape from the shell in such a way that the pressure does not at any time exceed by more than 10 per cent the working pressure indicated on the shell. One of the two safety valves may be replaced by a frangible disc which shall be such as to burst at the test pressure. In the event of loss of the vacuum in a

9 Gases identified by the letter «t» in the list of substances are deemed to be gases harmful to the respiratory organs or entailing a poison risk.

double-walled shell, or of destruction of 20 per cent of the insulation of a single-walled shell, the safety valve and the frangible disc shall permit an outflow such that the pressure in the shell cannot exceed the test pressure.

(3) The safety valves of shells intended for the carriage of gases of 7° and 8° shall be capable of opening at the working pressure indicated on the shell. They shall be so designed as to function faultlessly even at their lowest working temperature. The reliability of their operation at that temperature shall be established and checked either by testing each valve or by testing a specimen valve of each design-type.

#### Thermal insulation

(1) If shells intended for the carriage of liquefied gases of 3° and 4° are equipped with thermal insulation, such insulation shall consist of either:

- a sun shield covering not less than the upper third but not more than the upper half of the shell surface and separated from the shell by an air space at least 4 cm across; or

- a complete cladding, of adequate thickness, of insulating materials.

(2) Shells intended for the carriage of gases of 7° and 8° shall be thermally insulated. Thermal insulation shall be ensured by means of a continuous sheathing. If the space between the shell and the sheathing is exhausted of air (vacuum insulation), the protective sheathing shall be so designed as to withstand without deformation an external pressure of at least 1 kg/cm<sup>2</sup> (gauge pressure). By derogation from marginal 211102(2), external and internal reinforcing devices may be taken into account in the calculations. If the sheathing is so closed as to be gas-tight, a device shall be provided to prevent any dangerous pressure from developing in the insulating layer in the event of inadequate gas-tightness of the shell or of its items of equipment. The device shall prevent the infiltration of moisture into the heat-insulating sheath.

(3) Shells intended for the carriage of liquefied gases having a boiling point below -182°C at atmospheric pressure shall not include any combustible material either in the thermal insulation or in the means of attachment to the frame.

The means of attachment of shells intended for the carriage of argon, nitrogen, helium or neon of 7°(a) or hydrogen of 7°(b) may, with the consent of the competent authority, contain plastics substances between the inner and the outer sheath.

For batteries of receptacles (see marginal 2212(1) (c))<sup>0</sup> 211235 the following conditions shall be complied with:

(1) If one of the elements of a multiple-element shell is equipped with a safety valve and shut-off devices are provided between the elements, every element shall be so equipped.

(2) The filling and discharge devices may be affixed to a manifold.

10. The provisions of this Appendix are not applicable to frames of cylinders.

(3) Each element of a multiple-element shell intended for the carriage of compressed gases of 1° and 2° which are harmful to the respiratory organs or entail a poison risk<sup>9</sup> or are inflammable, shall be capable of being isolated by a valve (cock).

(4) The elements of a multiple-element shell intended for the carriage of liquefied gases of 3o to 6o shall be so designed that they can be filled separately and can be kept isolated by a valve capable of being sealed.

(5) The following requirements shall apply to demountable tanks:

(a) they shall not be interconnected by a manifold; and

(b) if the demountable tanks can be rolled, the valves shall be provided with protective caps.

By derogation from the provisions of marginal 211131, 211236 shells intended for the carriage of deeply-refrigerated liquefied gases need not have an inspection aperture.

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211239

#### Section 4 Type approval

(No special requirements)

211240

211249

#### Section 5 Tests

The materials of shells intended for the carriage of gases of 7o and 8o shall be tested by the method described in Appendix V.1d, marginals 214275 to 214285. 211250

The test-pressure levels shall be as follows: 211251

(1) For shells intended for the carriage of gases of 1o and 2o: the levels indicated in marginal 2219 (1) and (3).

(2) For shells intended for the carriage of gases of 3o and 4o:

(a) if the shells are not more than 1.5 m in diameter, the levels indicated in marginal 2220(2);

(b) if the shells are more than 1.5 m in diameter, the levels<sup>11</sup> indicated below:

11. 1. The prescribed test pressures are:

(a) if the shell is equipped with thermal insulation, at least equal to the vapour pressure, reduced by 1 kg/cm<sup>2</sup> of the liquid at 60°C, and not less than 10 kg/cm<sup>2</sup>;

(b) if the shell is not equipped with thermal insulation, at least equal to the vapour pressure, reduced by 1 kg/cm<sup>2</sup> of the liquid at 65°C, and not less than 10 kg/cm<sup>2</sup>.

(2) In view of the high toxicity of phosgene [3o (α)], the minimum test pressure for this gas is fixed at 15 kg/cm<sup>2</sup> if the shell is equipped with thermal insulation and at 17 kg/cm<sup>2</sup> if it is not so equipped.

(3) The maximum values in Kg/litre prescribed for the degree of filling are calculated as follows: maximum weight of contents per litre of capacity = 0.95 × specific gravity of the liquid phase at 50°C.

Description of substance	Item number	Minimum test pressure for shells		Maximum weight of contents per litre of capacity kg
		with thermal	without insulation	
		kg/cm <sup>2</sup>	kg/cm <sup>2</sup>	
Bromochlorodifluoromethane (R 12 B1)	3° (a)	10	10	1.61
Chlorodifluoromethane (R 22)	3° (a)	24	26	1.03
Chloropentafluoroethane (R 115)	3° (a)	20	23	1.08
1-Chloro-2,2,2-trifluoroethane (R 133 a)	3° (a)	10	10	1.18
Dichlorodifluoromethane (R 12)	3° (a)	15	16	1.15
Dichlorofluoromethane (R 21)	3° (a)	10	10	1.23
1,2-Dichloro-1,2,2-tetrafluoroethane (R 114)	3° (a)	10	10	1.30
Octafluorocyclobutane (RC 318)	3° (a)	10	10	1.34
Ammonia	3° (a t)	26	29	0.53
Methyl bromide	3° (a t)	10	10	1.51
Chlorine	3° (a t)	17	19	1.25
Hexafluoropropylene (R 216)	3° (a t)	17	19	1.11
Hydrogen bromide	3° (a t)	50	55	1.20
Nitrogen dioxide NO <sub>2</sub>	3° (a t)	10	10	1.30
Phosgene	3° (a t)	15	17	1.23
Sulphur dioxide	3° (a t)	10	12	1.23
Butane	3° (b)	10	10	0.51
1-Butene	3° (b)	10	10	0.53
1-Chloro-1,1-difluoroethane (R 142b)	3° (b)	10	10	0.99
Cis-2-butene	3° (b)	10	10	0.55
Cyclopropane	3° (b)	16	18	0.53
1,1-Difluoroethane (R 152a)	3° (b)	14	16	0.79
Isobutane	3° (b)	10	10	0.49
Isobutene	3° (b)	10	10	0.52
Propane	3° 3b)	21	23	0.42
Propylene	3° (b)	25	27	0.43
Trans-2-butene	3° (b)	10	10	0.54
1,1,1-Trifluoroethane	3° (b)	28	32	0.79
Dime thylamine	3° (b t)	10	10	0.59
Dimethyl ether	3° (b t)	14	16	0.58
Ethylamine	3° (b t)	10	10	0.61
Ethyl Chloride	3° (b t)	10	10	0.80
Hydrogen sulphide	3° (b t)	45	50	0.67
Methylamine	3° (b t)	10	11	0.53
Methyl chloride	3° (b t)	13	15	0.81
Methyl mercaptan	3° (b t)	10	10	0.78
Trimethylamine	3° (b t)	10	10	0.56
1,3-Butadiene	3° (c)	10	10	0.55
Vinyl chloride	3° (c)	10	11	0.81
Methyl vinyl ether	3° (c t)	10	10	0.67
Trifluorochlorethylene (R 1113)	3° (c t)	15	17	1.13
Vinyl bromide	3° (c t)	10	10	1.37
Mixture F 1	4° (a)	10	11	1.23
Mixture F 2	4° (a)	15	16	1.15
Mixture F 3	4° (a)	24	27	1.03
Mixture of gases R 500	4° (a)	18	20	1.01
Mixture of gases R 502	4° (a)	25	28	1.05
Mixtures of 19 to 21 per cent by weight dichlorodifluoromethane (R 12) and 79 to 81 per cent by weight bromochlorodifluoromethane (R 12 B1)	4° (a)	10	11	1.50
Mixtures of methyl bromide and chloropicrin	4° (a t)	10	10	1.51
Mixture A (trade name: butane)	4° (b)	10	10	0.50
Mixture A 0 (trade name: butane)	4° (b)	12	14	0.47
Mixture A 1	4° (b)	16	18	0.46
Mixture B	4° (b)	20	23	0.43
Mixture C (trade name: propane)	4° (b)	25	27	0.42
Mixtures of hydrocarbons containing methane	4° (b)	—	225	0.187
Mixtures of methyl chloride and methylene chloride	4° (b t)	—	300	0.244
Mixtures of methyl chloride and chloropicrin	4° (b t)	13	15	0.81
Mixtures of methyl bromide and ethylene bromide	4° (b t)	10	10	1.51
Methylacetylene/propadiene and hydrocarbon mixtures				
Mixture P <sub>1</sub>	4° (c)	25	28	0.49
Mixture P <sub>2</sub>	4° (c)	22	23	0.47
Ethylene oxide containing not more than 10 per cent carbon dioxide by weight	4° (c t)	24	26	0.73
Ethylene oxide with nitrogen up to a total pressure of 10 kg/cm <sup>2</sup> at 50° C	4° (c t)	15	15	0.78
Dichlorodifluoromethane containing 12 per cent ethylene oxide by weight	4° (c t)	15	16	1.09

## Appendix B.1a

(3) For shells intended for the carriage of gases of 5° and 6°:

211251  
(contd)

(a) if the shells are not sheathed in thermal insulation: the levels indicated in marginal 2220 (3) and (4);  
(b) if the shells are sheathed in thermal insulation: the levels indicated below:

Description of substance	item number	Minimum test pressure Kg/cm <sup>2</sup>	Maximum weight of contents per litre of capacity Kg
Bromotrifluoromethane (R 13 B 1) Carbon dioxide	5° (a)	120	1.50
	5° (a)	190	0.73
		225	0.78
Chlorotrifluoromethane (R 13)	5° (a)	120	0.96
		225	1.12
Hexafluorethane (R 116)	5° (a)	160	1.28
		200	1.34
Nitrous oxide N <sub>2</sub> O	5° (a)	225	0.78
Sulphur hexafluoride	5° (a)	120	1.34
Trifluoromethane (R 23)	5° (a)	190	0.92
		250	0.99
Xenon	5° (a)	120	1.30
Hydrogen chloride	5° (a t)	120	0.69
Ethane	5° (b)	120	0.32
Ethylene	5° (b)	120	0.25
		225	0.36
1,1-Difluoroethylene	5° (c)	120	0.66
		225	0.78
Vinyl fluoride	5° (c)	120	0.58
		225	0.65
		225	0.65
Mixture of gases R 503	6° (a)	31	0.11
		42	0.21
		100	0.76
Carbon dioxide containing not more than 35 per cent ethylene oxide by weight	6° (c)	190	0.73
		225	0.78
Ethylene oxide containing more than 10 per cent but not more than 50 per cent carbon dioxide by weight	6° (c t)	190	0.66
		250	0.75

## Appendix B.1a

Where shells sheathed in thermal insulation are used which have been subjected to a test pressure lower than that shown in the table, the maximum weight of the contents per litre of capacity shall be such that the pressure reached in the shell by the substance in question at 55°C does not exceed the test pressure stamped on the shell. In such a case the maximum load allowed shall be prescribed by the expert approved by the competent authority.

(4) For shells intended for the carriage of ammonia dissolved under pressure [9o (a t)]:

Description of substance	Item number kg/cm <sup>2</sup>	Minimum test pressure	Maximum weight of contents per litre of capacity kg
Ammonia dissolved under pressure in water with more than 35 per cent but not more than 40 per cent ammonia by weight	9o (a t)	10	0.80
	9o (a t)	10	0.77

(5) For shells intended for the carriage of gases of 7o and 8o: not less than 1.3 times the maximum permitted working pressure, as indicated on the shell, but not less than 3 kg/cm<sup>2</sup> (gauge pressure); for shells with vacuum insulation the test pressure shall be not less than 1.3 times the maximum permitted working pressure increased by 1 kg/cm<sup>2</sup>.

The first hydraulic pressure test shall be carried out before the thermal insulation is placed in position.

the capacity of each shell intended for the carriage of gases of 3o to 6o and 9o shall be determined, under the supervision of an expert approved by the competent authority, by weighing of volumetric measurement of the quantity of water which fills the shell; any error in the measurement of shell capacity shall be of less than one per cent. Determination by a calculation based on the dimensions of the shell is not permitted. The maximum filling weights allowed in accordance with marginals 2220 (4) and 211251 (3) shall be prescribed by an approved expert.

Checking of the welds shall be carried out in accordance with the lambda-coefficient 1.0 requirements of marginal 211127 (7).

By derogation from the requirements of marginal 211151, the periodic tests shall take place:

(1) every three years

in the case of shells intended for the carriage of boron trifluoride [1o (a t)], town gas [2o (b t)], hydrogen bromide, chlorine, nitrogen dioxide, sulphur dioxide or phosgene [3o (a t)], hydrogen sulphide [3o (b t)], or hydrogen chloride [5o (a t)];

(2) every six years

in the case of shells intended for the carriage of other compressed and liquefied gases or of ammonia dissolved under pressure [9o (a t)]; and

(3) after six years' service and thereafter every twelve years

in the case of shells intended for the carriage of gases of 7o or 8o. A leakproofness check shall be performed by an approved expert six years after each periodic test.

Leakproofness tests of shells intended for the carriage of gases of 1o to 6o and 9o shall be performed at a pressure of not less than 4 kg/cm<sup>2</sup> (gauge pressure).

In the case of shells heat-insulated by vacuum, the hydraulic-pressure test and the check of the internal condition may, with the consent of the approved expert, be replaced by a leakproofness test and measurement of the vacuum. 211256

If apertures have been made, on the occasion of periodic inspections, in shells intended for the carriage of gases of 7o or 8o, the method by which they are hermetically closed before the shells are replaced in service shall be approved by the approved expert and shall ensure the integrity of the shell. 211257

211258  
-211259

#### Section 6

#### Marking

The following additional particulars shall be marked by stamping or by any other similar method on the plate prescribed in marginal 211160, or directly on the walls of the shell itself if the walls are so reinforced that the strength of the shell is not impaired: 211260

(1) on shells intended for the carriage of only one substance:

the name of the gas in full.

This indication shall be supplemented in the case of shells intended for the carriage of compressed gases of 1o and 2o by an indication of the maximum filling pressure at 15°C allowed for the shell, and in the case of shells intended for the carriage of liquefied gases of 3o to 8o or of ammonia dissolved under pressure of 9o (a t) by an indication of the permissible maximum load in kg and of the filling temperature if below -20°C;

(2) on multi-purpose shells:

the names, in full, of the gases for whose carriage the shell is approved.

These particulars shall be supplemented by an indication of the permissible maximum load in kg for each gas;

(3) on shells intended for the carriage of gases of 7o or 8o: the working pressure; and

(4) on shells equipped with thermal insulation:

the inscription «thermally insulated» or «thermally insulated by vacuum».

The frame of a multiple-element shell shall bear near the filling point a plate specifying: 211261

the test pressure of the elements;

the maximum filling pressure at 15°C allowed for elements intended for compressed gases;

the number of elements;

the aggregate capacity of the elements in litres

the name of the gas in full;

and, in the case of liquefied gases:

the permissible maximum load per element, in kg.

In addition to the particulars prescribed in marginal 211161, the following shall be inscribed either on the tank-vehicle itself or on a plate: 211262

(a) either: «minimum filling temperature allowed: -20°C» or «minimum filling temperature allowed:....»;

(b) where the shell is intended for the carriage of one substance

the name of the gas in full;

for liquefied gas of 3o to 8o and for ammonia dissolved under pressure in water [9o (a t)], the permissible maximum load in kg

(c) where the shell is a multi-purpose shell:

the name in full of all the gases to whose carriage the shell is assigned, with an indication of the permissible maximum load in kg, for each gas;

(d) where the shell is equipped with thermal insulation: 211262

the inscription «thermally insulated» or «thermally insulated by vacuum», in an official language of the forwarding country and also in English, French or German, unless international road transport tariffs, if any, or agreements concluded between the countries concerned in the transport operation, provide otherwise.

211263

The plates on vehicles carrying demountable tanks as referred to in marginal 211235 (5) shall not bear the particulars prescribed in marginals 211161 and 211262.

211264  
-211269

#### Section 7

#### Operation

A shell assigned at different times to the carriage of different liquefied gases of 3o to 8o (multi-purpose shell) may not carry substances other than those listed in one, and one only, of the following groups: 211270

Group 1: halogenated hydrocarbons of 3o (a) and 4o (a);

Group 2: hydrocarbons of 3o and 4o (b);

Group 3: ammonia [3o (a t)]; dimethyl ether, dimethylamine, ethylamine, methylamine and trimethylamine [3 (b t)]; and vinyl chloride [3o (c)];

Groupe 4: methyl bromide [3o (a t); ethyl chloride and methyl chloride [3o (b t)];

Groupe 5: mixtures of ethylene oxide with carbon dioxide and of ethylene oxide with nitrogen [4o (c t)];

Groupe 6: nitrogen, carbon dioxide, rare gases, nitrous oxide N<sub>2</sub>O, and oxygen [7o (a)]; air, mixtures of nitrogen with rare gases, and mixtures of oxygen with nitrogen, also when they contain rare gases [8o (a)];

Groupe 7: ethane, ethylene, and methane [7o (b)]; and mixtures of methane with ethane, also when they contain propane or butane [8o (b)].

Shells which have been filled with a substance of group 1 or group 2 shall be emptied of liquefied gas before being loaded with another substance belonging to the same group. Shells which have been filled with a substance of groups 3 to 7 shall be completely emptied of liquefied gas and then blown down before being loaded with another substance belonging to the same group. 211271

The multiple use of shells for the carriage of liquefied gases of the same group shall be allowed if all the requirements prescribed for the gases to be carried in one and the same shell are observed. Such multiple use shall be subject to approval by an approved expert. 211272

The multiple use of shells for the carriage of gases of different groups shall be allowed if permitted by the approved expert. 211273

When shells are reassigned to gases of a different group, the shells shall be completely emptied of liquefied gases, then blown down and, lastly, degassed. The degassing of shells shall be verified and certified by the approved expert.

When loaded tanks or empty but uncleaned tanks are handed over for carriage, only the particulars specified in marginal 211262 applicable to the gas loaded of just 211274

discharged shall be visible; all particulars concerning other gases shall be covered up.

All the element of a multiple -element shell shall contain only one and the same gas. In the case of a multiple-element shell intended for the carriage of liquefied gases, the elements shall be filled separately and be kept isolated by a sealed valve.

The maximum filling pressure for compressed gases of 1o and 2o other than boron fluoride shall not exceed the values prescribed in marginal 2219 (2).

For boron fluoride [1o (a)] the maximum filling weight per litre of capacity shall not exceed 0.86 kg.

The maximum filling weight per litre of capacity according to marginals 2220, (2), (3) and (4), and 211251, (2), (3) and (4), shall be abided by.

The degree of filling of shells intended for the carriage of gases of 7o (b) and 8o (b) shall remain below the level at which, if the contents were raised to the temperature at which the vapour pressure equalled the valve-opening pressure, the volume of the liquid would reach 95 per cent of the shell's capacity at that temperature. Shells intended for the carriage of gases of 7o (a) and 8o (a) may be filled to 98 per cent at the loading temperature and the loading pressure.

On shells intended for the carriage of nitrous oxide and oxygen [7o (a)], air, or mixtures containing oxygen [8o (a)], substances containing grease or oil shall not be used to ensure leakproofness of the joints or for the maintenance of the closures.

The requirement in marginal 211175 shall not apply to gases of 7o and 8o.

Appendix B.1a  
Class 3  
Inflammable liquids  
Section 1  
General scope; definitions

Section 2  
Construction

Shells intended for the carriage of carbon disulphide [1°(a)] shall be designed for a pressure of 10 kg/cm<sup>2</sup> (gauge pressure).

Section 3  
Items of equipment

Shells which are fitted with a venting device not capable of being closed and which are intended for the carriage of inflammable liquids having a flash-point not exceeding 55°C shall have a flame-trap in the venting device.

All openings of shells intended for the carriage of acrylaldehyde (acrolein), chloroprene (chlorobutadiene) and carbon disulphide [1°(a)] shall be above the surface level of the liquid. No piping or pipe connexions shall pass through the walls of the shell below the surface level of the liquid. The openings, other than those equipped with valves, shall be capable of being closed by leakproof closures, and the latter shall be capable of being protected

by a locable cap. If the shells are equipped with safety valves, the latter shall be preceded by a frangible disc. In such a case the arrangement of the frangible disc and the safety valve shall be required to be satisfactory to the competent authority.

Section 4  
Type approval  
(No special requirements)

Appendix B.1a  
Section 5  
Tests

The minimum test pressure to which shells intended for the carriage of carbon disulphide [1°(a)] shall be subjected shall be 4 kg/cm<sup>2</sup> (gauge pressure). The minimum test pressure to which shells intended for the carriage of the other substances of the Class shall be subjected shall be equal to that, as defined in marginal 211123, used for their design.

Section 6  
Marking

(No special requirements)

Section 7  
Operation

The following degrees of filling shall not be exceeded when shells filled with liquids having a vapour pressure of more than 1.75 kg/cm<sup>2</sup> (absolute) at 50°C are hermetically-closed shells:

in the case of methyl formate [1°(a)] and other liquids having a coefficient of cubical expansion of more than  $150 \times 10^{-5}$  but not more than  $180 \times 10^{-5}$ :

.....91 per cent of capacity;  
in the case of acetaldehyde [5°] and other liquids having a coefficient of cubical expansion of more than  $180 \times 10^{-5}$  but not more than  $230 \times 10^{-5}$ : .....90 per cent of capacity;

An aluminium-alloy shell shall not be used for the carriage of acetaldehyde [5°] unless the shell is assigned solely to such carriage and the acetaldehyde is free from acid.

In the cold season (October to March), light distillates for cracking and other liquid hydrocarbons having a vapour pressure not exceeding 1.5 kg/cm<sup>2</sup> (absolute) at 50°C may be carried in shells of the type prescribed in marginal 211133.

Appendix B.1a  
Class 4.1  
Inflammable solids  
Class 4.2

Substances liable to spontaneous combustion  
Class 4.3

Substances which give off inflammable gases on contact with water  
Section 1

General; scope; definitions

211332-  
211339

211340-  
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211351-  
211359

211360-  
211369

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211373  
211399

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211400-  
211419

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211300-  
211319

211320

211321-  
211329

211330

211331



Section 2 Construction		Section 6 Marking	
Shells intended for the carriage of white or yellow phosphorus of marginal 2431, 1°, or trichlorosilane (silicochloroform) of marginal 2471, 4°, shall be designed for a pressure of at least 10 kg/cm <sup>2</sup> (gauge pressure).	211420	(No special requirements)	211460- 211469
		Section 7 Operation	
	211421- 211429	Shells intended for the carriage of sulphur [2°(b) or naphthalene [11° (c)]] of marginal 2401 shall be filled to not more than 98 per cent of their capacity.	211470
Section 3 Items of equipment			
Shells intended for the carriage of sulphur [2°(b)] or naphthalene [11°(c)] of marginal 2401 shall be equipped with thermal insulation made of materials which are not readily inflammable. They may be equipped with valves opening automatically inwards or outwards under the effect of a difference of pressure of 0.2 to 0.3 kg/cm <sup>2</sup> . The discharge devices shall be capable of being protected by a lockable metal cap.	211430	White or yellow phosphorus of marginal 2431, 1°, shall, if water is used as the protective agent, be covered with a depth of not less than 12 cm of water at the time of filling; the degree of filling at a temperature of 60°C shall not exceed 98 per cent. If nitrogen is used as the protective agent, the degree of filling at a temperature of 60° C shall not exceed 96 per cent.	211471
Shells intended for the carriage of white or yellow phosphorus of marginal 2431, 1°, shall meet the following requirements:	211431	Appendix B.1a	
(1) The heating device shall not penetrate into, but shall be exterior to, the body of the shell. However, a pipe used for extracting the phosphorus may be equipped with a heating jacket. The device heating the jacket shall be so regulated as to prevent the temperature of the phosphorus from exceeding the filling temperature of the shell. Other piping shall enter the shell in its upper part; openings shall be situated above the highest permissible level of the phosphorus and be capable of being completely enclosed under lockable caps. In addition, the cleaning apertures (first-holes) referred to in marginal 211132 shall not be permitted.		The remaining space shall be filled with nitrogen in such a way that, even after cooling, the pressure at no time falls below atmospheric pressure. The shell shall be hermetically closed so that no leakage of gas occurs.	
		For the carriage of substances of marginal 2471, 1° (a), caps shall be locked in conformity with marginal 211432.	211472
		In the case of trichlorosilane (silicochloroform) of marginal 2471, 4°, the degree of filling shall not exceed 1.14 kg per litre of capacity if filling is by weight or 85 per cent if filling is by volume.	211473
		Shells which have contained phosphorus of marginal 2431, 1°, shall when handed over for carriage either:	211474
		– be filled with nitrogen; the sender shall certify in the transport document that the shell, after closure, is gas-tight; or	
		– be filled with water to not less than 96 per cent and not more than 98 per cent of their capacity; between 1 October and 31 March this water shall contain one or more anti-freeze agents free from corrosive action, not liable to react with phosphorus, and in such concentration as to make it impossible for the water to freeze during carriage.	
Appendix B.1a			
(2) The shell shall be equipped with a gauging system for verifying the level of the phosphorus and, if water is used as the protective agent, with a fixed gauge mark showing the highest permissible level of the water.	211431		
The openings and orifices (valves, sleeves, manholes, etc.) of shells intended for the carriage of substances of marginal 2471, 1° (a), shall be protected by leakproof lockable caps, and such shells shall be equipped with thermal insulation made of materials which are not readily inflammable.	211432		211475- 211499
	211433- 211439	Class 5.1 Oxidizing substances Class 5.2 Organic peroxides Section 1 General; scope; definitions	
Section 4 Type approval			
(No special requirements)	211440- 211449		211500- 211519
Section 5 Tests		Section 2 Construction	
Shells intended for the carriage of sulphur [2° (b)] or naphthalene [11° (c)] of marginal 2401 or white or yellow phosphorus of marginal 2431, 1°, and those intended for the carriage of trichlorosilane (silicochloroform) of marginal 2471, 4°, shall be tested at a pressure of 4 kg/cm <sup>2</sup> (gauge pressure).	211450	Shells intended for the carriage in the liquid state of substances referred to in marginal 51121 (1) shall be designed for a pressure of at least 4 kg/cm <sup>2</sup> (gauge pressure).	
	211451- 211459	Shells, and their items of equipment, intended for the carriage of hydrogen peroxide or of aqueous solutions of hydrogen peroxide of marginal 2501, 1°, or of liquid organic peroxides of marginal 2551, 1°, 10°, 14°, 15° and 18°, shall be made of aluminium not less than 99.5 per cent pure or of suitable steel not liable to cause the hydrogen peroxide or the organic peroxides to decompose.	211521

Appendix B.1a		a pressure of 4 kg/cm <sup>2</sup> (gauge pressure).	211551
Shells intended for the carriage of concentrated and hot aqueous solutions of ammonium nitrate of marginal 2501, 6° (a), shall be made of austenitic steel.	211522		211559
	211523	Section 6	
	211529	Marking	
		(No special requirements)	211560
Section 3			211569
Items of equipment			
Shells intended for the carriage of hydrogen peroxide and of aqueous solutions of hydrogen peroxide containing more than 70 per cent hydrogen peroxide, of marginal 2501, 1°, shall have their openings above the surface level of the liquid. In addition, cleaning apertures (fist holes) as referred to in marginal 211132 shall not be permitted. In the case of solutions containing more than 60 per cent but not more than 70 per cent hydrogen peroxide, openings below the surface level of the liquid shall be permissible. In this case the shell - discharge system shall be equipped with two mutually independent shut - off devices mounted in series, the first taking the form of a quick - closing internal stop - valve of an approved type and the second that of a sluice - valve, at each end of the discharge pipe - socket. A blank flange, or another device providing the same measure of security, shall also be fitted at the outlet of each external sluice - valve. The internal stop - valve shall be such that if the pipe is wrenched off the stop - valve will remain integral with the shell and in the closed position.	211530	Section 7	
The connexions to the external pipe - sockets of shells shall be made of materials not liable to cause decomposition of hydrogen peroxide.	211531	Operation	
Shells intended for the carriage of hydrogen peroxide or of aqueous solutions of hydrogen peroxide of 1°, or of concentrated and hot aqueous solutions of ammonium nitrate of 6° (a), of marginal 2501 shall be fitted in their upper part with a shut - off device preventing any build - up of excess pressure inside the receptacle, any leakage of liquid, and any entry of foreign matter into the receptacle. The shut - off devices of shells intended for the carriage of concentrated and hot aqueous solutions of ammonium nitrate shall be so designed as to preclude obstruction of the devices by solidified ammonium nitrate during carriage.	211532	The inside of the shell, and all parts liable to come into contact with substances referred to in marginal 51121, shall be kept clean. No lubricant capable of combining dangerously with the substance carried shall be used for pumps, valves or other devices.	211570
Where shells intended for the carriage of concentrated and hot solutions of ammonium nitrate of marginal 2501, 6° (a), are sheathed in thermally - insulating material, the material shall be of an inorganic nature and entirely free from combustible matter.	211533	Shells intended for the carriage of liquids of marginal 2501, 1° to 3°, shall be filled to not more than 95 per cent of their capacity at a reference temperature of 15°C.	211571
Shells intended for the carriage of liquid organic peroxides of marginal 2551, 1°, 10°, 14°, 15° and 18°, shall be equipped with a venting device fitted with a flame - trap and followed in series by a safety valve opening at a gauge pressure of 1.8 to 2.2 kg/cm <sup>2</sup> .	211534	Shells intended for the carriage of hot aqueous solutions of ammonium nitrate of marginal 2501, 6° (a), shall be filled to not more than 97 per cent of their capacity, and the maximum temperature after filling shall not exceed 140°C.	
Appendix B.1a			
Shells intended for the carriage of liquid organic peroxides of marginal 2551, 1°, 10°, 14°, 15° and 18°, shall be equipped with thermal insulation complying with the requirements of marginal 211234 (1). The covering and any uncovered part of the shell, or the outer sheathing of a complete lagging, shall be painted white and the paint shall be cleaned before each transport journey and renewed in case of yellowing or deterioration. The thermal insulation shall be free from combustible matter.		Appendix B.1a	
	211536	Tanks used for the carriage of hot aqueous solutions of ammonium nitrate of marginal 2501, 6° (a), shall not be used for the carriage of other substances without being first carefully cleansed of any residues.	211572
	211539		211573
Section 4			211599
Type approval		Class 6.1	
	211549	Toxic substances	
Section 5	211540	Section 1	
(No special requirements)		General: scope: definitions	211600
	211550		211619
Tests		Section 2	
Shells intended for the carriage of hydrogen peroxide or of aqueous solutions of hydrogen peroxide of 1°, or of concentrated and hot solutions of ammonium nitrate of 6° (a), of marginal 2501, or of liquid organic peroxides of marginal 2551, 1°, 10°, 14°, 15° and 18°, shall be tested at		Construction	
		Shells intended for the carriage of hydrocyanic acid solutions of 1° (b), or aqueous solutions of ethyleneimine and propyleneimine of 3°, or nickel carbonyl of 5° (a), shall be designed for a pressure of at least 15 kg/cm <sup>2</sup> (gauge pressure).	211620
		Shells intended for the carriage of other substances referred to in marginal 61121 (1), (a) and (b), shall be designed for a pressure of at least 10 kg/cm <sup>2</sup> (gauge pressure).	211621
		Shells intended for the carriage of substances referred to in marginal 61121 (1), (c), shall be designed for a pressure of at least 4 kg/cm <sup>2</sup> (gauge pressure).	211622
		Shells intended for the carriage of powdery or granular substances shall be designed in accordance with the requirements of the general section of this Appendix.	211623
			211624
			211629
		Section 3	
		Items of equipment	
		All openings of shells intended for the carriage of substances referred to in marginal 61121 (1), (a) and (b), shall be above the surface level of the liquid. No piping or pipe connexions shall pass through the walls of the shell below the surface level of the liquid. The openings shall be capable of being hermetically closed, and the closure shall be capable of being protected by a lockable cap. In addition, cleaning apertures (fist - holes) as referred to in marginal 211132 shall not be permitted for shells intended for the carriage of aqueous solutions of hydrocyanic acid [1° (b)].	211630
		Appendix B.1a	
		(1) Shells intended for the carriage of substances referred to in marginal 61121 (1), (c) and (d), may be of the bottom - discharge type.	211631
		(2) The bottom - discharge fittings of shells intended for the carriage of the substances referred to in marginal 61121 (1), (c), shall conform to the requirements of mar-	

ginal 211131, and in addition the discharge pipes of the shells shall be capable of being closed by a blank flange, a plug, or some other equally effective device.

(3) All openings of the shells referred to in paragraph (1) shall be capable of being hermetically closed.

If the shells are fitted with safety valves, the latter shall be preceded by a frangible disc. The arrangements of the frangible disc and the safety valve shall be required to be satisfactory to the competent authority.

Tanks fitted with safety valves and frangible discs and intended for carriage by sea shall conform to the regulations governing that mode of transport.

#### Protection of equipment

(1) Fittings and accessories mounted in the upper part of the shell

Such fittings and accessories shall be either inserted in a recessed housing; or equipped with an internal safety valve; or shielded by a cap, or by transverse and/or longitudinal members, or by other equally effective devices, so profiled that in the event of overturning the fittings and accessories will not be damaged.

(2) Fittings and accessories mounted in the lower part of the shell

Pipe - sockets, lateral shut - off devices, and all discharge devices shall either be recessed by at least 200 mm from the extreme outer edge of the shell or be protected by a rail having a coefficient of inertia of not less than 20 cm<sup>3</sup> transversally to the direction of travel; their ground clearance shall be not less than 300 mm with the shell full.

(3) Fittings and accessories mounted on the rear face of the shell

All fittings and accessories mounted on the rear face shall be protected by the bumper prescribed in marginal 10216. Their height above the ground shall be such that they are adequately protected by the bumper.

#### Appendix B.1a

##### Section 4

##### Type approval

Tanks approved for the carriage of toxic substances shall not be approved for the carriage of foodstuffs, articles of consumption or animal feeding stuffs.

##### Section 5

##### Tests

Shells intended for the carriage of the substances referred to in marginal 61121 (1), (a) to (c), shall be tested initially and periodically at a pressure of 4 kg/cm<sup>2</sup> (gauge pressure).

The periodic tests shall be carried out at intervals of not more than three years in the case of shells intended for the carriage of substances of 14°.

##### Section 6

##### Marking

(No special requirements)

##### Section 7

##### Operation

The degree of filling of shells intended for the carriage of substances referred to in marginal 61121 (1), (a) to (d), shall conform to marginal 211172 (1) (d).

Shells intended for the carriage of substances of 5° (a) and 5° (b) shall be filled only to the extent of 1 kg of liquid per litre of capacity.

The openings of the shells shall be hermetically closed during carriage.

Tanks used for the carriage of toxic substances shall not be used for the carriage of foodstuffs, articles of consumption or animal feeding stuffs.

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### Class 7 Radioactive substances Section 1 General; scope; definitions

#### Section 2

##### Construction

Shells intended for the carriage of the substances referred to in marginal 2703, Schedule 5, paragraph 11, shall be designed for a pressure of at least 4 kg/cm<sup>2</sup> (gauge pressure).

Where the radioactive substances are in solution or suspension in substances of other Classes and the calculation pressures prescribed for the shells of tanks intended for the carriage of the latter substances are greater, the latter pressures shall be applied.

#### Section 3

##### Items of equipment

Shells intended for the carriage of liquid radioactive substances<sup>8</sup> shall have their openings above the surface level of the liquid. No piping or pipe connexion shall pass through the walls of the shell below the surface level of the liquid.

#### Section 4

##### Type approval

Tanks approved for the carriage of radioactive substances shall not be approved for the carriage of foodstuffs, articles of consumption, animal feeding stuffs, cosmetics or medicaments, or of substances used in the manufacture of these products.

#### Section 5

##### Tests

Shells intended for the carriage of the substances referred to in marginal 2703, Schedule 5, paragraph 11, shall be tested initially and periodically at a pressure of 4 kg/cm<sup>2</sup> (gauge pressure).

By derogation from the requirements of marginal 211151, the periodic internal inspection may be replaced by a check of the wall thickness by ultrasound, performed every three years.

#### Section 6

##### Marking

(No special requirements)

#### Section 7

##### Operation

The degree of filling at the reference temperature of 15°C shall not exceed 93 per cent of the total capacity of the shell.

Tanks which have been used for the carriage of radioactive substances shall not be used for the carriage of foodstuffs, articles of consumption, animal feeding stuffs, cosmetics or medicaments, or of substances used in the manufacture of these products.

### Class 8

#### Corrosive substances

##### Section 1

##### General; scope; definitions

#### Section 2

##### Construction

Shells intended for the carriage of hydrogen fluoride (anhydrous hydrofluoric acid) [6°(a)], of aqueous solutions of hydrofluoric acid [6°(b)], or of bromine (14°) shall be designed for a pressure of at least 21 kg/cm<sup>2</sup> (gauge pressure). Shells intended for the carriage of bromine shall be equipped with a lead lining not less than 5 mm thick, or with an equivalent lining.

Shells intended for the carriage of substances of 1° (a), 2° (a), 6° (c), 7° to 9°, 21° (a) and 23° shall be designed for a pressure of at least 10 kg/cm <sup>2</sup> (gauge pressure).	211821	of suitable instruments (e.g. by ultrasound) and the condition of the equipment verified.	
Where the use of aluminium is necessary for shells intended for the carriage of substances of 2° (a), such shells shall be made of aluminium not less than 99.5 per cent pure, in which case, by derogation from the subparagraph above, the wall thickness need not exceed 15 mm.		The pressure test of shells intended for the carriage of stabilized sulphur trioxide (9°) shall be repeated every three years.	211852
Shells intended for the carriage of monochloroacetic acid [21° (a)] shall be equipped with an enamel or equivalent lining if the material of the shell is attacked by that acid.		The condition of the lining of shells intended for the carriage of bromine (14°) shall be checked every year by an approved expert, who shall inspect the inside of the shell.	211853
		Section 6	211854
		Marking	211859
Shells intended for the carriage of the substances referred to in marginal 81121 other than those listed in marginals 211820 and 211821 shall be designed for a pressure of not less than 4 kg/cm <sup>2</sup> (gauge pressure).	211822	Shells intended for the carriage of hydrogen fluoride (anhydrous hydrofluoric acid) [6° (a)], of aqueous solutions of hydrofluoric acid [6° (b)], or of bromine (14°), shall bear, in addition to the particulars already prescribed in marginals 211160 and 211161, an indication of the permissible maximum net load in kilogrammes and the date (month, year) of the most recent internal inspection of the shell.	211860
Shells intended for the carriage of aqueous solutions of hydrogen peroxide (41°) shall meet the requirements of marginal 211520.	211823		
	211824		
	211829	Section 7	211861
		Operation	211869
Section 3			
Items of equipment			
All openings in shells intended for the carriage of substances of 6° and of bromine (14°) shall be above the surface level of the liquid; no piping or pipe connexions shall pass through the walls of the shell below the surface level of the liquid. In addition, cleaning apertures (fish-holes) as referred to in marginal 211132 shall not be permitted. The closures shall be capable of being effectively protected by a metal cap.	211830	Shells intended for the carriage of sulphuric acid [10 (c)] shall be filled to not more than 95 per cent of their capacity, those intended for the carriage of stabilized sulphur trioxide (9°) to not more than 88 per cent, and those intended for the carriage of bromine (14°) to not less than 88 per cent and not more than 92 per cent or to the extent of 2.86 kg per litre of capacity. Shells intended for the carriage of hydrogen fluoride (anhydrous hydrofluoric acid) [6° (a)] or of aqueous solutions of hydrofluoric acid [6° (b)] shall not be filled to the extent of more than 0.84 kg per litre of capacity.	211870
The following requirements shall apply to demountable tanks intended for the carriage of hydrogen fluoride (anhydrous hydrofluoric acid) [6° (a)] and of aqueous solutions of hydrofluoric acid [6° (b)]:	211831		
1. they shall not be interconnected by a manifold; and			211871
2. if the demountable tanks can be rolled, the valves shall be fitted with protective caps.			212099
Shells intended for the carriage of stabilized sulphur trioxide (9°) shall be thermally insulated and be fitted with a heating device on the outside. Shells may be of the bottom-discharge type. In this case the shell-discharge system shall be equipped with two mutually independent shut-off devices mounted in series, the first taking the form of a quick-closing internal stop-valve of an approved type and the second that of a sluice-valve fitted at the end of the discharge pipe-socket. A blank flange or some other equally reliable device shall also be fitted to the outlet of each external sluice-valve.	211832	Appendix B.1b	
		PROVISIONS CONCERNING TANK -	
		CONTAINERS (DESIGN AND TESTING)	
		NOTE:	
		Chapter I sets out the requirements applicable to tank-containers intended for the carriage of substances of all Classes.	
		Chapter II contains particular requirements supplementing or modifying the requirements of Chapter I.	
		Chapter I	
		REQUIREMENTS APPLICABLE TO	
		ALL CLASSES	
		Section 1	
		General; scope; definitions	
		These requirements shall apply to tank-containers of a capacity of more than 0.45 cubic metre which are used for the carriage of liquid, gaseous, powdery or granular substances, and to their fittings and accessories.	212100
		A tank-container shall comprise a shell and items of equipment, including equipment to facilitate movement without change of attitude.	212101
		In the following requirements:	212102
		(1) (a) «Shell» means the tank proper (including the openings and their closures);	
		(b) «Service equipment» of the shell means filling and emptying, venting, safety, heating and heat-insulating devices, and measuring instruments; and	
		(c) «Structural equipment» means the reinforcing, fastening, protective or stabilizing members external to the shell.	
		(2) (a) «Calculated pressure» means a theoretical pressure at least equal to the test pressure which according to the degree of danger exhibited by the substance being	
Shells intended for the carriage of hypochlorite solutions (37°) and of aqueous solutions of hydrogen peroxide (41°) shall be so designed as to prevent the entry of foreign matter, the leakage of liquid, and any build-up of dangerous excess pressure inside the shell.	211833		
		Section 4	
		Type approval	
(No special requirements)	211840		
	211849		
		Section 5	
		Tests	
Shells intended for the carriage of hydrogen fluoride (anhydrous hydrofluoric acid) [6° (a)] and of aqueous solutions of hydrofluoric acid [6° (b)] shall undergo the initial pressure test and the periodic tests at a pressure of 10 kg/cm <sup>2</sup> (gauge pressure), and those intended for the carriage of the other substances referred to in marginal 81121, if those substances are carried in the liquid phase, at a pressure of 4 kg/cm <sup>2</sup> (gauge pressure).	211850		
The pressure test of shells intended for the carriage of hydrogen fluoride (anhydrous hydrofluoric acid) [6° (a)] and of aqueous solutions of hydrofluoric acid [6° (b)] shall be repeated every six years and shall be accompanied by an internal inspection of the shells and a check of their items of equipment. In addition, every two years the resistance of the shells to corrosion shall be checked by means	211851		

carried may exceed the working pressure more or less substantially. It is used solely to determine the thickness of the walls of the shell, to the exclusion of any external or internal reinforcing device;

(b) «Maximum working pressure» means the highest of the following three pressures:

#### Appendix B.1b

1. The highest effective pressure allowed in the shell during filling («maximum filling pressure allowed»); 212102

2. The highest effective pressure allowed in the shell during discharge («maximum discharge pressure allowed»); and

3. The effective pressure to which the shell is subjected by its contents (including such extraneous gases as it may contain) when the temperature reaches 50°C («total pressure»);

(c) «Test pressure» means the highest effective pressure which arises in the shell during the pressure test;

(d) «Filling pressure» means the maximum pressure actually built up in the shell when it is being filled by pressure.

(e) «Discharge pressure» means the maximum pressure actually built up in the shell when it is being filled by pressure.

(3) «Leakage test» means the test which consists of subjecting the shell to an effective internal pressure equal to the maximum working pressure, but not less than 0.2 kg/cm<sup>2</sup> (gauge pressure), by a procedure approved by the competent authority.

212103  
212119

#### Section 2 Construction

Shells shall be made of ductile metallic materials. For welded shells only a material whose weldability has been fully demonstrated shall be used. Welds shall be skilfully made and afford complete safety. The materials of shells and of their protective linings which are in contact with the contents carried shall not contain substances liable to react dangerously with the latter to form dangerous compounds, or substantially to weaken the material. 212120

Shells, their attachments and their service and structural equipment shall be designed to withstand at least the static and dynamic stresses in normal carriage without loss of contents.<sup>1</sup> 212121

#### Appendix B.1b

The pressure on which the dimensioning of the tank-container shell is based shall be not less than the calculated pressure, but the stresses referred to in marginal 212121 shall also be taken into account. 212122

Except where special conditions laid down for the various classes provide otherwise, the following minimum requirements shall be taken into account in the design of shells: 212123

(1) The shell of a gravity-discharge tank-container intended for the carriage of substances having at 50°C a total pressure (i.e. vapour pressure plus partial pressure of inert gases, if any) or not more than 1.1. kg/cm<sup>2</sup> (absolute) shall be designed for a test pressure of twice the static pressure of the liquid to be carried, but not less than twice the static pressure of water;

(2) The shell of a pressure-filled or pressure-discharge tank-container intended for the carriage of substances having at 50°C a total pressure (i.e. vapour pressure plus partial pressure of inert gases, if any) of not more than 1.1. kg/cm<sup>2</sup> (absolute) shall be designed for a test pressure

1. If there are degassing vents, this shall not apply to quantities of gas escaping through them.

equal to 1.3 times the filling or discharge pressure;

(3) The shell of a tank-container - whatever its filling or discharge system - intended for the carriage of substances having at 50°C a total pressure (i.e. vapour pressure plus partial pressure of inert gases, if any) of not less than 1.1. and not more than 1.75 kg/cm<sup>2</sup> (absolute) shall be designed for a test pressure of at least 1.5 kg/cm<sup>2</sup> (gauge pressure), or of 1.3 times the filling or discharge pressure if the filling or discharge pressure is higher;

(4) The shell of a tank-container - whatever its filling or discharge system - intended for the carriage of substances having at 50°C a total pressure (i.e. vapour pressure plus partial pressure of inert gases, if any) of more than 1.75 kg/cm<sup>2</sup> (absolute) shall be designed for a test pressure equal to the higher of the following two pressures; 1.5 times the total pressure at 50°C, less 1 kg/cm<sup>2</sup>, subject to a minimum of 4 kg/cm<sup>2</sup> (gauge pressure); and 1.3 times the filling or discharge pressure.

Tank-containers intended to contain certain dangerous substances shall be provided with additional protection, which may take the form of additional thickness of the shell (such additional thickness being determined in the light of the dangers inherent in the substances concerned; see the relevant classes) or of a protective device. 212124

At the calculated pressure or the test pressure whichever is the higher, the stress  $\sigma$  (sigma) at the most severely stressed point of the shell shall conform to the material-dependent limits prescribed below. In addition, in choosing the material and determining wall thickness the maximum and minimum filling and working temperatures should be taken into account, with particular reference to the risk of brittle fracture. 212125

(1) For metals and alloys exhibiting a clearly-defined yield point or characterized by a guaranteed conventional yield stress  $R_e$  (generally 0.2 per cent of residual elongation):

(a) Where the ratio  $R_e/R_m$  is not more than 0.66 ( $R_e$  = apparent yield stress or 0.2 per cent proof stress;  $R_m$  = guaranteed minimum tensile strength)

$$\sigma \leq 0.75 R_e$$

(b) Where the ratio  $R_e/R_m$  exceeds 0.66

$$\sigma \leq 0.5 R_m$$

(2) For metals and alloys exhibiting no apparent yield stress and characterized by a guaranteed minimum tensile strength  $R_m$ :

$$\sigma \leq 0.43 R_m$$

(3) The elongation at fracture, <sup>2</sup> in per cent, shall be not less than 1,000/ $R_m$ , but shall be not less than 20 per cent in the case of steel and not less than 12 per cent in the case of aluminium alloys.

Tank-containers intended for the carriage of inflammable liquids having a flashpoint of not more than 55°C and for the carriage of inflammable gases shall be capable of being electrically earthed. 212126

Tank-containers shall be capable of absorbing the forces specified in paragraph (1) and the wall thickness of the shells shall be as prescribed in paragraphs (2) - (4) below. 212127

#### Appendix B.1b

(1) Tank-containers and their fastenings shall under 212127

2. The specimens used to determine the elongation at fracture shall be taken transversely to the direction of rolling and be so secured that:

$L_0 = 5d$

where  $L_0$  = length of the specimen before the test; and  $d$  = diameter.

the maximum permissible load be capable of absorbing the following forces;

- in the direction of travel: twice the total weight;
- horizontally at right angles to the direction of travel: the total weight; (where the direction of travel is not clearly determined, the maximum permissible load shall be twice the total weight);
- vertically upwards: the total weight! and
- vertically downwards: twice the total weight.

Under each of these forces the safety factors to be observed shall be the following:

- for metals having a clearly-defined yield point: a safety factor of 1.5 in relation to the apparent yield stress! or for metals with no clearly - defined yield point: a safety factor of 1.5 in relation to the guaranteed 0.2 per cent proof stress.

(2) The minimum wall thickness of the shell barrel shall be calculated by the following formula:

$$e = \frac{P \times D}{200 \times \sigma \text{ mm}}$$

where P = calculated pressure or test pressure, whichever is the higher in kg/cm<sup>2</sup>;

D = internal diameter of shell in mm; and

σ = permissible stress as defined in marginal 212205, paragraphs 1(a), 1(b) and 2, in kg/mm<sup>2</sup>.

The thickness shall in no case be less than that prescribed in paragraphs (3) and (4) below.

(3) The barrels and ends of shells not more than 1.80 m in diameter shall be not less than 5 mm thick if of mild steel <sup>3</sup> (as specified in marginal 212125) or of equivalent thickness if of another metal. Where the diameter exceeds 1.80 m this thickness shall

are increased to 6 mm if the tank is of mild steel <sup>3</sup> (as specified in marginal 212 205) or to an equivalent thickness if the tank is of another metal. Whatever the metal used, the thickness of the shell wall shall in no case be less than 3 mm.

(4) Where additional protection of the shell against damage is provided, the competent authority may allow the aforesaid minimum thicknesses to be reduced in proportion to the protection provided; however, the said thicknesses shall be not less than 3 mm in the case of mild steel <sup>3</sup>, or than an equivalent thickness in the case of other materials, for shells not more than 1.80 m in diameter. For shells with a diameter exceeding 1.80 m the aforesaid minimum thickness shall be increased to 4 mm in the case of mild steel <sup>3</sup> and to an equivalent thickness in the case of another metal.

Tank-containers shall be carried only on vehicles whose fastenings are capable, under the maximum permissible load on the tank-containers, of absorbing the forces specified in marginal 212 127 (1) above. 212 128

### Section 3

#### Items of equipment

The items of equipment shall be so arranged as to be protected against the risk of being wrenched off or damaged during carriage and handling. If the connexion between the frame and the shell allows relative movement as between these sub-assemblies, the items of equipment shall be so fastened as to permit such movement without risk of damage to working parts. 212 130

The items of equipment shall exhibit a suitable degree of safety comparable to that of the shell.

In addition, particular conditions applicable to bottom-discharge tank-containers are prescribed, in marginal 212 131 below.

3. «Mild steel» means a steel having a breaking strength between 37 and 44 kg/mm<sup>2</sup>.

Every bottom-discharge tank-container, and in the case of compartmented bottom-discharge tank-containers every compartment, shall be equipped with two mutually independent shut-off devices, the first being an internal stop-valve <sup>4</sup> fixed directly to the shell and the second being a sluice-valve or other equivalent device <sup>5</sup>, mounted in series, one at each end of the discharge pipe. The internal stop-valve shall be operable from above or from below. If possible, the setting -open or closed- of the internal stop-valve shall be capable of being verified from the ground in both cases. Internal-stop-valve control devices shall be so designed as to prevent any unintended opening through impact or an inadvertent act. 212 131

The internal shut-off device shall continue to be effective in the event of damage to the external control device. In order to avoid any loss of contents in the event of damage to the external discharge fittings (pipes, lateral shut-off devices), the internal stop-valve and its seating shall be protected against the danger of being wrenched off by external stresses or shall be so designed as to resist them. The filling and discharge devices (including flanges or threaded plugs) and protective caps (if any) shall be capable of being secured against any unintended opening.

A tank-container or each of its compartments shall save where it is intended for the carriage of deeply refrigerated gases, be provided with an opening large enough to enable the tank-container or compartment to be inspected. 212 132

A tank-container intended for the carriage of liquids having a vapour pressure of not more than 1.1 kg/cm<sup>2</sup> (absolute) at 50°C shall have a venting system and a safety device to prevent the contents from spilling out of the shell if the tank-container overturns, or shall conform to the requirements of marginal 212 134 or 212 135 below. 212 133

A tank-container intended for the carriage of liquids having a vapour pressure of not less than 1.1 and not more than 1.75 kg/cm<sup>2</sup> (absolute) at 50°C shall have a safety valve set at not less than 1.5 kg/cm<sup>2</sup> (gauge pressure) and such that it is fully open at a pressure not exceeding the test pressure; or shall conform to the requirements of marginal 212 135. 212 134

A tank-container intended for the carriage of liquids having a vapour pressure of not less than 1.75 and not more than 3 kg/cm<sup>2</sup> (absolute) at 50°C shall be equipped with a safety valve set at a gauge pressure of not less than 3 kg/cm<sup>2</sup> and such that it is fully open at a pressure not exceeding the test pressure; or shall be hermetically sealed. 212 135

Moving parts such as covers, closures, etc., which are liable to come into frictional or percussive contact with aluminium tank-containers intended for the carriage of inflammable liquids having a flashpoint of not more than 55°C or for the carriage of inflammable gases shall not be made of unprotected corrodable steel.

212 137  
-212 139

### Section 4

#### Type approval

The competent authority or a body designated by that authority shall issue in respect of each new type of tank-container a certificate attesting that the prototype tank-container, including fastenings, which it has surveyed is suitable for the purpose for which it is intended and meets the construction requirements of section 2 and the equipment requirements of section 3. If the tank-containers are serially manufactured without modification, this approval shall be valid for the entire series. The test results, the substances for the carriage of which the tank-container is 212 140

4. Save as may be otherwise provided in the case of shells intended for the carriage of certain crystallizable or highly viscous substances.

5. In the case of tank-containers of less than 1 m<sup>3</sup> capacity, the sluice-valve or other equivalent device may be replaced by a blank flange.

approved, and an approval number shall be specified in a test report. The approval number shall consist of the distinguishing sign <sup>6</sup> of the State in whose territory the approval was granted, and a registration number.

212 141  
212 149

#### Section 5 Tests

Shells and their items of equipment shall either together 212 150 or separately undergo an initial inspection before being put into service and shall thereafter undergo periodic inspections. The initial inspection shall include a check of the design characteristics, an internal and external examination and a hydraulic pressure test. If the shells and their items of equipment are tested separately they shall after assembly be jointly subjected to a leakage test. The periodic inspections shall include an external and internal examination and, as a general rule, a hydraulic pressure test. Sheathing for thermal insulation and the like shall be removed only to the extent required for reliable appraisal of the tank-container's characteristics. The initial and periodic pressure tests shall be carried out, by an expert approved by the competent authority, at the test pressure indicated on the data plate of the tank-container, except in cases where lower test pressures are authorized for the periodic tests. In special cases, and with the agreement of the competent authority, the hydraulic pressure test may be replaced by a pressure test using another liquid or a gas.

Tank-containers shall, before being put into service and 212 151 thereafter at intervals not exceeding five years, be tested in conformity with the provisions of marginal 212 150 above. Before tank-containers are put into service, and thereafter at intervals not exceeding two and one-half years, all the equipment shall be checked for leakproofness and satisfactory operation.

Certificates showing the results of these tests shall be 212 152 issued by the expert approved by the competent authority.

212 153  
212 159

#### Section 6 Marking

Each tank-container shall be fitted with a corrosion-resistant metal plate permanently attached to the shell in a place readily accessible for inspection. The following particulars at least shall be marked on the plate by stamping or by any other similar method. The particulars may be engraved directly on the walls of the shell itself if the walls are so reinforced that the strength of the shell is not impaired.

- Approval number;
- Manufacturer's name or mark;
- Manufacturer's serial number;
- Year of manufacture;
- Test pressure in kg/cm<sup>2</sup> (gauge pressure);
- Capacity in litres; in the case of multiple-element tank-containers: the capacity of each element;
- Design temperature (only if above 50°C or below -20°C);
- Month and year of initial test and of most recent periodic test;
- Stamp of the expert who carried out the tests.

On pressure-filled or pressure-discharge tank-containers the maximum working pressure allowed shall be inscribed in addition.

The following particulars shall be inscribed either on the tank-container itself or on a board:

- The names of the owner and of the operator;
- The capacity of the shell;
- The unladen (tare) weight;
- The maximum permissible laden weight; and

<sup>6</sup>. Distinguishing sign for use in international traffic prescribed by the Convention on Road Traffic (Vienna, 1968).

-The name of the substance being carried. <sup>7</sup>  
In addition, tank-containers shall bear the prescribed danger labels.

212 162  
212 169

#### Section 7 Operation

During carriage, tank-containers shall be fixed on the 212 170 carrying vehicle in such a way as to be adequately protected by the fittings of the carrying vehicle or of the tank-container itself against lateral and longitudinal impact and against overturning. <sup>8</sup> If the shells and the service equipment are so constructed as to withstand impact or overturning they need not be protected in this way.

Tank-containers shall not be loaded with any dangerous 212 171 substances other than those for whose carriage they have been approved.

The following degrees of filling shall not be exceeded 212 172 in tank-containers intended for the carriage of liquids at ambient temperatures:

#### Appendix B.1b

212172  
(contd)

(1) - (a) Inflammable substances not exhibiting additional risks (e.g. not toxic or corrosive) in tank - containers with a venting system and with or without safety valves:

$$\text{degree of filling} \quad \frac{100}{1+a(50-t_p)} \quad \text{or} \quad \frac{100}{1+35a} \quad \text{\% of capacity;}$$

(b) Toxic or corrosive substances, whether or not exhibiting an inflammability risk, in tank - containers with a venting system and with or without safety valves:

$$\text{degree of filling} \quad \frac{98}{1+a(50-t_p)} \quad \text{or} \quad \frac{98}{1+35a} \quad \text{\% of capacity;}$$

(c) Low - concentration inflammable substances and low - concentrations acids and lyes in closed tank - containers:

$$\text{degree of filling} \quad \frac{97}{1+a(50-t_p)} \quad \text{or} \quad \frac{97}{1+35a} \quad \text{\% of capacity;}$$

(d) High - concentration toxic substances and high - concentration acids and lyes in closed tank - containers:

$$\text{degree of filling} \quad \frac{95}{1+a(50-t_p)} \quad \text{or} \quad \frac{95}{1+35a} \quad \text{\% of capacity;}$$

(2) In these formulae a is the mean coefficient of cubical expansion of the liquid between 15° and 50° C, i.e. for a maximum variation in temperature of 35° C.

7. A collective description or an index number may be given instead of the name.

8. Examples of protection of shells:

1. Protection against lateral impact may for example consist of longitudinal bars protecting the shell on both sides at the level of the median line.

2. Protection against overturning may for example consist of reinforcing rings or bars fixed transversally in relation to the frame.

3. Protection against rear impact may for example consist of a bumper or frame.

a is calculated by the formula: 
$$\frac{d_{15} - d_{50}}{35 \times d_{50}}$$

in which  $d_{15}$  and  $d_{50}$  are the density of the liquid at 15°C and 50°C respectively.  $t_f$  is the mean temperature of the liquid during filling.

(3) The provisions of marginal 212172 (1) above shall not apply to tank - containers whose contents are maintained by means of a heating device at a temperature above 50°C during carriage. In such a case the degree of filling at the outset shall be such and the temperature shall be so regulated that the tank - container is not full to more than 95 per cent of its capacity at any time during carriage.

#### Appendix B.1b

If the shells of tank - containers intended for the carriage of liquids 9\* are not divided by partitions or surge plates into sections of not more than 5,000 litres capacity, the said shells shall be filled to not less than 80 per cent of their capacity unless they are practically empty. 212173

Tank-containers shall be closed so that the contents cannot run out uncontrolled. 212174

Where several closure systems are fitted in a series, that nearest to the substance being carried shall be closed first. 212175

No residue of the dangerous substance being carried shall adhere to the outside of a tank - container during carriage. 212176

To be accepted for carriage, empty tank - containers shall be closed in the same manner and leakproof in the same degree as though they were full. 212177

#### Section 8

##### Transitional measures

(1) Tank - containers of a capacity below 1,000 litres built before the entry into force of these requirements and not conforming to them may, if they were built in conformity with the requirements of ADR and RID concerning receptacles, be used during a period of three years immediately following the entry into force of these requirements for the carriage of liquid, gaseous, powdery or granular substances. 212180

(2) Tank - containers of a capacity of not less than 1,000 litres may with the approval of the competent authority of the countries in which they are to be carried, be used during a period of five years immediately following the entry into force of these requirements for the carriage of liquid, gaseous, powdery or granular substances. 212181

#### Appendix B.1b

##### Chapter II

### PARTICULAR REQUIREMENTS SUPPLEMENTING OR MODIFYING THE REQUIREMENTS OF CHAPTER I

#### CLASS 2

Gases: compressed, liquefied or dissolved under pressure

##### Section 1

General; scope; definitions

212200  
212219

##### Section 2

##### Construction

The shells of tank - containers intended for the carriage of substances of 1° to 6° and 9° shall not be made of aluminium or aluminium alloy. 212220

The requirements of Appendix B.1d, marginals 214250 to 214285 shall apply to the materials and construction of the shells of tank - containers intended for the carriage of gases of 7° and 8°. 212221

212222  
212229

9\* Substances whose efflux time at 20°C from a DIN cup with a 4 mm orifice is less than 10 minutes (corresponding to an efflux time of less than 96 sec. at 20°C from a No. 4 Ford cup, or less than 2,680 centistokes) shall be deemed to be liquids for the purposes of this provision.

#### Section 3

##### Items of equipment

In addition to being equipped with the devices prescribed in marginal 213131, the discharge pipes of tank - container shells shall be capable of being closed by blank flanges or some other equally reliable device. 212230

The shells of tank - containers intended for the carriage of liquefied gases may be equipped, in addition to the filling, discharge and gas - pressure - equalizing orifices, with openings in which gauges, thermometers and manometers can be fitted. 212231

#### Appendix B.1b

Safety valves shall meet the conditions prescribed in paragraphs (1), (2) and (3) below. 212232

(1) The shells of tank - containers intended for the carriage of gases of 1° to 6° and 9° may be fitted with not more than two safety valves.

The safety valves shall be capable of opening automatically under a pressure of from 0.9 to 1.0 times the test pressure of the shell to which they are fitted. They shall in addition be constructed in such a way that in the event of total fire engulfment the pressure inside the shell does not exceed the test pressure. They shall be of such a type as to resist dynamic stresses, including liquid surge. The use of deadweight or counterweight valves is prohibited.

The shells of tank - containers intended for the carriage of gases of 1° to 9° harmful to the respiratory organs or entailing a poison risk (Gases identified by the letter "t" in the list of substances are deemed to be gases harmful to the respiratory organs or entailing a poison risk) shall not have safety valves unless the safety valves are preceded by a bursting disc. In the latter case the arrangement of the bursting disc and the safety valve shall be to the satisfaction of the competent authority.

(2) The shells of tank - containers intended for the carriage of gases of 7° (a) and 8° (a) which are not in constant communication with the outside air, and of those intended for the carriage of gases of 7° (b) and 8° (b) shall be fitted with two independent safety valves each so designed as to permit evacuation of the gases from the shell in such a way that the pressure does not at any time exceed the working pressure indicated on the tank - container by more than 10 per cent.

In addition, the shells of such tank - containers may be fitted with bursting discs in series with and preceding the safety valves. In such a case the arrangement of the bursting disc and the safety valve shall be to the satisfaction of the competent authority.

(3) The safety valves of the shells of tank - containers intended for the carriage of gases of 7° and 8° shall be capable of opening at the working pressure indicated on the tank - container. They shall be so designed as to function faultlessly even at the lowest working temperature. The reliability of their operation at that temperature shall be established and checked either by testing each valve or by testing a specimen valve of each type. 212233

An internal flow restricting valve or equivalent device shall be fitted to every orifice more than 1.5 mm in diameter provided in the shell for the passage of gases or liquids, other than orifices carrying safety valves.

#### Appendix B.1b

Thermal insulation. 212234

(1) If the shells of tank - containers intended for the carriage of liquefied gases of 3° to 4° are equipped with thermal insulation, such insulation shall be subject to the special provisions under (2) below either:

Consist of a sun shield covering not less than the upper third but not more than the upper half of the tank - containers's surface and separated from the shell by an air space about 4 cm across; or

Consist of a complete cladding, of adequate thickness, of insulating materials.

The thermal insulation shall be so designed as not to



hinder access to the filling and discharge devices.

(2) The shells of tank - containers intended for the carriage of 1,3 - butadiene [3° (c)], or of methyl vinyl ether, trifluorochloroethylene or vinyl bromide [3° (ct)], shall be protected by a sun - shield as defined above.

(3) The shells of tank - containers intended for the carriage of gases of 7° and 8° shall be thermally insulated. The thermal insulation shall be protected against impact by means of continuous metal sheathing. If the space between the shell and the metal sheathing is under vacuum (vacuum insulation), the protective sheathing shall be so designed as to withstand without deformation an external pressure of at least 1 kg/cm<sup>2</sup> (gauge pressure). If the sheathing is so closed as to be gas - tight, a device shall be provided to prevent any dangerous pressure from developing in the insulating layer in the event of inadequate gas - tightness of the shell or of its items of equipment. The device shall prevent the infiltration of moisture into the heat - insulating sheath.

(4) The shells of tank - containers intended for the carriage of oxygen [7° (a)], or of air or mixtures of oxygen with nitrogen [8° (a)], shall not include any combustible material either in the thermal insulation or in the means of attachment to the frame.

In the case of multiple - element tank - containers, the following conditions shall be met. 212235

(1) If one of the elements of a multiple - element tank - container is fitted with a safety valve and shut - off devices are provided between the elements, every element shall be so fitted.

(2) The filling and discharge devices may be fitted to a manifold.

Appendix B.1b

(3) Each element of a multiple - element tank - container intended for the carriage of compressed gases of 1° and 2° harmful to the respiratory organs or entailing a poison risk 10\* shall be capable of being isolated by a valve. 212235 (contd)

(4) The elements of a multiple - element tank - container intended for the carriage of liquefied gases of 3° to 5° harmful to the respiratory organs or entailing a poison risk 10\* shall be so designed that they can be filled separately and be kept isolated by a valve capable of being sealed.

Section 4  
Type approval

(No special requirements)

Section 5  
Tests

The materials of the shells of tank - containers intended for the carriage of gases of 7° and 8° shall be tested by the method described in Appendix B.1d, marginals 214250 to 214285. 212236 212239

The test pressure shall be as follows:

(1) Tank - containers intended for the carriage of gases of 1° to 2°, in conformity with marginal 2219 (1); 212240 212249

10\* The following are deemed to be liquefied gases harmful to the respiratory organs or entailing a poison risk: hydrogen bromide (anhydrous hydrobromic acid), hydrogen fluoride (anhydrous hydrofluoric acid), hydrogen sulphide (sulphuretted hydrogen), ammonia, chlorine, sulphur dioxide (anhydrous sulphurous acid), nitrogen dioxide (nitrogen peroxide; nitrogen tetroxide), T gas, methyl vinyl ether, chloromethane (methyl chloride), bromomethane (methyl bromide), phosgene (carbonyl chloride), vinyl bromide, methylamine (monomethylamine), dimethylamine, trimethylamine, ethylamine (monoethylamine), ethylene oxide, methanethiol (methyl mercaptan), mixtures of carbon dioxide with ethylene oxide and liquefied hydrogen chloride (anhydrous hydrochloric acid). 212250 212251

(2) Tank-containers intended for the carriage of gases of 3o and 4o, in conformity with marginal 2220 (2) if the shells are not more than 1,5mm diameter, and in conformity with marginal 211251 (2) (b) if the shells are more than 1.5 m in diameter; 212251

(3) Tank-containers intended for the carriage of gases of 5° and 6°, in conformity with marginal 2220 (3) and (4), and in conformity with marginal 211 251 (3) (b) in the case of multiple-element tank-containers whose elements are interconnected and form a battery, are not isolated from one another, and are encased in a thermal insulation;

(4) Tank-containers intended for the carriage of ammonia dissolved under pressure [9o (at)], in conformity with marginal 211251 (4);

(5) (a) Tank-containers fitted with safety valves and intended for the carriage of gases of 7° and 8°: 1.5 times the working pressure indicated on the shells, but not less than 3 kg/cm<sup>2</sup> (gauge pressure); for tank-containers with vacuum insulation the test pressure shall be 1.5 times the working pressure increased by 1 kg/cm<sup>2</sup>.

(b) In the case of tank-containers without safety valves and intended for the carriage of gases of 7° (a) and 8°(a), the first test shall be performed at 2 kg/cm<sup>2</sup> (gauge pressure) and the periodic tests at 1 kg/cm<sup>2</sup> (gauge pressure).

The first hydraulic pressure test shall be carried out before thermal insulation is applied. 212252

The capacity of the shell of each tank-container intended for the carriage of gases of 3°, 4° and 9° shall be determined, under the supervision of an expert approved by the competent authority, by weighing or volumetric measurement of the quantity of water required in order to fill the shell. The measurement of shell capacity shall be accurate to within 1 per cent. Determination by a calculation based on the dimensions of the shell is not permitted. The maximum permissible weights of filling according to marginals 2220 (4) and 211251(3) shall be prescribed by an approved expert. 212253

All welds in the shell shall be non-destructively tested radiographically or ultrasonically. 212254

Notwithstanding the requirements of marginals 212150 and 212151, the periodic tests shall take place: 212255

(1) Every two and one-half years in the case of tank-containers intended for the carriage of boron trifluoride [1o(at)], town gas [2o (bt)] chlorine, hydrogen bromide, nitrogen dioxide, phosgene or sulphur dioxide [3o (at)], hydrogen sulphide [3o (bt)] or hydrogen chloride [5o (at)];

(2) After six years' service in the case of tank-containers, without safety valves, intended for carriage of gases of 7° (a) and 8° (a);

(3) After eight years' service and thereafter every 12 years in the case of tank-containers fitted with safety valves and intended for the carriage of gases of 7° (a) and 7° (b) and of tank-containers intended for the carriage of gases of 7o (b) and 8o (b). A leakproofness check may be performed, at the request of the competent authority, between any two successive tests.

At the periodic tests for tank-containers equipped with vacuum insulation and intended for the carriage of gases of 7° and 8°, the hydraulic test may be replaced by a leakage test performed either with the gases which the tank-containers are intended to contain or with an inert gas. 212256

If, at the time of periodic inspections, manholes are made in the shells of tank-containers intended for the carriage of gases 11° to 13°, the method by which they are hermetically closed before the tank-containers are returned to service shall be one approved by the approved expert and shall ensure the integrity of the shell. 212257

Section 6  
Marking

In addition, the following particulars shall be marked by stamping or by any other equivalent method on the plate described in marginal 212160 or directly on the 212258 212259 212260

walls of the shell itself if the walls are so reinforced that the strength of the shell is not impaired.

(1) On tank -containers intended for the carriage of only one substance:

The name of the gas in full.

This shall be accompanied, in the case of tank-containers intended for the carriage of compressed gases of 1° and 2° by the tank-container's maximum permitted loading pressure and, in the case of tank-containers intended for the carriage of liquefied gases of 3° to 8° and of ammonia dissolved under pressure of 9° (at), by the permissible maximum load in kg.

(2) On multi-purpose tank containers:

The names, in full, of the gases for whose carriage the tank-container is approved followed by particulars of the permissible maximum load, in kg, for each of them.

(3) On tank-containers equipped with safety valves and intended for the carriage of gases of 7° (a), and 8° (a) and on tank-containers intended for the carriage of gases of 7° (b) and 8° (b):

The working pressure.

(4) On tank-containers equipped with thermal insulation the expression «thermally insulated» shall be inscribed in one of the official languages of ADR.

The frame of a multiple-element tank-container shall be fitted near the filling point with a plate specifying:

The test pressure of the elements;

The working pressure of elements intended for compressed gases;

The number of elements;

The aggregate capacity of the elements, in litres;

The name of the gas in full;

and, in the case of liquefied gases.

The permissible maximum load per element in kg.

#### Section 7

##### Operation

A tank-container assigned at different times to the carriage of different liquefied gases of 3° to 8° (multi-purpose tank-containers) may not carry substances other than listed in one, and one only, of the following groups:

Group 1: halogenated hydrocarbons of 3° (a) and 4° (a);

Group 2: hydrocarbons of 3° (b) and 4° (b);

Group 3: ammonia [3° (at)]; dimethyl ether, dimethylamine, ethylamine, methylamine and trimethylamine [3° (bt)]; and vinyl chloride [3° (c)];

Group 4: methyl bromide [3° (at)]; ethyl chloride and methyl chloride [3° (bt)];

Group 5: mixtures of ethylene oxide with carbon dioxide and of ethylene oxide with nitrogen [4° (ct)];

Group 6: gases of 7° (a) and mixtures of gases of 8° (a);

Group 7: ethane, ethylene and methane [7° (b)]; and mixtures of ethane with methane, also when they contain propane or butane [8° (b)].

Tank-containers which have been filled with a substance of group 1 or group 2 shall be emptied of liquefied gas before being loaded with another substance belonging to the same group. Tank-containers which have been filled with a substance of one of the groups 3 to 5 shall be completely emptied of liquefied gas and blown down before being loaded with another substance belonging to the same group.

The multiple use of tank-containers for the carriage of liquefied gases of the same group shall be allowed if all the requirements prescribed for the gases to be carried in one and the same tank-container are observed. Such multiple use shall be subject to approval by an approved expert.

The multiple use of tank-containers for the carriage of gases of different groups shall be allowed if permitted by the approved experts.

When loaded tank-containers or empty but uncleaned tank-containers are handed over for carriage, only the particulars applicable under marginal 211161 to the gas loaded or just discharged shall be visible; all particulars

concerning other gases shall be covered up.

All the elements of a multiple-element tank-container shall contain only one and the same gas. In the case of a multiple-element tank-container intended for the carriage of liquefied gases harmful to the respiratory organs or entailing a poison risk<sup>10</sup>, the elements shall be filled separately and be kept isolated by a sealed valve.

The maximum permissible degrees of filling in kg/litre prescribed in marginals 2219 (2), 2220, (3) and (4) 211251 (2), (3) and (4) shall be adhered to.

The degree of filling of the shells of tank-containers fitted with safety valves and intended for the carriage of gases of 11o to 13o shall be such that at the «alert» temperature, at which the vapour pressure is equal to the valve-opening pressure, the volume of the liquid does not exceed the permissible degree of filling of the shell at that temperature, i.e. 95 per cent in the case of inflammable gases and 98 per cent in the case of other gases.

On the shells of tank-containers intended for the carriage of oxygen [7o (a)], or of air or mixtures of oxygen with nitrogen [8o (a)], substances containing grease or oil shall not be used to ensure leakproofness of the joints or for the maintenance of the closures.

#### Section 8

##### Transitional measures

#### CLASS 3

##### Inflammable liquids

#### Section 1

##### General; scope; definitions

#### Section 2

##### Construction

The shells of tank-containers intended for the carriage of carbon disulphide [1o (a)] shall be designed for a calculated pressure of 10 kg/cm<sup>2</sup> (gauge pressure).

#### Appendix B.1b

##### Section 3

##### Items of equipment

Tank containers which are fitted with a venting system with no shut-off device, and which are intended for the carriage of inflammable liquids having a flashpoint not exceeding 55° C, and tank-containers fitted with a safety valve shall have a flame-trap in the venting system.

All openings in the shells of tank-containers intended for the carriage of acrylaldehyde (acrolein), chloroprene (chlorobutadiene) and carbon disulphide (1° (a)) shall be above the surface level of the liquid. No piping or pipe connexions shall pass through the walls of the shell below the surface level of the liquid. The openings shall be capable of being hermetically closed and the closure shall be capable of being protected by a lockable cap.

#### Section 4

##### Type approval

(No special requirements)

#### Section 5

##### Tests

(No special requirements)

#### Section 6

##### Marking

(No special requirements)

#### Section 7

##### Operation

In the case of liquids having a vapour pressure of more than 1.75 kg/cm<sup>2</sup> (absolute) at 50° C, the following degrees of filling of hermetically closed shells shall not be exceeded: for methyl formate (1° (a)) and other liquids having a coefficient of cubical expansion of more than 150 × 10<sup>-5</sup> but not more than 180 × 10<sup>-5</sup> ..... 91

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per cent of capacity; for acetaldehyde (5°) and other liquids having a coefficient of cubical expansion of more than  $180 \times 10^{-5}$  but not more than  $230 \times 10^{-5}$  .....  
90 per cent of capacity.

#### Appendix B.1b

An aluminium shell shall not be used for the carriage of acetaldehyde (5°) unless the shell is reserved solely for such carriage and the acetaldehyde is free from acid. 212371

In the cold season (October to March), light distillates for cracking and other liquid hydrocarbons having a vapour pressure not exceeding  $1.5 \text{ kg/cm}^2$  (absolute) at 50° C may be carried in shells of the type prescribed in marginal 212133. 212372

Carbon disulphide (1° (a)) shall not be carried otherwise than in hermetically closed shells or in shells equipped with valves set at not less than  $3 \text{ kg/cm}^2$  (gauge pressure). 212373

#### Section 8

##### Transitional measures

#### CLASS 4.1

##### Inflammable solids

#### CLASS 4.2

##### Substances liable to spontaneous combustion

#### CLASS 4.3

##### Substances which give off inflammable gases on contact with water

#### Section 1

##### General; scope; definitions

#### Section 2

##### Construction

The shells of tank-containers intended for the carriage of white or yellow phosphorus of marginal 2431, 1°, and of trichlorosilane (silicochloroform) of marginal 2471, 4°, shall be designed for a calculated pressure of  $10 \text{ kg/cm}^2$  (gauge pressure). 212420

The shells of tank-containers intended for the carriage of aluminium alkyls, and of halides and hydrides of aluminium alkyls, of marginal 2431, 3°, shall be designed for a pressure of not less than  $21 \text{ kg/cm}^2$  (gauge pressure). 212421

#### Appendix B.1b

#### Section 3

##### Items of equipment

The shells of tank-containers intended for the carriage of sulphur of marginal 2401, 2° (b), and of naphthalene of marginal 2401, 11° (c), shall be equipped with thermal insulation so made of materials which are not readily inflammable that the temperature on the outer surface cannot rise above 50° C during carriage. They may be equipped with valves opening automatically inwards or outwards under the effect of a difference of pressure of 0.2 to 0.3  $\text{kg/cm}^2$ . The discharge devices shall be capable of being protected by a lockable metal cap. 212430

The shells of tank-containers intended for the carriage of white or yellow phosphorus of marginal 2431, 1°, shall meet the following requirements: 212431

(1) The heating device shall not penetrate into the body of the shell but be fitted outside it. Other piping shall enter the shell in its upper part; openings shall be above the highest permissible level of the phosphorus and be capable of being completely enclosed under lockable caps.

(2) The shell shall be equipped with a gauging system for verifying the level of the phosphorus and, if water is used as the protective agent, with a fixed gauge mark showing the highest permissible level of water.

The openings and orifices (valves, ducts, manholes, etc.) in the shells of tank-containers intended for the carriage of substances of marginal 2471, 1° (a), shall be equipped with leakproof lockable caps, and such shells shall be equipped with thermal insulation so made of materials which are not readily inflammable that the tem- 212432

perature on the outer surface cannot rise above 50° C during carriage.

The shells of tank-containers intended for the carriage of aluminium alkyls, and of halides and hydrides of aluminium alkyls, of marginal 2431, 3°, shall not have openings or connexions, even if closable, below the surface level of the liquid. Openings, including their fittings and accessories, in the upper part of the shell shall be capable of being protected by a protective cap. 212433

#### Section 4

##### Type approval

(No special requirements)

#### Appendix B.1b

#### Section 5

##### Tests

The shells of tank-containers intended for the carriage of sulphur of marginal 2401, 2° (the filling temperature must additionally be taken into account in the case of shells made of aluminium), naphthalene of marginal 2401, 11°, white or yellow phosphorus of marginal 2431, 1°, and trichlorosilane (silicochloroform) of marginal 2471, 4°, shall be tested at a pressure of  $4 \text{ kg/cm}^2$  (gauge pressure). 212434  
212439  
212440  
212449

The shells of tank-containers intended for the carriage of aluminium alkyls, and of halides and hydrides of aluminium alkyls, of marginal 2431, 3°, shall undergo an initial pressure test, and periodic tests every five years, performed at a pressure of  $10 \text{ kg/cm}^2$  (gauge pressure) with a liquid which does not react with the substance to be carried. 212451

#### Section 6

##### Marking

(No special requirements)

#### Section 7

##### Operation

The shells of tank-containers intended for the carriage of sulphur of marginal 2401, 2°, shall be filled to not more than 98 per cent of their capacity. 212452  
212459

White or yellow phosphorus of marginal 2431, 1°, shall if water is used as the protective agent be covered with a depth of not less than 12 cm of water at the time of filling; the degree of filling at a temperature of 60° C shall not exceed 98 per cent. If nitrogen is used as the protective agent, the degree of filling at a temperature of 60° C shall not exceed 96 per cent. The remaining space shall be filled with nitrogen in such a way that, even after cooling, the pressure at no time falls below the atmospheric pressure. The shell shall be hermetically closed so that no leakage of gas occurs. 212460  
212469

For the carriage of substances of marginal 2471, 1° (a), caps shall be locked in conformity with marginal 212432 and the temperature of the outside surface of the shell shall not exceed 50° C. 212470  
212471

In the case of trichlorosilane (silicochloroform) of marginal 2471, 4°, the degree of filling shall not exceed 1.14 kg per litre of capacity if filling is by weight, or 85 per cent if filling is by volume. 212472  
212473

The shells of tank-containers which have contained phosphorus of marginal 2431, 1°, shall when handed over for carriage either: 212474

– be filled with nitrogen the sender must certify in the transport document that the tank, after closure, is gastight; or

– be filled with water to not less than 96 per cent and not more than 98 per cent of their capacity; between 1 October and 31 March this water shall contain one or more anti-freeze agents free from corrosive action, not liable to react with phosphorus, and sufficiently concentrated to prevent the water freezing during carriage. 212475  
212479

Section 8 Transitional measures	212480 212499	peroxide, of marginal 2501, 1° or of liquid organic peroxide of marginal 2551, 10°, 14° and 15°, shall be tested at a pressure of 4 kg/cm <sup>2</sup> (gauge pressure).	212551- 212559
CLASS 5.1 Oxidizing substances			
CLASS 5.2 Organic peroxides			
Section 1 General; scope; definitions	212500 212519	Section 6 Marking (No special requirements)	
			212560 212569
Section 2 Construction			
The shells of tank-containers, and their items of equipment, intended for the carriage of hydrogen peroxide or of aqueous solutions of hydrogen peroxide of marginal 2501, 1°, or for the carriage of liquid organic peroxides of marginal 2551, 10°, 14° and 15° shall be made of aluminium not less than 99.5 per cent pure or of suitable alloy steel not liable to cause the hydrogen peroxide or the organic peroxides to decompose.	212520	Section 7 Operation	
	212521 212529	The inside of the shell of the tank container, and all metal parts liable to come into contact with hydrogen peroxide of marginal 2501, 1°, shall be kept clean. No lubricant capable of combining dangerously with the substance carried shall be used for pumps, valves or other devices.	212570
Appendix B.1b Section 3 Items of equipment		The shells of tank-containers intended for the carriage of liquids of marginal 2501, 1° to 3°, shall be filled to not more than 95 per cent of their capacity at a reference temperature of 15°C. The shells of tank-containers intended for the carriage of liquid organic peroxides of marginal 2551, 10°, 14° and 15°, shall be filled to not more than 80 per cent of their capacity. Shells shall be free from impurities at the time of filling.	212571
The shells of tank-containers intended for the carriage of aqueous solutions of hydrogen peroxide containing more than 70 per cent hydrogen peroxide and of hydrogen peroxide of marginal 2501, 1°, shall have their openings above the surface level of the liquid. In the case of solution containing more than 60 per cent but not more than 70 per cent hydrogen peroxide, openings below the surface level of the liquid shall be permissible. In this case the shell-discharge system shall include two mutually independent shut-off devices, the first being a quick-closing internal stop-valve of an approved type and the second a sluice-valve, mounted in series, one at each end of the discharge pipe. A blank flange or some other equally reliable device shall also be fitted to the outlet of each external sluice-valve. The internal stop-valve shall be such that it remains rigidly locked to the shell and in the closed position if the pipe is wrenched off.	212530		212572- 212579
The connexion to the external pipe-outlets of tank-containers shall be coated with a suitable plastics material.	212531	Section 8 Transitional measures	
The shells of tank-containers intended for the carriage of liquid organic peroxides of marginal 2551, 10°, 14° and 15°, shall be equipped with a venting device fitted with a flame-trap and followed in series by a safety valve opening automatically at a pressure of 1.8 to 2.2 kg/cm <sup>2</sup> (gauge pressure). The materials of which closures liable to come into contact with the liquid or its vapour are made shall not have a catalytic effect (spring-loaded safety valve made of aluminium-silicon alloy (silumin) or of V2A stainless steel or of a material of equivalent quality).	212532		212580- 212599
The shells of tank-containers intended for the carriage of liquid organic peroxides of marginal 2551, 10°, 14° and 15°, shall be equipped with thermal insulation in accordance with the requirements of marginal 212234 (1). The covering and the uncovered part of the shell shall be painted white.	212533	CLASS 6.1 Toxic substances Section 1 General; scope; definitions	
	212534 212539	Appendix B.1b Section 2 Construction	212600- 212619
		The shells of tank-containers intended for the carriage of substances of marginal 2601, 2°(a), 3°, 4°(a), 11°(a), 13°(b), 14°, 23°, 61°(a), 61°(e), 61°(f), 81° and 82°, shall if these substances are liquid at +40°C (except carbon tetrachloride, chloroform and methylene chloride) be designed for a calculated pressure of 10 kg/cm <sup>2</sup> (gauge pressure).	212620
		The shells of tank-containers intended for the carriage of substances referred to in marginal 61121 (3) other than those enumerated in marginal 212620 above shall be so constructed that they can be discharged at a pressure of not less than 3 kg/cm <sup>2</sup> (gauge pressure).	212621
Section 4 Type approval	212540 212549		212622 212629
(No special requirements)		Section 3 Items of equipment	
Appendix B.1b Section 5 Tests		(1) All openings in the shells of tank-containers intended for the carriage of substances referred to in marginal 61121 (3) shall be above the surface level of the liquid.	212630
The shells of tank-containers intended for the carriage of hydrogen peroxide or of aqueous solutions of hydrogen	212550	(2) No piping or pipe connexions shall pass through the walls of the shell below the surface level of the liquid.	

The openings shall be capable of being hermetically closed and the closure shall be capable of being protected by a lockable cap. In addition the shells of such tank-containers may be fitted with bursting discs mounted in series preceding the safety valves. In such a case the arrangement of the bursting disc and the safety valve shall be to the satisfaction of the competent authority.

212631-  
212639

Section 4  
Type approval  
(No special requirements)

212640-  
212649

Section 5  
Tests

Tank-containers intended for the carriage of substances of marginal 2601 2° (a), 3°, 4° (a), 11° (a), 13° (b), 14°, 23°, 61° (a), 61° (e), 61° (f), 81° and 82° shall if these substances are liquid at +40°C be tested initially and periodically at a pressure of 4 kg/cm<sup>2</sup> (gauge pressure).

Appendix B.1b

212651-  
212659

Section 6  
Marking  
(No special requirements)

212660  
212669

Section 7  
Operation

The shells of tank-containers intended for the carriage of substances of marginal 2601, 2° (a), 2° (b), 4° (a), 11° (a), 12° (a), 13° (a), 13° (b) and 81° to 83°, shall be filled to not more than 93 per of their capacity.

The shells of tank-containers intended for the carriage of aqueous-solutions of ethyleneimine (3°) and of substances of marginal 2601, 14°, shall be filled to not more than 95 per cent of their capacity.

212672-  
212679

Section 8  
Transitional measures

212680-  
212699

CLASS 7  
Radioactive substances  
Section 1  
General; scope; definitions

212700-  
212719

Section 2  
Construction

Tank-containers intended for the transport of the substances referred to in Schedule 5, with the exception of uranium hexafluoride, shall be designed for a calculation pressure of at least 4 kg/cm<sup>2</sup>. In the case of tank-containers intended for the transport of uranium hexafluo-

ride, the calculation pressure shall be fixed at 10 kg/cm<sup>2</sup>. When the radioactive substance is in solution or suspension in hazardous substances of other Classes and when the calculation pressures required for the tank-containers intended for the transport of the latter substances are greater, these pressures shall be applied.

212721-  
219729

Appendix B.1b  
Section 3  
Equipment

The openings of tank-containers intended for the transport of liquid radioactive substances 9) shall be above the level of the liquid and no piping or pipe connexion shall pass through the walls of the shell below the surface level of the liquid.

212731-  
212739

Section 4  
Type approval

Tank-containers approved for the transport of radioactive substances shall not be approved for the transport of any other substance.

212741-  
212749

Section 5  
Tests

The tank-containers shall undergo, at least once every five years, a hydraulic pressure test at a pressure of 4 kg/cm<sup>2</sup>. Notwithstanding marginal 212150, the periodic internal inspection may be replaced by an ultrasonic test of the wall thickness conducted every two-and-a-half years.

212751-  
212759

Section 6  
Marking  
(No special requirements)

212760-  
212769

Section 7  
Operation

The degree of filling at the reference temperature of 15°C shall not exceed 93 per cent of the total shell capacity. Tank-containers which have been used for the transport of radioactive substances shall not be used for the transport of other substances.

212771-  
212779

Appendix B.1b  
Section 8  
Transitional provisions

212780-  
212799

CLASS 8  
Corrosive substances  
Section 1  
General; scope; definitions

212720

	212800- 212819	or of aqueous solutions of hydrofluoric acid of 6° (b), shall undergo the initial pressure test and the periodic tests at a pressure of 10 kg/cm <sup>2</sup> (gauge pressure), and those intended for the carriage of the other substances referred to in marginal 81 121 (2), at a pressure of 4 kg/cm <sup>2</sup> (gauge pressure).	
Section 2 Construction			
The shells of tank-containers intended for the carriage of hydrogen fluoride (anhydrous hydrofluoric acid) [6°(a)], of aqueous solutions of hydrofluoric acid [6°(b)], or of bromine (14°), shall be designed for a pressure of not less than 21 kg/cm <sup>2</sup> (gauge pressure).	212820	The pressure test of tank - containers intended for the carriage of stabilized sulphur trioxide (9°) shall be repeated every two and one - half years.	212 851
Appendix B.1b		The condition of the lead lining of the shells of tank - containers intended for the carriage of bromine (14°) shall be checked every year by an approved expert, who shall inspect the inside of the shell.	212 852
The shells of tank-containers intended for the carriage of substances of 1°, (a) and (b); 2°, (a) and (b); 6° (c); 7° to 9°; 21° (a); and 23°, shall be designed for a pressure of not less than 10 kg/cm <sup>2</sup> (gauge pressure).	212821	In addition to the tests prescribed in Section 5, the corrosion resistance of tank 6 containers intended for the carriage of hydrogen fluoride (anhydrous hydrofluoric acid) [6° (a)], or of aqueous solutions of hydrofluoric acid of 6° (b), shall be checked by means of suitable instruments (e.g. by ultrasound methods); and the condition of the items of equipment verified, every two and one - half years.	212853
The shells of tank-containers intended for the carriage of substances referred to in marginal 81121 (2), other than those listed in marginals 218200 and 218201, shall be designed for a calculated pressure of 4 kg/cm <sup>2</sup> (gauge pressure) and shall be so constructed that they can be discharged at a pressure of not less than 3 kg/cm <sup>2</sup> (gauge pressure).	212822		212 854 212 859
The shells of tank-containers intended for the carriage of aqueous solutions of hydrogen peroxide (41°) shall meet the requirements of marginal 216200.	212823		
	212824- 212829		
Section 3 Items of equipment		Section 6 Marking	
All openings in the shells of tank-containers intended for the carriage of substances of 6° or of bromine (14°) shall be above the surface level of the liquid. No piping or pipe connexions shall pass through the walls of the shell below the surface level of the liquid. The closures shall be capable of being effectively protected by a metal cap.	212830	In addition to the particulars prescribed in marginals 212 160 and 212 161, the following particulars shall be marked on tank - containers intended for the carriage of hydrogen fluoride (anhydrous hydrofluoric acid) [6° (a)], of aqueous solutions of hydrofluoric acid of 6° (b), or bromine (14°): the permissible maximum net load in kg, and the date (month and year) of the most recent internal inspection of the shell.	212860 212861 212869
The shells of tank-containers intended for the carriage of stabilized sulphur trioxide (9°) shall be thermally insulated and be fitted with a heating device on the outside. Shells may be of the bottom-discharge type. In this case the shell-discharge system shall include two mutually independent shut-off devices, the first being a quick-closing internal, stop-valve of an approved type and the second a sluice-valve, mounted in series, one at each end of the discharge pipe. A blank flange or some other equally reliable device shall also be fitted to the outlet of each external sluice-valve.	212831	Section 7 Operation	
The shells of tank-containers intended for the carriage of hypochlorite solutions (37°) and of aqueous solutions of hydrogen peroxide (41°) shall be so designed as to prevent the entry of foreign matter, the leakage of liquid, and the development of any dangerous excess pressure in the shell.	212832	The shells of tank - containers intended for the carriage of sulphuric acid [1° (c)] shall be filled to not more than 95 per cent of their capacity, those intended for the carriage of stabilized sulphur trioxide (9°) to not more than 88 per cent, and those intended for the carriage of bromine (14°) to not less than 88 per cent and not more than 92 per cent or to the extent of 2.86 kg per litre of capacity. Shells intended for the carriage of hydrogen fluoride (anhydrous hydrofluoric acid) [6° (a)] and of aqueous solutions of hydrofluoric acid [6° (b)] shall not be filled to the extent of more than 0.84 kg per litre of capacity.	212 870 212871 212879
	212833- 212839	Section 8	
Section 4 Type approval (No special requirements)		Transitional measures	212 880 213 099
	212840- 212849	Appendix B. 1c PROVISIONS CONCERNING FIXED TANKS AND DEMOUNTABLE TANKS IN REINFORCED PLASTICS Notes	
Section 5 Test		-This Appendix applies to fixed tanks and demountable tanks; it does not apply to batteries of receptacles, to tank - containers, or to receptacles.	
The shells of tank - containers intended for the carriage of hydrogen fluoride (anhydrous hydrofluoric acid) [6° (a)],	212 850	-For receptacles, see the requirements concerning them in Annex A (packages).	
		-It is recalled that marginal 10 121 (1) prohibits the carriage of dangerous substances in tanks except where such carriage is expressly authorized. This Appendix is therefore confined to provisions applicable to fixed tanks and demountable tanks in reinforced plastics used for transport operations which are expressly authorized.	
		Section 1 General provisions concerning the construction of fixed tanks and demountable tanks	
		The tanks must satisfy the following requirements of Appendix B. 1a:	213 100
		(1) General provisions applicable to tanks used for carriage of substances of all Classes:	

Marginals 211 120, (4), (5) and (6); 211 121, (1) and (2); 211 122; 211 124; 211 126; 211 127, (5); 211 128; 211 130; 211 132; 211 137; 211 140; 211 150 to 211 153; 211 160 and 211 161; 211 171; 211 172, (1) and (2); and 211 173 to 211 178.

(2) Provisions applicable to tanks for carriage of substances of Class 3: marginal 211 330.

The leakproofness test and the internal inspection shall be performed every three years.

(3) Special provisions applicable to tanks used for carriage of substances of Class 8: Marginal 211 833.

The walls of the tank must present no material defect causing a reduction in safety. 213 101

The walls of the tank must have a lasting resistance to the mechanical, thermal and chemical stresses to which they are subjected. 213 102

Tank openings 213 103

(1) Where the tank has one or more discharge openings below the level of the liquid, any pipe or valve fitted to such opening or openings shall be protected either by being recessed into the tank shell or by any other means approved by the competent authority and providing equivalent protection.

(2) The use of screwed plugs is strictly prohibited. Valves shall be of a model approved by the competent authority.

(3) Filling apertures shall be closed by a hermetic device. If the device projects outwards from the tank shell it shall be protected by a cap capable of withstanding wrenching stresses occurring through accidental overturning of the tank.

213 104  
213 119

## Section 2

### Materials used for the walls of the tank

The walls of tanks may be made of the following materials: 213 120

(1) Synthetic resin

– non – saturated polyester resins;

– epoxide resins;

– other resins with similar characteristics, provided that the safety of the wall is demonstrated.

(2) Fibre reinforcements

Glass fibres (glass of types E and C) <sup>1/</sup> with an appropriate coating, for example with a silane base or similar products. The glass fibres may be used in the form of cut or uncut rovings including prestressed continuous rovings or filaments, mats, surface mats or woven fabric.

(3) Additives

(a) Additives necessary for the treatment of resins, for example, catalysts, accelerators, monomers, hardeners, thixotropic substances, in accordance with instructions by the manufacturer of the resin.

(b) Extenders, pigments, colorants and other products enabling the required properties to be obtained, for example, the increase of fire – resistant properties, provided that they cause no reduction in the safety of use of the walls of the tank.

213 121  
213 129

## Section 3

### Structure of the walls of the tank

The external surface layer of the walls of the tank must be resistant to atmospheric effects and also to brief contact with the substance to be carried. 213 130

The walls of the tank and the sealed joints must satisfy the mechanical resistance requirements listed in section 4. 213 131

The internal surface layer of the walls must be resistant to the lasting effects of the substance to be carried. This layer must be made of reinforced resin having a minimum thickness of 1 mm. The fibres used must not reduce the chemical resistance of the layer. The inner part of the layer must be rich in resins and must have a minimum thickness of 0.2 mm. 213 132

<sup>1/</sup> Glass of types E and C is defined in Table 1.

The requirements detailed in marginals 213 140 (6) and 213 142 (2) of section 4 must be satisfied.

The finished walls must satisfy the requirements detailed in marginal 213 133 in marginal 213 140 (3) of section 4.

The minimum thickness of the wall shall be 213 134

– 3.5 mm if the capacity of tank does not exceed 3,000 litres

– 5.0 mm if the capacity of the tank is more than 3,000 litres.

213 135–  
213 139

## Section 4

### Test methods and qualities required

Tests and qualities required for materials 213 140

for prototype tank

(1) Taking of specimens

The specimens required for the test must wherever possible be taken from the walls of the tank. For this purpose cut – out parts resulting from the making of apertures etc. may be used.

(2) Percentage of glass fibre

The test must be conducted in accordance with the methods prescribed in ISO Recommendation R1172 1970.

The glass content of the specimen must be higher than 25 per cent and lower than 75 per cent by weight.

(3) Degree of polymerization

(a) Wall in polyester resins

The residual styrene content may not be higher than 2 per cent, calculated on the total quantity of resins. The test shall be conducted in accordance with a suitable method.<sup>2/</sup>

(b) Wall in epoxide resins

The acetone extract may not be higher than 2 per cent calculated on the total quantity of resins. The test shall be conducted in accordance with a suitable method <sup>3/</sup>

(4) Bending and tensile strength

The mechanical properties must be determined:

– for the shell, in the axial and circumferential directions;

– for the ends and walls of compartments, in any direction.

If the principal directions of the reinforcement do not coincide with the axial and circumferential directions (for example in the case of biaxial winding), the strength must be determined in the principal directions of the reinforcement and calculated for the axial and circumferential directions by applying the following formulae:

Tensile

$$\sigma_{T,c} = 2\sigma T, H \sin^2 \alpha$$

$$\sigma_{T,a} = 2\sigma T, H \cos^2 \alpha$$

Bending

$$\sigma_{F,c} = 2\sigma F, H \sin^2 \alpha$$

$$\sigma_{F,a} = 2\sigma F, H \cos^2 \alpha$$

T = tensile

c = circumferential

a = axial

H = helicoidal

F = bending

$\alpha$  = preferential winding angle

The tensile strength must be tested in accordance with the methods prescribed in document ISO/ TC61/ WG2/ TG «Tests of glass reinforced plastics» No 4 of February 1971.

The bending strength must be tested in accordance with the methods prescribed in Recommendation ISO/TC61 No 1540 of April 1970.

### Requirements

New tanks must meet the following safety factors against rupture:

Safety factor for static loading: 7.5

Safety factor for dynamic loading: 5.5.

The acceleration values to be applied in computing the dynamic load are as follows:

<sup>2/</sup>The method prescribed in standard DIN 16945 of June 1969, paragraph 6.4.3 is regarded as suitable.

<sup>3/</sup>The method prescribed in standard DIN 16945 of June 1969, paragraph 6.4.2 is regarded as suitable.

- 2 g in direction of travel;
- 1 g at right angles to direction of travel;
- 1 g vertically upwards; and
- 2 g vertically downwards.

As the characteristics of a reinforced plastics laminate may vary according to its structure, minimum values are not prescribed for bending and tensile strength but for loads:

$A = e\sigma_t$  where  $\sigma_t$  is the tensile strength at break;  
 $B = e^2\sigma_f$  where  $\sigma_f$  is the bending strength at break;  
 where  $e$  is the thickness of the wall.

The minimum values for forces A and B are:

For bending

Capacity of tank  $\leq 3,000$  litres

– circumferential direction  $B = 600$  daN

– axial direction  $B = 300$  daN

Capacity of tank  $> 3,000$  litres

– circumferential direction  $B = 600$  daN

– axial direction  $B = 600$  daN

For tensile:

– circumferential direction  $A = 100$  daN/mm

– axial direction  $A = 70$  daN/mm

Module E on bending is measured at  $-40^\circ\text{C}$  and at  $+60^\circ\text{C}$ . The two values may not differ by more than 30 per cent from the value obtained at  $20^\circ\text{C}$ . Behaviour of wall material during a tensile test lasting more than 1,000 hours.

The test tension is  $\frac{\sigma T}{7.5}$

During the test the factor  $K = \frac{\epsilon 1000}{\epsilon_0}$  may, not be

higher than 1.6.

$\epsilon$  = elongation of loaded specimen at beginning of test

$\epsilon 1000$  = elongation of loaded specimen at end of test

(5) Impact behaviour

(a) Nature of test

Impact behaviour is determined on a sample of laminate corresponding to the structural material used for the construction of the tank. The test is carried out by dropping a 5 kg steel weight onto the surface of the laminate corresponding to the external surface of the tank;

(b) Apparatus

The apparatus consists of a 5 kg steel weight, a guidance device for this weight and a specimen-bearing chassis. A general diagram of the apparatus is given in diagram 1. The weight is in the form of a steel cylinder provided with two guide channels, the lower extremity being spherically shaped, 90 mm diameter.

The guidance device is fitted vertically to a wall.

The specimen-bearer is composed of two angle-bars of  $100 \times 100 \times 25$  mm and 300 mm long, welded to a  $400 \times 400$  mm metal support. The gap between the two bars is 175 mm. The specimen-bearer, fixed to the ground, is provided with a 50 mm deep cavity to allow flexion of the specimen.

(c) Preparation of specimens.

From the sample, three specimens are taken, each measuring  $200 \times 200$  mm  $\times$  thickness of the sample.

(d) Operating method

The specimen is placed symmetrically on the specimen-bearer; if possible it rests on the support following two basic straight lines of the surface, in such a way that the weight strikes the centre of the face of the specimen corresponding to the external surface of the tank.

The weight is allowed to fall from a determined height, care being taken to ensure that it does not rebound and strike the specimen a second time.

The test must be conducted at ambient temperature.

the height to which the weight is raised in the guidance device is noted.

The other two specimens are tested in the same way.

(e) Requirement

The drop height for a 5 kg weight shall be 1 metre; the specimen must not allow leakage of more than 1 litre per 24 hours when subjected to a column of water of 1 m.

(6) Resistance to chemical agents.

Flat reinforced plastics test plates, prepared in the laboratory, are subjected to attack by the dangerous substance at a temperature of  $50^\circ\text{C}$  for 30 days in accordance with the following procedure:

(a) Description of the test apparatus (and shown in diagram 2).

The test apparatus comprises a glass cylinder, diameter  $140 \times 150$  mm, 150 mm high with two nozzles positioned at  $135^\circ$  one fitted with an NS 29 joint to take an intermediate pipe for a reflux condenser (1), the other nozzle fitted with an NS 14.5 joint to take a thermometer (2), an intermediate pipe for a reflux condenser and a reflux condenser not shown in the diagram. The glass part of the apparatus shall be in glass resistant to changes of temperature.

The specimens taken from the test plates form the base and the top of the glass cylinder. They are sealed to the sides of the cylinder by a PTEE collar. The cylinder with the two specimens is clamped between two pressure plates in corrosion-resistant steel with six threaded bolts tightened by means of wing nuts. An asbestos washer must be placed between the pressure plates and the specimens. These washers are not shown in diagram 2. Heating is effected from outside by means of an automatically controlled sleeve heater. The temperature is measured in the chamber containing the liquid.

(b) Operation of the test apparatus.

The test apparatus allows only flat plates of uniform thickness to be tested. The test plates should, if possible, be 4 mm thick. Should these plates be covered with a gel coating, they must be tested in condition as for practical use. Six hexagonal specimens, each side measuring 100 mm are cut from the test plate.

For each test, three specimens are prepared per apparatus. One of these samples is used as a reference and the other two are used for checking in the liquid zone, and vapour zone of the device respectively.

(c) Test procedure

The specimens to be tested are placed on the apparatus with the surface which may be gel-coated facing inwards. 1,200 ml of test liquid is poured into the glass cylinder. The apparatus is then heated to the test temperature. A constant temperature is maintained during the test. After the test the apparatus is cooled to the ambient temperature and the test liquid removed. The specimens tested are immediately washed with distilled water. Liquids which are not soluble in water are removed with a solvent which does not attack the specimens. Mechanical cleaning of the plates cannot be performed because of the danger of damaging the surface of the specimens.

(d) Evaluation

A visual examination is made:

– if the visual examination reveals excessive attack (cracks, bubbles, pores, peeling off, swelling, or roughness), the test is conclusive negatively;

– if the visual examination reveals no abnormality, bending tests are made by the methods specified in marginal 213140 (4) on the two specimens subjected to chemical attack and on the reference specimen. In this case the bending strength shall not be more than 20 per cent lower than the value ascertained for the test plate not subjected to any stress.

Test and quality required for the prototype unit

213141

The prototype tank shall be subjected to a hydraulic pressure test conducted by an expert approved by the competent authorities of a Contracting Party.

If the prototype tank is divided into compartments either by bulkheads or by baffle plates, the test shall be conducted on a unit made for this purpose with the same external ends as the entire tank and which represents the part of the tank subjected, under normal conditions of use, to the greatest stresses.

This test should not be conducted if there has already been a successful test on another prototype unit of the same section or a section with larger dimensions, geometrically similar to that of the prototype unit in question, even if



that unit has a different internal surface layer.

This test must demonstrate that the prototype unit has, under normal conditions of use, a factor of not less than 7.5 so far as rupture is concerned.

It must be proved, e.g. by calculation, that safety factors against fracture given in marginal 213140 (4) are complied with for each section of the tank.

Rupture occurs when the test liquid escapes from the tank in the form of jets. Consequently, before this rupture, the presence of delaminations and losses of liquid through these delaminations in the form of droplets is permitted. The prototype unit shall be submitted to a hydraulic pressure.

$$H = 7.5 \times d \times h$$

where H is the height of the column of water

h is the height of the tank

d is the density of the substance to be carried.

If a rupture occurs with a water-column height  $H_1$  less than H, there must still be

$$H_1 \geq 7.5 \times d \times (h - h_1)$$

where  $h_1$  is the height of the highest point where the first jet of liquid appears.

Should the flow of liquid at point  $h_1$  be too great, it is essential to make a temporary repair and temporary local strengthening to enable the test to continue to height H.

Conformity check on tanks produced in series

(1) The inspection of conformity on tanks produced in series shall be carried out by conducting one or more of the tests listed in marginal 213140.

However, the measurement of the degree of polymerization is replaced by Barcol hardness measurement.

(2) Barcol hardness

The test must be conducted in accordance with suitable procedures<sup>4</sup>. Barcol hardness measured on the internal surface of the finished tank shall not be less than 75 per cent of the value obtained in the laboratory on pure hardened resin.

(3) The percentage of glass fibre must be within the limits prescribed in marginal 213140 (2) and, in addition, must not deviate by more than 10 per cent of the figure for the prototype tank.

Tests and qualities required for all tanks before being put into service 213143

Leakproofness test

The leakproofness test shall be conducted in accordance with the provisions of marginals 211150 and 211151 of ADR and the expert's stamp shall be applied to the tank.

213144  
-213149

Section 5

Special provisions for tanks used for the carriage of substances with a flash point of 55°C or lower

The tank must be constructed so as to ensure the elimination of static electricity from the various component parts so as to avoid the accumulation of dangerous electric charges. 213150

All metal parts of the tank and the transport unit and also wall layers conducting electricity must be interconnected. 213151

The resistance between each conducting part and the chassis must not be higher than 10<sup>6</sup> ohms. 213152

Elimination of hazards due to charges generated by friction

The surface resistance and the discharge resistance to earth of the entire surface of the tank shall conform with the requirements of marginal 213154. 213153

4. The procedures prescribed in standard ASTM-D 2583-67 are regarded as suitable.

The surface resistance and discharge resistance to earth measured in accordance with marginal 213155 must satisfy the following requirements. 213154

(1) Walls not equipped with electrically conducting elements:

(a) Surfaces upon which one can walk:

The discharge resistance to earth shall not be higher than 10<sup>8</sup> ohms.

(b) Other surfaces:

The surface resistance shall not be higher than 10<sup>9</sup> ohms.

(2) Walls equipped with electrically conducting elements:

(a) Surfaces on which one can walk:

The discharge resistance to earth shall not be higher than 10<sup>8</sup> ohms.

(b) Other surfaces:

Conductance shall be considered as sufficient if the maximum thickness of non-conducting layers on conducting elements, for example conducting sheets, metal netting or other appropriate material, connected to the earthing connexion, does not exceed 2 mm, and that in the case of a metal netting, the surface area of the mesh does not exceed 64 cm<sup>2</sup>. 213 154

(3) Any measurement of surface resistance or discharge resistance to earth required to be carried out on the tank itself shall be replaced at intervals of not more than one year to ensure that the specified resistances are not exceeded.

Test Methods

1. Surface Resistance ( $R_{100}$ ) - (insulating resistance) in ohms, electrodes of conducting paint in accordance with figure 3 of Recommendation IEC 167 of 1964, measured in the standard 23/50 atmosphere according to Recommendation ISO R291, paragraph 3.1, of 1963. 213 155

2. The discharge resistance to earth in ohms is the ratio between the direct voltage measured between an electrode described below in contact with the surface of the tank of the vehicle and the earthed chassis of the vehicle, and the total current.

The conditioning of the specimens is the same as in paragraph 1. The electrode is a disc with a surface area of 20 cm<sup>2</sup> and a diameter of 50 mm. Its close contact with the surface of the tank must be ensured, for example by using damp paper or a damp sponge or any other suitable substance. The earthed chassis of the vehicle is used as the other electrode. A direct voltage in the range of 100 volts - 500 volts shall be applied. The measurement shall be carried out after the test voltage has been applied for one minute. The electrode may be placed on any point of the internal or external surface of the tank.

If measuring is impossible on the tank, it may also be carried out, under the same conditions, in the laboratory, on a specimen of the material.

Elimination of hazards due to charges generated during filling

Metallic components bonded to earth shall be provided and so disposed that at any stage of the filling or emptying process there is an area of not less than 0.04 sq. metres of earthed metal in contact with the product per cubic meter of product contained in the tank at that instant, and that no part of the product shall be more than 2.0 metres from the nearest earthed metal component. Such metallic components may take the form of: 213 156

(a) A metal foot valve, pipe outlet, or plate provided the total area of metal in contact with the liquid is not less than that specified, or

(b) A metallic grill with wire thickness not less than 1 mm diameter and hole area not greater than 4 sq. centimetres, provided that the total area of the grill in contact with the liquid is not less than that specified.

Marginal 213 156 shall not apply to reinforced-plastics tanks equipped with any other system for eliminating the hazard from charges generated during filling, provided it has been demonstrated by a practical comparative test in accordance with marginal 213 158 that the relaxation time 213 157

of the charge generated within the tank during filling is equivalent to that obtained for a metal tank of comparable dimensions.

#### Comparative test

(1) A comparative test of the electrostatic charge relaxation time in accordance with the conditions of test described in paragraph (2) shall be carried out on a prototype reinforced-plastics tank and steel tank in the following manner (see diagram 3).

(a) The reinforced-plastics tank shall be mounted in the same manner as it would be in use, for example, on a steel support simulating a vehicle's chassis, and shall be filled to not less than 75 per cent capacity with automotive diesel fuel, a proportion of which is passed through a suitable microfilter in such a manner that the charge density of the total flow is approximately  $100^{\mu} \text{ c/m}^3$ .

(b) The field strength in the tank vapour space shall be measured by a suitable continuous reading field meter mounted with its axis vertical and placed at least 20 cm from the vertical fill pipe.

(c) A similar test shall be carried out on a steel tank whose width, length, breadth, and volume are within 15 per cent of those of the reinforced-plastics tank, or on a reinforced-plastics tank of similar dimensions, coated internally with metal foil connected to earth.

(2) The following conditions of test shall be met:

(a) The test shall be carried out in a covered area in conditions of relative humidity less than 80 per cent.

(b) The automotive diesel fuel used in the test shall have a rest conductivity at the temperature of measurement between 3 and 5  $\text{p}^{\text{S}}/\text{m}$ . This shall be measured in a cell in which  $VT/d^2$  is less than or equal to  $2.5 \times 10^6$

where V = applied voltage

d = spacing between electrodes in metres

T = duration of measurement in seconds

The rest conductivity measured on samples of the product taken from the test tank after filling shall not differ in successive tests on plastics and metal tanks by more than  $0.5 \text{ p}^{\text{S}}/\text{m}$ .

(c) Filling shall be at a constant rate within the range 1 to 2  $\text{m}^3/\text{min}$  and shall be the same for the reinforced-plastics tank and for the steel tank. At the end of filling, the flow should be stopped in a time which is short compared with the relaxation time for the charge in the steel tank.

(d) The charge density shall be measured by a suitable continuous reading meter (for example, a field mill type) immersed in the product and placed as close as possible to the filling pipe.

213 158

(e) The supply pipes and the vertical filling pipe shall be of 10 cm internal diameter and shall terminate in a "T" type filling pipe outlet.

(f) A suitable microfilter,\* with an adjustable by-pass enabling the proportion of flow passing through it to be regulated, shall be fitted not more than 5 m from the filling pipe outlet.

(g) The liquid level shall not reach the bottom of the filling pipe or the field meter.

#### Comparison of relaxation times

(3) The initial value of the field strength shall be that recorded at the earliest point of time after the cessation of flow of the fuel when a smooth decay curve has been established. The relaxation time in both tests shall be expressed as the time taken for the field strength to decay from the initial value to 0.37 of the initial value.

(4) The relaxation time of the reinforced-plastics tank shall not exceed that of the steel tank.

213 159

-213 999

Table 1.  
COMPOSITION OF GLASS

#### Glass E:

##### Composition by weight:

Silica	( $\text{SiO}_2$ )	52 to 55 per cent
Alumina	( $\text{Al}_2\text{O}_3$ )	14 to 15.5 per cent
Lime	(CaO)	16.5 to 18 per cent
Magnesia	(MgO)	4 to 5.5 per cent
Boric Oxide	( $\text{B}_2\text{O}_3$ )	6.5 to 21 per cent
Fluorine	(F)	0.2 to 0.6 per cent
Ferric Oxide	( $\text{Fe}_2\text{O}_3$ )	< 1 per cent
Titanium Oxide	( $\text{TiO}_2$ )	< 1 per cent
Alkaline Oxides	( $\text{Na}_2\text{O} + \text{K}_2\text{O}$ )	

#### Glass C:

##### Composition by weight:

Silica	( $\text{SiO}_2$ )	63.5 to 65 per cent
Alumina	( $\text{Al}_2\text{O}_3$ )	4 to 4.5 per cent
Lime	(CaO)	14 to 14.5 per cent
Magnesia	(MgO)	2.5 to 3 per cent
Boric Oxide	( $\text{B}_2\text{O}_3$ )	5 to 6.5 per cent
Iron	( $\text{Fe}_2\text{O}_3$ )	0.3 per cent
Sodium Oxide	( $\text{Na}_2\text{O}$ )	7 to 9 per cent
Potassium Oxide	( $\text{K}_2\text{O}$ )	7 to 9 per cent

\* A Rellumit 5 has been found to be suitable.

Diagram 1.  
 Device for measuring impact resistance  
 by means of a spherically-ended falling weight

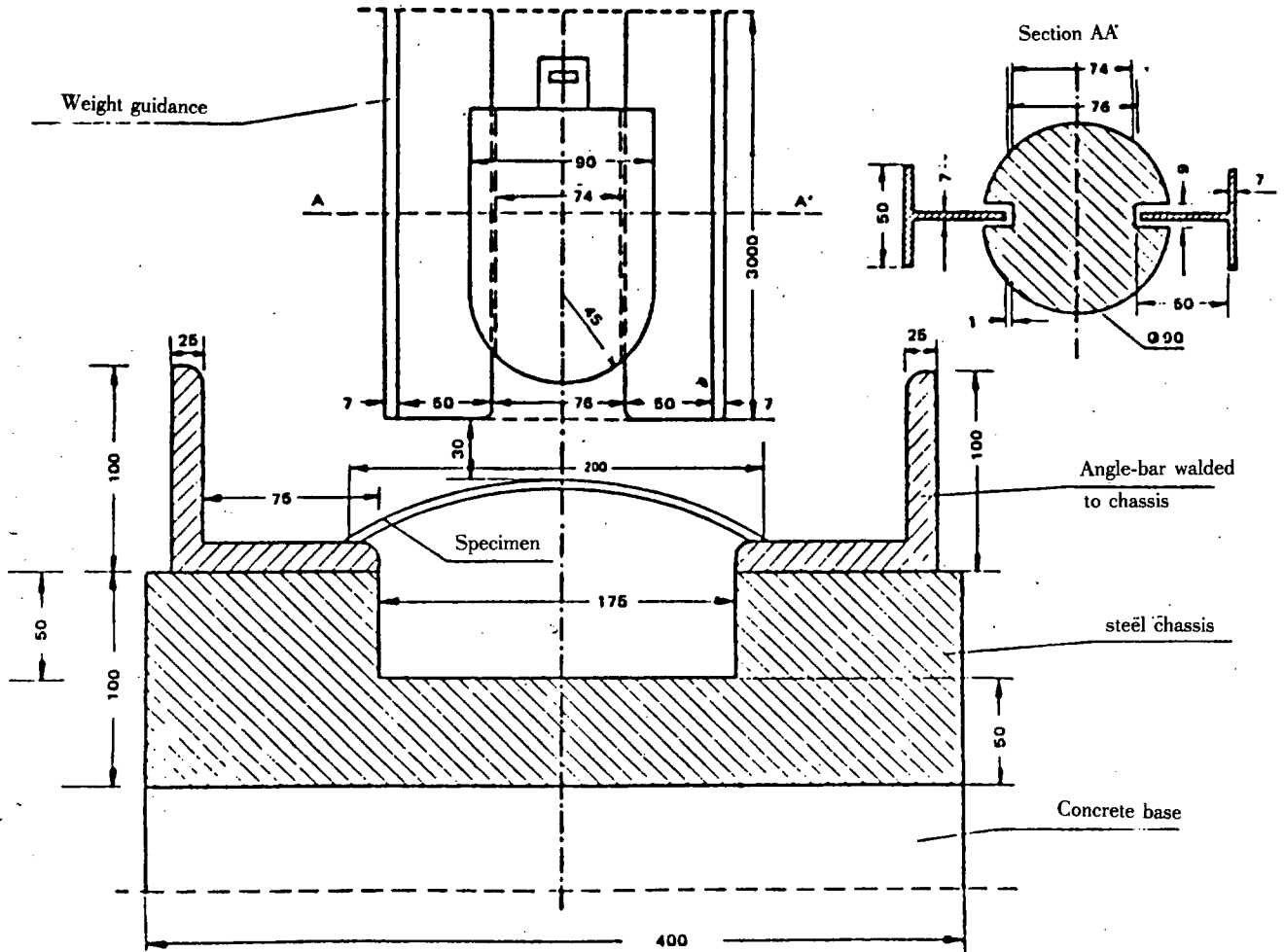


Diagram 2.  
Device to test resistance to chemical agents.

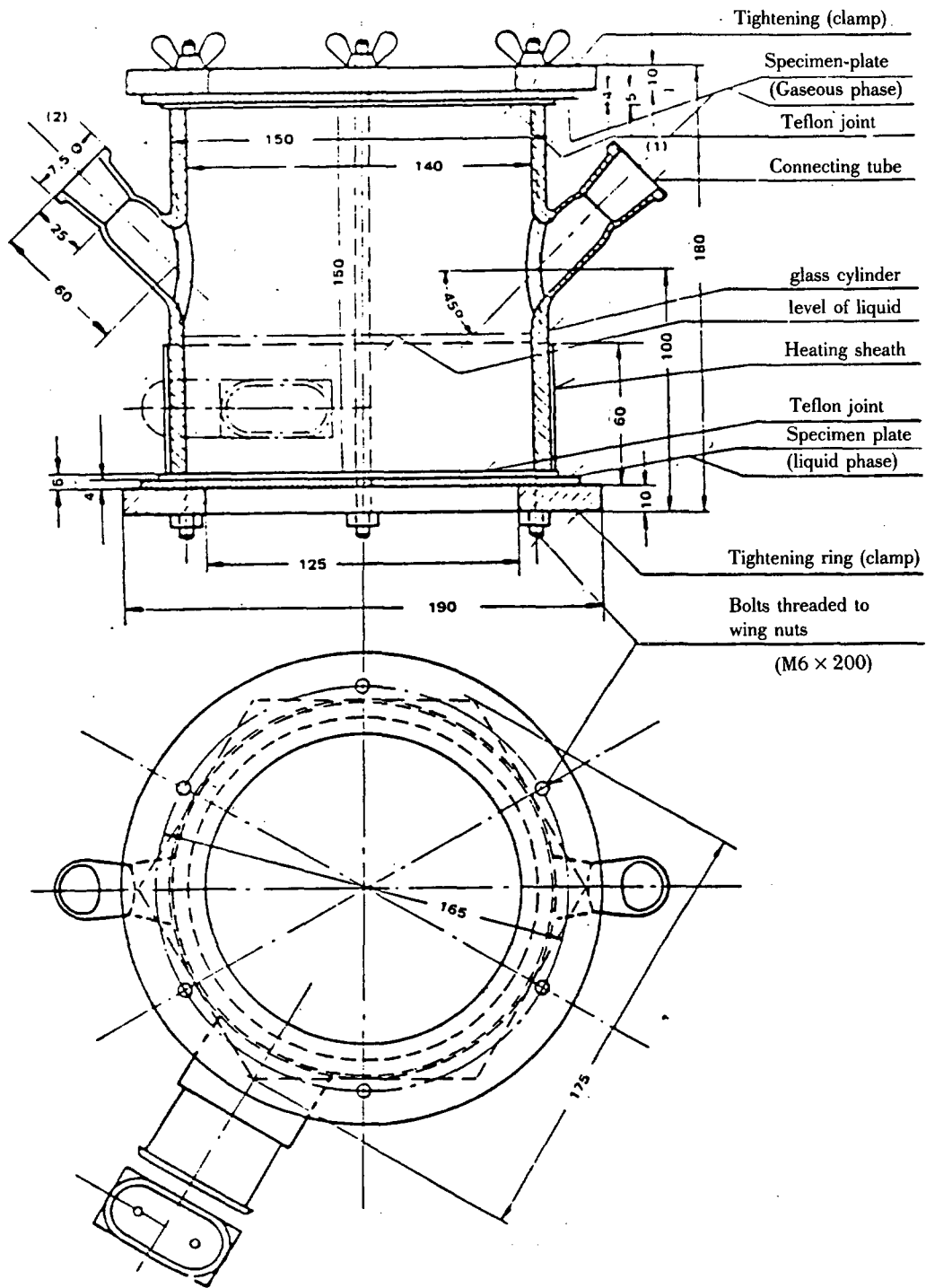
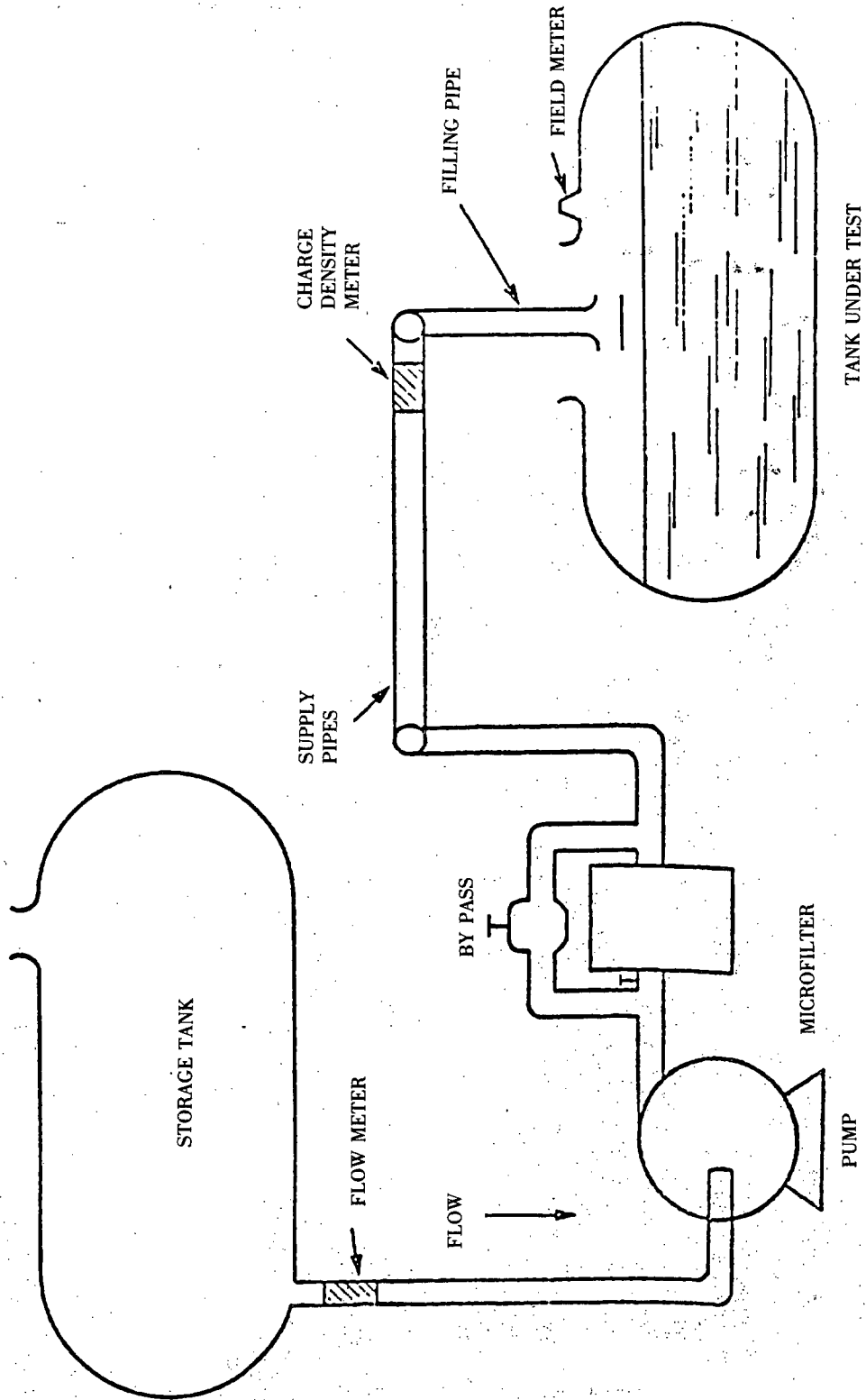


Diagram 3.  
Schematic layout of rig for comparative test.



Appendix B.1d

REQUIREMENTS CONCERNING THE MATERIALS AND CONSTRUCTION OF FIXED TANKS, OF DEMOUNTABLE TANKS, AND OF TANK-CONTAINERS, INTENDED FOR THE CARRIAGE OF DEEPLY-REFRIGERATED LIQUEFIED GASES OF CLASS 2

Material	Impact strength <sup>1,2</sup> of sheet metal and weld beads at lowest working temperature kgm/cm <sup>2</sup> , <sup>3</sup> kgm/cm <sup>2</sup> , <sup>4</sup>	
Unalloyed killed steel	3.5.	2.8
Ferritic alloy steel Ni < 5%	3.5.	2.2
Ferritic alloy steel 5% ≤ Ni ≤ 9%	4.5.	3.5
Austenitic Cr-Ni steel	4.0	3.2

- (1) Receptacles, tanks and shells shall be made of steel, aluminium, aluminium alloy, copper or copper alloy, e.g. brass. However, receptacles, tanks and shells made of copper or copper alloy shall be allowed only for gases containing no acetylene; ethylene may however contain not more than 0.005 per cent acetylene.  
 (2) Only materials appropriate to the lowest working temperature of the receptacles, tanks and shells and of their fittings and accessories may be used.

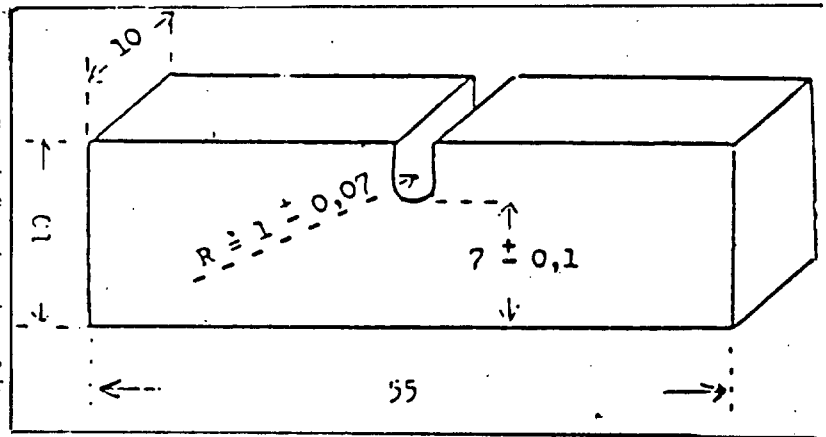
214000  
214249  
214250

<sup>1</sup> Impact strengths determined with different test-pieces are not mutually comparable.  
<sup>2</sup> See marginals 214275 to 214277.  
<sup>3</sup> The values relate to test-pieces with a U-shaped notch as illustrated below.  
<sup>4</sup> The values relate to test-pieces with a V-shaped notch conforming to ISO R 148.

The following materials shall be allowed for the manufacture of receptacles, tanks and shells:

- (a) steels not subject to brittle fracture at the lowest working temperature (see marginal 214265).  
 The following may be used:  
 1. fine-grained unalloyed steels, down to a temperature of -60°C;  
 2. nickel steels (with a nickel content of 0.5 to 9 per cent), down to a temperature of -196°C, depending on the nickel content;  
 3. austenitic chrome-nickel steels, down to a temperature of -270°C;  
 (b) aluminium not less than 99.5 per cent pure, or aluminium alloys (see marginal 214266);  
 (c) deoxidized copper not less than 99.9 per cent pure, or copper alloys having a copper content of over 56 per cent (see marginal 214267).

214251



- (1) Receptacles, tanks and shells shall be either seamless or welded.  
 (2) Receptacles under marginal 2207 made of austenitic steel, of copper or of copper alloy may alternatively be hard-soldered.

214252

In the case of austenitic steels, only the weld bead need be subjected to an impact-strength test.  
 For working temperatures below -196°C the impact-strength test is not performed at the lowest working temperature, but at -196°C.

- The fittings and accessories may either be screwed to the receptacles, tanks and shells or be secured there to as follows:  
 (a) receptacles, tanks and shells made of steel, aluminium or aluminium alloy: by welding;  
 (b) receptacles, tanks and shells made of austenitic steel, of copper or of copper alloy: by welding or hard-soldering.

214253

(b) Receptacles, tanks and shells made of aluminium or aluminium alloy  
 The seams of receptacles, tanks and shells shall at ambient temperature meet the following requirements as to bending coefficient:

214266

Thickness of sheete in mm	Bending coefficient k <sup>1</sup> for the seam	
	Root in compression zone	Root in tension zone
≤ 12	≥ 15	≥ 12
> 12 to 20	≥ 12	≥ 10
> 20	≥ 9	≥ 8

The construction of receptacles, tanks and shells and their attachment to the vehicle, to the underframe or in the container frame shall be such as to preclude with certainty any such reduction in the temperature of the load-bearing components as would be likely to render them brittle. The means of attachment of receptacles, tanks and shells shall themselves be so designed that even when the receptacle, tank or shell is at its lowest working temperature they still possess the necessary mechanical properties.

214254

- 1: Materials, receptacles, tanks and shells  
 (a) Steel receptacles, tanks and shells

214255  
214264

<sup>1</sup> See marginal 214 285.

The materials used for the manufacture of receptacles, tanks and shells, and the weld beads, shall at their lowest working temperature meet at least the following requirements as to impact strength.

214265

- (c) Receptacles, tanks and shells made of copper or copper alloy

It is not necessary to carry out tests to determine whether the impact strength is adequate.

214267

The tests may be conducted with test-pieces having either a U-shaped or a V-shaped notch.

2. Tests  
 (a) Impact-strength tests

214268-  
214274

The impact strengths indicated in marginal 214265 relate to test-pieces measuring 10x10 mm and having a U-shaped or a V-shaped notch.

Notes:

1. With regard to the shape of the test-piece, see marginal 214265 (table), footnotes<sup>3</sup> and<sup>4</sup>.

2. For sheets less than 10 mm but not less than 5 mm thick, test-pieces with a cross-section of 10 x e mm, where «e» represents the thickness of the sheet, shall be used. Such impact-strength tests generally yield higher values than do such tests on standard test-pieces.

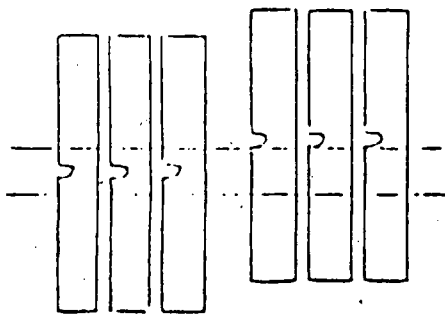
3. No impact-strength test shall be carried out on sheets less than 5 mm thick, or on their seams.

(1) For testing sheets the impact strength shall be determined on three test-pieces. Test-pieces with a U-shaped notch shall be taken at right angles to the direction of rolling and test-pieces with a V-shaped notch in the direction of rolling.

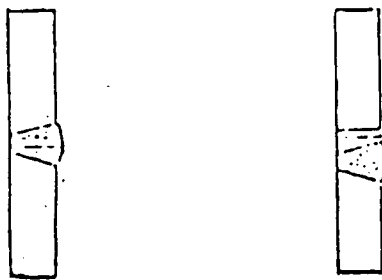
Appendix B.1d

(2) For testing seams the test -pieces shall be taken as follows:  
e ≤ 10

three test-pieces from the centre of the weld;  
three test-pieces from the zone of deformation created by the weld (the notch shall be completely outside the melted area but as near to it as possible);



i.e. six test-pieces in all.



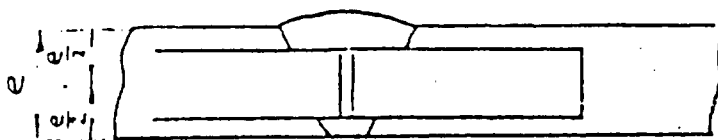
Centre of weld

Zone of deformation

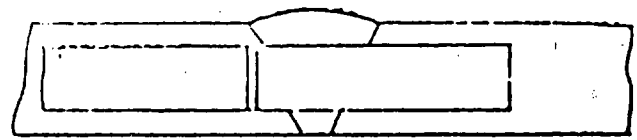
The test-pieces shall be so machined as to have the maximum possible thickness.

10 < e ≤ 20

three test-pieces from the centre of the weld;  
three test-pieces from the zone of deformation;



Centre of weld

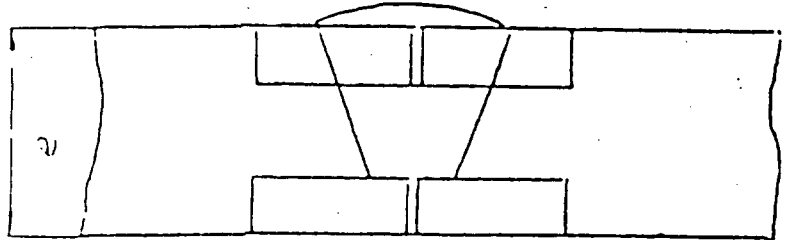


Zone of deformation

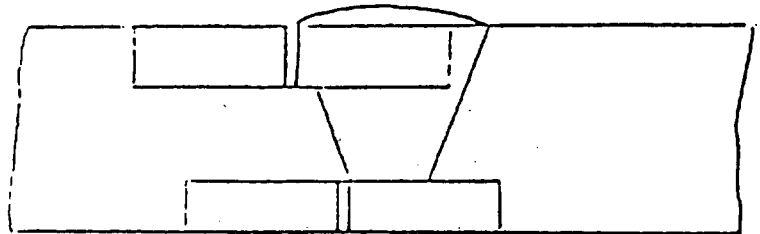
i.e. six test-pieces in all.

e > 20

Two sets of three test-pieces (one set on the upper face, one set on the lower face) at each of the points indicated below:



Centre of weld



Zone of deformation

i.e. twelve test-pieces in all.

(1) For sheets, the average of the three tests shall meet the minimum values indicated in marginal 214265; none of the values may be more than 30 per cent below the minimum shown.

(2) For welds, the average values obtained from the test-pieces taken at the different points, centre of weld and zone of deformation, shall correspond to the minimum values indicated. None of the values may be more than 30 per cent below the minimum indicated.

214277

(b) Determination of bending coefficient

214278

(1) The bending coefficient k referred to in marginal 214285 214284 214285 214266 is defined as follows:

$$k = 50 \frac{e}{r}$$

where e = thickness of the sheet in mm; and r = mean radius of curvature in mm of the test-piece when the first crack appears in the tension zone.

(2) The bending coefficient k shall be determined for the seam. The width of the test piece shall be equal to 3 e.

(3) Four tests shall be performed on the seam, two with the root in the compression zone (fig. 1) and two with the root in the tension zone (fig. 2) all individual values obtained shall meet the minimum -value requirements of marginal 214266.

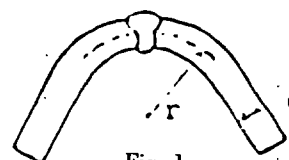


Fig. 1

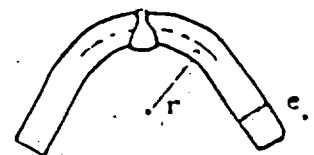


fig. 2

214286

219999

Appendix B.2  
ELECTRICAL EQUIPMENT

220000

- (1) The lighting of vehicles shall be electrical  
(2) The electrical equipment of vehicles shall meet the following requirements:

Requirements applicable to the electrical equipment as a whole

(a) Wiring: Conductors shall be generously dimensioned to prevent overheating. They shall be appropriately insulated. Circuits shall be protected against excess current by fuses or automatic cut - outs. The wiring shall be firmly attached and so placed that the conductors are protected against impacts, projected stones and heat emitted by the exhaust system

(b) Storage batteries: A switch for breaking all the electric circuits shall be placed as close to the battery as possible. A direct or remote control system shall be installed in the driving cab and outside the vehicle. It shall be easily accessible and distinctively marked. The switch shall be openable while the engine is running without causing a dangerous surge. The electrical supply to the tachograph may, however, be provided by a circuit connected direct to the battery. This apparatus and its installation shall be intrinsically safe in a mixture consisting of 20 per cent hydrogen and 80 per cent air. If the batteries are situated elsewhere than under the engine bonnet, they shall be secured in a vented case of metal or another material of equivalent strength, with insulating inner walls.

Requirements applicable to the part of the electrical equipment situated behind the driver's cab

(c) The whole of this equipment shall be so designed, installed and protected as not to be able to cause ignition or short circuiting in normal conditions of use of the vehicles and as to reduce to a minimum the risk of either occurrence in the event of impact or distortion.

In particular:

1. Wiring

Conductors [see 2 (a)] shall consist of cables protected by seamless and rust - proof casings.

2. Lighting

Screw - cap bulbs shall not be used. If the lamps in the body of the vehicle are not fixed in parts of the walls or ceiling so strengthened as to protect them against any mechanical damage, they should be protected by a strong cage or grid.

220001

Appendix B.2

220002 The inflammable gases and articles of Class 2 whose carriage is not exempted by the provisions of marginal 21251 from the application of the requirements of marginal 220000 are the following

(a) Compressed gases

Hydrogen [1° (b)]

Methane [1° (b)]

Carbon monoxide [1° (bt)]

Mixtures of gases of 2° (b)

Synthetic gases [2° (bt)]

Town gas [2° (bt)]

Water gas [2° (bt)]

(b) Liquefied gases

Butane [3° (b)]

Butylene [3° (b)]

Cyclopropane [3° (b)]

Isobutane [3° (b)]

Isobutylene [3° (b)]

Propane [3° (b)]

Propylene [3° (b)]

Ethyl chloride [3° (bt)]

Methyl chloride [3° (bt)]

Dimethyl ether [3° (bt)]

Ethylamine [3° (bt)]

Hydrogen sulphide [3° (bt)]

Methylamine [3° (bt)]

Methyl mercaptan [3° (bt)]

Trimethylamine [3° (bt)]

Butadiene [3° (c)]

Vinyl chloride [3° (c)]

Appendix B.2

20002  
(contd)

Vinyl bromide [3° (ct)]

Cyanogen chloride [3° (ct)]

Ethylene oxide [3° (ct)]

Gaseous mixtures A, AO, A1, B or C [4° (b)]

Ethane [5° (b)]

Ethylene [5° (b)]

(c) Deeply - refrigerated liquefied gases

The gases of 7° (b) and 8° (b)

(d) Gases dissolved under pressure

Acetylene [9° (c)]

(e) Articles containing gas

Aerosol dispensers of 10°, (b) and (bt)

220003  
229999

Appendix B.3

(see marginal 10182)

230000  
239999

CERTIFICATE OF APPROVAL FOR VEHICLES CARRYING  
CERTAIN DANGEROUS GOODS

1. CERTIFICATE NO.

2. testifying that the vehicle specified below fulfils the conditions prescribed by the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) for its acceptance for the international carriage of dangerous goods by road.

3. Valid until .....

4. This certificate must be returned to the issuing service when the vehicle is taken out of service; if the vehicle is transferred to another owner; on expiry of the validity of the certificate; and if there is a material change in one or more essential characteristics of the vehicle.

5. Type of vehicle: closed vehicle, open vehicle, tank - vehicle with / without closed / open trailer / semi - trailer (strike out words which do not apply) .....

6. Name and business address of carrier (owner) ...

7. Registration number (if none: chassis number) ...

8. The vehicle described above has undergone at ..... the inspection prescribed by ADR, Annex B, marginal 10182 and fulfils the conditions required for its acceptance for the international carriage by road of dangerous goods of Classes .....

item numbers .....

9. Remarks .....

10. ....19.....

11. Signature and

stamp of issuing

service at .....

Appendix B.3

12. The validity of this certificate is extended until ..

13. Signature and

stamp of

issuing service at .

14. The validity of this certificate is extended until ..

15. Signature and

stamp of

issuing service at .

16. The validity of this certificate is extended until ..

17. Signature and

stamp of

issuing service at .



Notes:

1. The dimensions of the certificate shall be 210 x 297 mm (format A 4). Both front and back shall be used. The colour shall be white, with a pink diagonal stripe.

2. Every trailer shall be the subject of a separate certificate unless it is covered by the certificate of the vehicle to which it is coupled.

3. Where a certificate is issued pursuant to article 4, paragraph 2, of the Agreement to a vehicle whose construction does not entirely conform to the requirements laid down in Annex B, the certificate's validity shall not extend beyond the duration of the derogation granted by the said article 4, subject where appropriate to the provisions of marginals 11605, 21605, 31605 and 61605; and the text of paragraph 8 of the certificate of approval shall be replaced by the following «The vehicle described above does not entirely\* to the benefit of the provisions of article 4, paragraph 2, of the Agreement».

Appendix B.4  
Tables concerning the carriage of dangerous substances of CLASS 7;  
Label to be placed on vehicles carrying these substances.

Appendix B.4

Total sum of the packages of the category		Total sum of the transport index	Journey or storage duration, in hours							
YEL-LOW III	YEL-LOW II		1	2	4	10	24	28	120	240
			Minimum distances in metres							
		0.2	0.5	0.5	0.5	0.5	1	1	2	3
		0.5	0.5	0.5	0.5	1	1	2	3	5
	1	1	0.5	0.5	1	1	2	3	5	7
	2	2	0.5	1	1	1	1.5	3	4	9
	4	4	1	1	1.5	3	4	6	9	13
	8	8	1	1.5	2	4	6	8	13	18
1	10	10	1	2	3	4	7	9	14	20
2	20	20	1.5	3	4	6	9	13	20	30
3	30	30	2	3	5	7	11	16	25	35
4	40	40	3	4	5	8	13	18	30	40
5	50	50	3	4	6	9	14	20	32	45

The minimum distances indicated in the table below between radioactive substances and areas on vehicles reserved for the driving and accompanying personnel are compatible with the provisions of marginal 3659(8)

240000  
240002-  
240009

Appendix B.4

The label to be affixed to the walls of vehicles pursuant to the provisions of marginal 3659(6) shall conform to the model reproduced below:

Total sum of transport index	Minimum distances in metres, no shielding material intervening, from living accommodations or regularly occupied working space
	Applicable data in the case of exposure time not exceeding 250 hours per annum
Less than 2	1.0
2 to 4	1.5
4 to 8	2.5
8 to 12	3.0
12 to 20	4.0
20 to 30	5.0
30 to 40	5.5
40 to 50	6.5

240001

the minimum safety distances referred to in marginal 3657 for the loading and storage of packages which bear a label «FOTO» together with packages of Category II - YELLOW or Category III - YELLOW are given in the following table.

Separation distances for the loading and the storage of packages which bear a label with the word FOTO together with packages of Categories II - YELLOW or III - YELLOW



(Minimum length of side: 15 cm)  
Symbol and inscription black on white ground

\*Conform to the requirements laid down in Annex B, but is entitled.

240011-  
249999

Appendix B.5  
LIST OF SUBSTANCES MENTIONED UNDER  
MARGINAL 10500 (2)

## NOTE

– The first figure in the hazard - identification number indicates the primary hazard as follows:

2. Gas
3. Inflammable liquid
4. Inflammable solid
5. Oxidizing substance or organic peroxide
6. Toxic substances
8. Corrosive

The second and third figures indicated secondary hazards:

0. no meaning
1. explosion risk
2. gas may be given off
3. inflammable risk

5. oxidizing risk
6. toxic risk
8. corrosive risk
9. risk of violent reaction from spontaneous decomposition or self-polymerization

– Where the first and second figures are the same, an intensification of the primary hazard is indicated, viz. 33 means a highly inflammable liquid (flash - point below 21 °C); 66 indicates a very dangerous toxic substance; 88 means a very dangerous corrosive substance. Where the first two figures are 22, a refrigerated gas is indicated. The combination 42 indicates a solid which may give off a gas on contact with water.

– Where the hazard - identification number is preceded by the letter «X», this indicates an absolute prohibition of the application of water to the product.

The substances mentioned under marginal 10500 (2) 250000 are listed below:

## Appendix B.5

Name of Substance (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)
<b>A</b>			
Acetal (1, 1-diethoxyethane)	3, 1°(a)	33	1088
Acetaldehyde	3, 5°	33	1089
Acetic acid, glacial (and its aqueous solutions containing more than 80% pure acid)	8, 21°(c)	83	1842
Acetic anhydride	8, 21°(e)	83	1715
Acetic ester (see ethyl acetate)			
Acetone	3, 5°	33	1090
Acetone cyanohydrin (see 2-cyanopropan-2-01)			
Acetonitrile	6.1, 2°(b)	633	1648
Acetyl Chloride	8, 22°	83	1717
Acrylaldehyde	3, 1°(a)	336	1092
Acrylonitrile	6.1, 2°(a)	633	1093
Air	2, 8°(a)	22	1003
Alcohol (see ethanol)			
Allyl alcohol	6.1, 13°(a)	63	1098
Allyl chloride	6.1, 4°(a)	633	1100
Ammonia	2, 3°(at)	268	1005
Ammonia, dissolved in water, with more than 35% but not more than 40% ammonia by weight	2,	268	2073
Ammonia, dissolved in water, with more than 40% but not more than 50% ammonia by weight	2, 9°(at)	268	2073
Amyl acetate (see pentyl acetate)			
Amyl alcohols (other than tertiary)	3, 3°	30	1105
Amyl alcohol, tertiary	3, 1°(a)	33	1105

## Appendix B.5

(a)	(b)	(c)	(d)
Aniline	6.1, 11°(b)	60	1547
Antimony pentachloride	8, 11°(a)	80	1730
Argon (refrigerated)	2, 7°(a)	22	1951
<b>B</b>			
Benzaldehyde	3, 4°	30	1990
Benzene	3, 1°(a)	33	1114
Benzoyl chloride	8, 22°	83	1736
Bromine	8, 14°	886	1744
1,3 Butadiene	2, 3°(c)	239	1010
Butane	2, 3°(b)	23	1011
Butan-1-01-(butyl alcohol, normal)	3, 3°	30	1120
Butan-2-01 (sec-butyl alcohol)	3, 3°	30	1121
Butanol, tertiary	3, 5°	33	1122
n-Butyl acetate	3, 3°	30	1123
sec-Butyl acetate	3, 1°(a)	33	1124
n-Butyl alcohol (see butan-1-01)			
sec-Butyl alcohol (see butan-2-01)			
Butylamine	3, 5°	338	1125
n-Butyl chloride (see 1-chlorobutane)			
1-Butylene	2, 3°(b)	23	1012
Butyraldehyde	3, 1°(a)	33	1129
<b>C</b>			
Calcium chlorate solution	5.1, 4°(a)	50	2429
Carbon dioxide	2, 5°(a)	20	1013
Carbon dioxide, liquid (refrigerated)	2, 7°(a)	22	2187
Carbon disulphide	3, 1°(a)	336	1131
Carbonyl chloride (see phosgene)			
Chlorine	2, 3°(at)	266	1017
Chlorobenzene	3, 3°	30	1134

## Appendix B.5

(a)	(b)	(c)	(d)
1-Chlorobutane (butyl chloride)	3, 1°(a)	33	1127
Chlorodifluoromethane (R22)	2, 3°(a)	20	1018
1-Chloro-2, 3-epoxypropane (epichlorohydrin)	6.1, 12°(a)	663	2023
2-Chloroethanol (see glycol chlorohydrin)			
Chloroprene	3, 1°(a)	336	1991
Chlorosulphonic acid	8, 11°(a)	88	1754
Chlorotrifluoromethane (R13)	2, 5°(a)	20	1022
Cresols	6.1, 22°(a)	60	2076
Cumene	3, 3°	30	1918
Cyanides, inorganic, solutions of	6.1, 31°(b)	66	1935
2-Cyanopropan-2-01 (acetone cyanohydrin)	6.1, 11°(a)	66	1541
Cyclohexane	3, 1°(a)	33	1145
Cyclohexanole	3, 3°	30	1915
Cyclohexane	3, 1°(a)	33	2256
Cyclopentane	3, 1°(a)	33	1146
Cyclopropane	2, 3°(b)	23	1027
D			
Decahydronaphthalene	3, 3°	30	1147
Diacetone alcohol, technical	3, 5°	33	1148
1,2-Diaminoethane (ethylene diamine)	8, 35°	83	1604
1,6-Diaminohexane (hexamethylene diamine)	8, 35°	80	1783
Dichlorodifluoromethane (R12)	2, 3°(a)	20	1028
1,2-Dichloroethane	3, 1°(a)	336	1184
Dichlorofluoromethane (R21), Dichloromonofluoromethane (see dichlorofluoromethane)	2, 3°(a)	20	1029

## Appendix B.5

(a)	(b)	(c)	(d)
Dichloropropene	3, 3°	36	2047
1,2-Dichloro-1, 1,2	2, 3°(a)	20	1958
2-tetrafluoroethane (R.114)			
1,1-Diethoxyethane (see acetal)			
Diethylamine	3, 5°	338	1154
diethyl benzene	3, 4°	30	2049
Diethyl ether (sulphuric ether)	3, 1°(a)	33	1155
Di-isopropyl ether	3, 1°(a)	33	1159
2,2-Dimethyl benzyl hydroperoxide	5.2, 10°	539	2116
Dimethyl carbonate	3, 1°(a)	33	1161
Dimethyl ether	2, 3°(bt)	23	1033
Dimethyl sulphate	6.1, 13°(b)	663	1595
Dioxane	3, 5°	336	1165
Disulphur dichloride	8, 11°(a)	886	1828
E			
Epichlorohydrin (see 1-chloro-2,3-epoxypropane)			
Ethanethiol (ethyl mercaptan)	3, 1°(a)	336	2363
Ethanol (ethyl alcohol, alcohol)	3, 5°	33	1170
Ethoxyethyl acetate	3, 3°	30	1172
Ethyl acetate (acetic ester)	3, 1°(a)	33	1173
Ethyl acrylate	3, 1°(a)	339	1917
Ethyl alcohol (see ethanol)			
Ethyl benzene	3, 1°(a)	33	1175
Ethyl chloride	2, 3°(bt)	23	1037
Ethylene	2, 5°(b)	23	1962
Ethylene, (refrigerated)	2, 7°(b)	223	1038
Ethylene diamine (see 1,2-diaminoethane)			
Ethyl formate	3, 1°(a)	33	1190
Ethyl silicate (see tetraethyl silicate)			
Ethyl mercaptan (see ethanethiol)			

## Appendix B.5

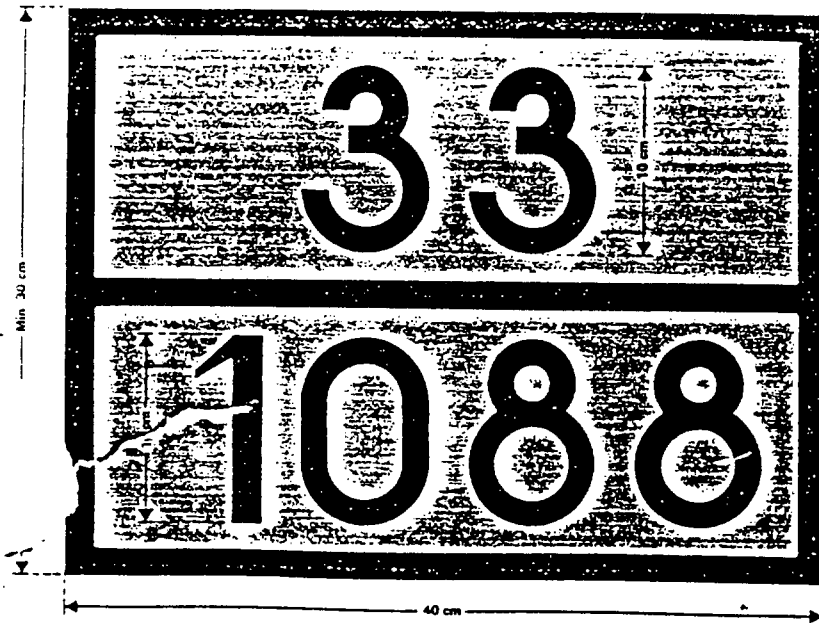
(a)	(b)	(c)	(d)
<b>F</b>			
Fluoboric acid (aqueous solutions containing not more than 78% pure acid)	8, 7°	88	1775
Formic acid (containing not less than 70% pure acid)	8, 21°(b)	80	1779
Furfural	3, 4°	36	1199
<b>G</b>			
Glycol chlorohydrin (2-chloroethanol)	6.1, 12°(b)	66	1135
<b>H</b>			
Hexamethylene diamine (see 1,6-diaminohexane)			
Hydrazine in aqueous solutions containing not more than 72% hydrazine:			
-solutions containing more than 64%	8, 34°	86	2029
-solutions containing not more than 64%	8, 34°	86	2030
Hydrobromic acid, anhydrous (see hydrogen bromide)			
Hydrobromic acid, solutions of	8, 5°	88	1788
Hydrocarbons, liquid, pure or in mixtures, not otherwise specified in this Appendix:			
-with a flash point below 21° C	3, 1°(a)	33	1203
-with a flash point between 21° C and 55° C	3, 3°	30	1223
with a flash point above 55° C	3, 4°	30	1202
Hydrocarbon gas mixtures, A, AO, A1, B and C (liquefied)	2, 4°(b)	23	1965
Hydrochloric acid, anhydrous (see Hydrogen chloride, liquefied)			
Hydrochloric acid, solutions of	8, 5°	88	1789
Hydrocyanic acid solutions (containing not more than 20% hydrocyanic acid)	6.1, 1°(b)	66	1613
Hydrofluoric acid, aqueous solutions containing more than 85 per cent pure acid	8, 6°(b)		
Hydrofluoric acid, aqueous solutions containing more than 60 per cent but not more than 85 per cent pure acid	8, 6°(c)	886	1790
Hydrofluoric acid, aqueous solutions containing not more than 60 per cent pure acid	8, 6°(d)		
Hydrofluoric acid, anhydrous (see hydrogen fluoride)			
Hydrogen bromide	2, 3°(at)	286	1048
Hydrogen chloride	2, 5°(at)	286	1050
Hydrogen fluoride (anhydrous hydrofluoric acid)	8, 6°(a)	886	1052
Hydrogen peroxide solutions			
- containing more than 40% but not more than 60% hydrogen peroxide	8, 41°(a)	85	2014
- containing more than 6% but not more than 40% hydrogen peroxide	8,41°(b)	85	2014
Hydrogen peroxide and solutions of hydrogen peroxide containing more than 60% hydrogen peroxide	5.1, 1°	559	2015
Hypochlorite solutions			
- containing more than 50 gm available chlorine per litre	8,37°(a)	85	1791
- containing not more than 50 gm available chlorine per litre	8, 37°(b)	85	1791
<b>I</b>			
Isobutane	2, 3°(b)	23	1969
Isobutyl acetate	3, 1°(a)	33	1213
Isobutylene	2, 3°(b)	23	1055
isoprene cmethyl butadienes	3,1°(a)	339	1218
Isopropanol (see propan-2-ol)			
Isopropyl acetate	3, 1°(a)	33	1220
Isopropyl alcohol (see propan-2-ol)			
Isopropylamine	3, 5°	338	1221
<b>L</b>			
Laughing gas (see nitrous oxide)			
Lead alkyls, mixtures with halogenated organic compounds e.g. ethyl fluid	6.1, 14°	663	1649
<b>M</b>			
p-Menthanyl hydroperoxide (with peroxide content not exceeding 95%)	5.2, 14°	539	2125

Methane (refrigerated)	2, 7°(b)	223	1972
Methanol (methyl alcohol, wood spirit)	3, 5°	336	1230
Methoxymethane (see dimethyl ether)			
Methyl acetate	3, 1°(a)	33	1231
Methyl acrylate	3, 1°(a)	339	1919
Methylal	3, 1°(a)	33	1234
Methyl alcohol (see methanol)			
Methylamine	2, 3°(bt)	263	1061
Methylamyl alcohol	3, 3°	30	2053
Methyl bromide (bromotethane)	2, 3°(at)	263	1062
Methyl butadiene (see isoprene)			
Methyl chloride (chloromethane)	2, 3°(bt)	236	1063
Methyl ethyl ketone	3, 1°(a)	33	1193
Methyl formate	3, 1°(a)	33	1243
Methyl isobutyl ketone	3, 1°(a)	33	1245
Methyl methacrylate	3, 1°(a)	339	1247
Methyl propionate	3, 1°(a)	33	1248
Methyl vinyl ether	2, 3°(ct)	239	1087
Methyl vinyl ketone	3, 1°(a)	33	1251
Mixed nitrating acids (sulphuric and nitric acids)			
– containing more than 30% pure nitric acid	8, 3°(a)	856	1796
– containing not more than 30% pure nitric acid	8, 3°(b)	886	1796
Mixtures A, A0, A1, B and C (see hydrocarbon gas mixtures, liquefied)			
Monochlorodifluoromethane (see chlorodifluoromethane)			
Monomethylamine (see methylamine)			
Monomethylamine, aqueous solutions	3, 5°	336	1235
N			
Naphthalene in the melted state	4.1, 11°(c)	44	2304
Natural gas (refrigerated)	2, 8°(b)	223	2043
Nitric acid			
– containing more than 70% pure acid	8, 2°(a)	856	2032
– containing more than 55% but not more than 70% pure acid	8, 2°(b)	886	2031
Nitrobenzene	3, 4°	36	1662
Nitrogen (refrigerated)	2, 7°(a)	22	1977
Nitrogen dioxide No <sub>2</sub> (nitrogen peroxide, nitrogen tetroxide N <sub>2</sub> O <sub>4</sub> )	2, 3°(at)	265	1067
Nitrogen peroxide (see nitrogen dioxide)			
Nitrogen tetroxide (see nitrogen dioxide)			
Nitrous oxide N <sub>2</sub> O	2, 5°(a)	25	1070
O			
Oleum	2, 7°(a)	225	1073
Oxygen (refrigerated)			
P	3, 1°(a)	33	1264
Paraldehyde	8, 1°(a)	886	1831
Pentyl acetate (amyl acetate)	3, 3°	30	1104
Perchloric acid, in aqueous solutions:			
– containing more than 50% but not more than 72.5% perchloric acid	5.1, 3°	588	1873
– containing not more than 50% pure acid	8, 4°	85	1802
Phenol	6.1, 13°(c)	68	1671
Phosgene	2, 3°(at)	266	1076
Phosphorus oxychloride (see phosphoryl chloride)			
Phosphorus trichloride	8, 11°(a)	88	1809
Phosphorus, white or yellow	4.2, 1°	436	1381
Phosphoryl chloride (phosphorus oxychloride)	8, 11°(a)	88	1810
Potash lye	8, 32°	88	1814
Potassium	4.3, 1°(a)	X423	2257
Potassium chlorate solution	5.1, 4°(a)	50	2427
Propane	2, 3°(b)	23	1978
n-Propanol (propyl alcohol)	3, 5°	33	1274
Propan-2-ol (isopropyl alcohol)	3, 5°	33	1219
Propionaldehyde	3, 1°(a)	33	1275
Propyl acetate	3, 1°(a)	33	1276
Propyl alcohol (see n-propanol)			
Propylene	2, 3°(b)	23	1077
Propylene diamine	8, 35°	83	2258
Propylene oxide	3, 1°(a)	336	1280
Pyridine	3, 5°	36	1282

R			
R12 (see dichlorodifluoromethane)			
R13 (see chlorotrifluoromethane)			
R21 (see dichlorofluoromethane)			
R22 (see chlorodifluoromethane)			
R114 (see dichlorotetrafluoroethane)			
S			
Silicon tetrachloride	8, 11°(a)	88	1818
Soda lye	8, 32°	88	1824
Sodium	4.3, 1°(a)	X423	1428
Sodium chlorate solution	5.1, 4°(a)	50	2428
Sodium chlorite solution	5.1, 4°(c)	50	1908
Styrene	3, 3°	30	2055
Sulphur dioxide	2, 3°(at)	26	1079
Sulphuric acid			
– containing more than 85% pure acid	8, 1°(a)	88	1830
– containing more than 75% but not more than 85% pure acid	8, 1°(b)	88	1830
– containing not more than 75% pure acid	8, 1°(c)	88	1830
– waste, completely denitrated	8, 1°(d)	88	1832
Sulphuric and nitric acids (see mixed nitrating acids)			
Sulphuric ether (see diethyl ether)			
Sulphur in the melted state	4.1, 2°(b)	44	2448
Sulphurous acid, anhydrous (see sulphur dioxide)			
Sulphur trioxide	8, 9°	885	1829
Sulphuryl chloride	8, 11°(a)	88	1834
T			
Tetraethyl lead	6.1, 14°	663	1649
Tetraethyl silicate (ethyl silicate)	3, 3°	30	1292
Tetrahydrofuran	3, 5°	33	2056
Tetramethyl lead	6.1, 14°	663	1649
Thionyl chloride	8, 11°(a)	88	1836
Titanium tetrachloride	8, 11°(a)	88	1838
Toluene	3, 1°(a)	33	1294
Triethylamine	3, 5°	336	1296
Triethylene tetramine	8, 35°	80	2259
Trimethylamine	2, 3°(bt)	236	1083
Trimethylamine, solutions of	3, 5°	336	1297
266-trimethyl norpinanyl hydroperoxide with a peroxide content not exceeding 95%	5.2, 15°	539	2162
Tripopylamine	8, 35°	83	2260
Turpentine	3, 3°	30	1299
V			
Vinyl acetate	3, 1°(a)	33	1301
Vinyl chloride	2, 3°(c)	239	1086
W			
Wood spirit (see methanol)			
X			
Xylenes	3, 3°	30	1307
Xylenols	6.1, 22°(b)	60	2261

## Appendix B.5

Identification numbers shall be shown on the plate as 250001 indicated below:



Identification number of danger (2 or 3 figures).

Identification number of substance (4 figures).

Background orange.  
Border, horizontal line and figures black, 15 mm thickness.

250002  
250999



ΟΙΚΟΝΟΜΙΚΗ ΕΠΙΤΡΟΠΗ ΓΙΑ ΤΗΝ ΕΥΡΩΠΗ  
ΕΠΙΤΡΟΠΗ ΜΕΤΑΦΟΡΩΝ ΕΣΩΤΕΡΙΚΟΥ

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Ευρωπαϊκή Συμφωνία

Για τη Διεθνή Οδική Μεταφορά Επι-  
κίνδυνων Εμπορευμάτων (ADR)  
και Πρωτόκολλο Υπογραφής

Υπογράφηκε στη Γενεύη την 30 Σεπτεμβρίου 1957

ΤΟΜΟΣ Ι

(Συμφωνία, Πρωτόκολλο Υπογραφής και Παράρτημα Α)

ΗΝΩΜΕΝΑ ΕΘΝΗ

1978

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Π Ρ Ο Λ Ο Γ Ο Σ

Το παρακάτω κείμενο περιλαμβάνει, επιπροσθέτως της Συμφωνίας και του Πρωτοκόλλου Υπογραφής, τα Παραρτήματα με τη μορφή με την οποία τέθηκαν σε ισχύ την 29ην Ιουλίου 1968 καθώς και τις τροποποιήσεις τους μέχρι της 1ης Οκτωβρίου 1978.

ΕΥΡΩΠΑΪΚΗ ΣΥΜΦΩΝΙΑ ΓΙΑ ΤΗ ΔΙΕΘΝΗ ΟΔΙΚΗ ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝ-  
ΔΥΝΩΝ ΕΜΠΟΡΕΥΜΑΤΩΝ (ADR)

ΤΑ ΣΥΜΒΑΛΛΟΜΕΝΑ ΜΕΡΗ,

ΕΠΙΘΥΜΟΥΝΤΑ να αυξήσουν την ασφάλεια της διεθνούς  
οδικής μεταφοράς,

ΣΥΜΦΩΝΗΣΑΝ τα παρακάτω:-

Άρθρο 1

Για την εφαρμογή της παρούσας Συμφωνίας,

- (α) με τον όρο "οχήμα" νοούνται τα αυτοκίνητα, αρθρωτά ο-  
χήματα, ρυμουλκούμενα οχήματα (TRAILERS) και ημι-  
ρυμουλκούμενα (SEMI-TRAILERS), όπως ορίζεται στο άρθρο  
4 της Σύμβασης Περί Οδικής Κυκλοφορίας της 19ης Σεπτεμ-  
βρίου 1949, εκτός των οχημάτων που ανήκουν ή τελούν υπό  
τις διαταγές των ενόπλων δυνάμεων του Συμβαλλόμενου  
Μέρους·
- (β) με τον όρο "επικίνδυνα εμπορεύματα" νοούνται οι ύλες  
και τα είδη των οποίων η διεθνής οδική μεταφορά απαγο-  
ρεύεται από, ή επιτρέπεται μόνον υπό ωρισμένους όρους  
από τα Παραρτήματα Α και Β·
- (γ) με τον όρο "διεθνής μεταφορά" νοείται οποιαδήποτε επι-  
χείρηση μεταφοράς, εκτελούμενη στην εδαφική περιοχή  
(επικράτεια) δύο τουλάχιστον Συμβαλλόμενων Μερών με  
οχήματα που ορίζονται στη πιο πάνω παράγραφο (α).

Άρθρο 2

- Ι.- Υπό την επιφύλαξη των διατάξεων του άρθρου 4, παράγρα-  
φος 3, επικίνδυνα εμπορεύματα η μεταφορά των οποίων  
αποκλείεται από το Παράρτημα Α δεν θα γίνονται δεκτά

για διεθνή μεταφορά.

- 2.- Η διεθνής μεταφορά άλλων επικίνδυνων εμπορευμάτων θα εξουσιοδοτείται υπό την επιφύλαξη της τηρήσεως των
- (α) όρων του Παραρτήματος Α για τα ~~ε~~ θέμα. εμπορεύματα, ειδικότερα όσον αφορά τη συσκευασία και ετικετοποίησή τους, και των
- (β) όρων του Παραρτήματος Β, ειδικότερα όσον αφορά τη κατασκευή, εξοπλισμό και λειτουργία του οχήματος του μεταφέροντος τα ~~ε~~ θέμα. εμπορεύματα, υπό την επιφύλαξη των διατάξεων του άρθρου 4, παράγραφος 2.

#### Άρθρο 3

Τα Παραρτήματα της παρούσας Συμφωνίας θα αποτελούν αναπόσπαστο τμήμα αυτής.

#### Άρθρο 4

- 1.- Κάθε Συμβαλλόμενο Μέρος θα έχει το δικαίωμα να ρυθμίζει ή απαγορεύει, για λόγους εκτός της ασφαλείας διαρκούσης της μεταφοράς, την εισαγωγή επικίνδυνων εμπορευμάτων στην εδαφική του περιοχή (επικράτεια).
- 2.- Οχήματα ~~σε~~ υπηρεσία στην επικράτεια του Συμβαλλόμενου Μέρους όταν τεθεί σε ισχύ η παρούσα Συμφωνία ή τιθέμενα σε υπηρεσία στην επικράτεια αυτή εντός δύο μηνών από της θέσεώς της σε ισχύ θα επιτρέπεται, για χρονική περίοδο τριών ετών από της θέσεώς της σε ισχύ, να εκτελούν τη διεθνή μεταφορά επικίνδυνων εμπορευμάτων ακόμη και εάν η κατασκευή και ο εξοπλισμός τους δεν είναι ολωσδιόλου σύμφωνα με τις διατάξεις του Παραρτήματος Β για

την εν λόγω θέμα: επιχείρηση μεταφοράς. Δυνάμει ειδικών άρθρων του Παραρτήματος Β, όμως, η περίοδος αυτή μπορεί να μειωθεί.

3.- Τα Συμβαλλόμενα Μέρη θα έχουν το δικαίωμα να κανονίζουν, με ειδικές διμερείς ή πολυμερείς συμφωνίες, όπως ορισμένα από τα επικίνδυνα εμπορεύματα τα οποία σύμφωνα με τη παρούσα Συμφωνία αποκλείονται από όλες τις διεθνείς μεταφορές μπορούν, υπό την επιφύλαξη ορισμένων όρων, να γίνονται δεκτά για διεθνή μεταφορά στις επικράτειές τους, ή όπως επικίνδυνα εμπορεύματα τα οποία σύμφωνα με τη παρούσα Συμφωνία γίνονται δεκτά για διεθνή μεταφορά μόνον υπό ειδικούς όρους μπορούν να γίνονται δεκτά για διεθνή μεταφορά στις επικράτειές τους υπό όρους λιγώτερο αυστηρούς από εκείνους των Παραρτημάτων της παρούσας Συμφωνίας. Οι διμερείς ή πολυμερείς ειδικές συμφωνίες οι αναφερόμενες στη παρούσα παράγραφο θα ανακοινώνονται στο Γενικό Γραμματέα των Ηνωμένων Εθνών, ο οποίος θα ανακοινώνει αυτές στα Συμβαλλόμενα Μέρη τα οποία δεν έχουν υπογράψει τις συμφωνίες αυτές.

#### Άρθρο 5

Οι επιχειρήσεις μεταφοράς στις οποίες η παρούσα Συμφωνία έχει εφαρμογή θα παραμένουν υπό την επιφύλαξη των εθνικών ή διεθνών κανονισμών που ισχύουν γενικά στην οδική κυκλοφορία, στη διεθνή οδική μεταφορά και στο διεθνές εμπόριο.

#### Άρθρο 6

I.- Χώρες-μέλη της Οικονομικής Επιτροπής για την Ευ-

ρώπη και χώρες πούγιναν δεκτές στην Επιτροπή με συμβουλευτική ιδιότητα κατά τη παράγραφο 8 των όρων παραπομπής της Επιτροπής μπορούν να γίνουν Συμβαλλόμενα Μέρη της παρούσας Συμφωνίας

- (α) υπογράφοντας αυτήν
- (β) επικυρώνοντας αυτήν μετά την υπογραφή της υπό την την επιφύλαξη της επικυρώσεως
- (γ) προσχωρώντας σ' αυτήν.

2.- Χώρες που μπορούν να μετάσχουν σε ορισμένες δραστηριότητες της Οικονομικής Επιτροπής για την Ευρώπη σύμφωνα με τη παράγραφο II των όρων παραπομπής της Επιτροπής μπορούν να γίνουν Συμβαλλόμενα Μέρη της παρούσας Συμφωνίας με τη προσχώρησή τους σ' αυτή αφού τεθεί σε ισχύ.

3.- Η Συμφωνία θα είναι ανοικτή για υπογραφή μέχρι της 15ης Δεκεμβρίου 1957. Μετά θα είναι ανοικτή για προσχώρηση.

4.- Επικύρωση ή προσχώρηση θα πραγματοποιείται με την κατάθεση εγγράφου στο Γενικό Γραμματέα των Ηνωμένων Εθνών.

#### Άρθρο 7

I.- Η παρούσα Συμφωνία θα τεθεί σε ισχύ ένα μήνα μετά την ημερομηνία κατά την οποία ο αριθμός των χωρών των αναφερόμένων στο άρθρο 6, παράγραφος I, οι οποίες υπόγραψαν αυτή χωρίς επιφύλαξη επικυρώσεως ή οι οποίες κατέθεσαν τα έγγραφα επικυρώσεως ή προσχωρήσεώς τους ανέλθει συνολικά σε πέντε. Όμως, τα Παραρτήματα αυτής δεν θα έχουν εφαρμογή μέχρι έξι μήνες από της θέσεως σε ισχύ της Συμφωνίας.

Για οποιαδήποτε χώρα που επικυρώνει ή προσχωρεί στη παρούσα Συμφωνία μετά την υπογραφήν αυτής χωρίς επιφύλαξη επικυρώσεως ή την κατάθεση των εγγράφων επικυρώσεως ή προσχωρήσεως των πέντε χωρών των αναφερόμενων στο άρθρο 6, παράγραφος Ι, η παρούσα Συμφωνία θα τεθεί σε ισχύ ένα μήνα αφότου η χώρα αυτή καταθέσει το έγγραφο της επικυρώσεως ή προσχωρήσεως και τα Παραρτήματα αυτής θα έχουν εφαρμογή για τη χώρα αυτή είτε την αυτήν ημερομηνίαν, εάν είναι ήδη σε ισχύ μέχρι της ημερομηνίας αυτής, είτε, εάν δεν είναι σε ισχύ μέχρι της ημερομηνίας αυτής, την ημερομηνία κατά την οποία θα ισχύουν σύμφωνα με τις διατάξεις της παραγράφου Ι του παρόντος άρθρου.

Άρθρο 8

1.- Οποιοδήποτε Συμβαλλόμενο Μέρος μπορεί να καταγγείλει τη παρούσα Συμφωνία ειδοποιώντας σχετικά τον Γενικό Γραμματέα των Ηνωμένων Εθνών.

2.- Η καταγγελία θα τίθεται σε ισχύ δώδεκα μήνες μετά την παραλαβή από τον Γενικό Γραμματέα της γνωστοποίησης της καταγγελίας.

Άρθρο 9

1.- Η παρούσα Συμφωνία θα παύσει να ισχύει εάν, αφού τεθεί σε ισχύ, ο αριθμός των Συμβαλλομένων Μερών είναι μικρότερος των πέντε κατά τη διάρκεια δώδεκα συναπτών μηνών.

2.- Στη περίπτωση που θα συναφθεί παγκόσμια συμφωνία για τη ρύθμιση της μεταφοράς επικίνδυνων εμπορευμάτων, οποιαδήποτε διάταξη της παρούσας Συμφωνίας είναι αντίθετη προς οποιαδήποτε διάταξη της παγκόσμιας αυτής συμφωνίας,

από της ημερομηνίας κατά την οποία η τελευταία θα τεθεί σε ισχύ, θα παύει αυτομάτως να έχει εφαρμογή στις σχέσεις μεταξύ των Συμβαλλόμενων της παρούσας Συμφωνίας Μερών που γίνονται συμβαλλόμενα μέρη της παγκόσμιας συμφωνίας, και αυτομάτως θα αντικαθίστανται από τη σχετική διάταξη της παγκόσμιας αυτής συμφωνίας.

#### Άρθρο ΙΟ

Ι.- Οποιαδήποτε χώρα μπορεί, κατά την υπογραφή της παρούσας Συμφωνίας χωρίς επιφύλαξη επικυρώσεως ή την κατάθεση του εγγράφου της επικυρώσεως ή προσχωρήσεως ή οποτεδήποτε μετέπειτα, να δηλώσει με γνωστοποίηση απευθυνόμενη στο Γενικό Γραμματέα των Ηνωμένων Εθνών ότι η παρούσα Συμφωνία θα επεκταθεί σε όλες ή οποιεσδήποτε από τις επικράτειες για τις διεθνείς σχέσεις των οποίων είναι υπεύθυνη. Η Συμφωνία και τα Παραρτήματα αυτής θα επεκτείνονται στην επικράτεια ή επικράτειες που κατονομάζονται στη γνωστοποίηση ένα μήνα μετά τη παραλαβή αυτής από τον Γενικό Γραμματέα.

2.- Οποιαδήποτε χώρα που προέβη σε δήλωση, σύμφωνα με τη παράγραφο Ι του παρόντος άρθρου, ότι επεκτείνει την παρούσα Συμφωνία σε οποιαδήποτε επικράτεια γοά τις διεθνείς σχέσεις της οποίας είναι υπεύθυνη, μπορεί να καταγγείλει τη Συμφωνία χωριστά για την επικράτεια αυτή σύμφωνα με τις διατάξεις του Άρθρου 8.

#### Άρθρο ΙΙ

Ι.- Οποιαδήποτε διαφορά μεταξύ δύο ή περισσότερων Συμβαλλόμενων Μερών σχετική με την ερμηνεία ή την εφαρμο-

γή της παρούσας Συμφωνίας θα τακτοποιείται εφόσον είναι δυνατόν με μεταξύ τους διαπραγματεύσεις.

2.- Οποιαδήποτε διαφορά που δεν τακτοποιείται με διαπραγμάτευση θα παραπέμπεται σε διαιτησία εάν οποιαδήποτε από τα έχοντα τη διαφορά Συμβαλλόμενα Μέρη το ζητήσει και κατά συνέπεια θα παραπέμπεται σε ένα ή περισσότερους διαιτητές που θα επιλέγονται κατόπιν συμφωνίας των εχόντων τη διαφορά Μερών. Εάν εντός τριών μηνών από της ημερομηνίας της αιτήσεως διαιτησίας τα έχοντα τη διαφορά Μέρη αδυνατούν να συμφωνήσουν στην επιλογή διαιτητού ή διαιτητών, οποιοδήποτε των Μερών αυτών μπορεί να ζητήσει από τον Γραμματέα των Ηνωμένων Εθνών να διορίσει ένα διαιτητή στον οποίο θα παραπεμφθεί η διαφορά για την έκδοση αποφάσεως.

3.- Η απόφαση του διαιτητή ή διαιτητών των διορισθέντων σύμφωνα με τη παράγραφο 2 του παρόντος άρθρου θα είναι δεσμευτική για τα έχοντα τη διαφορά Συμβαλλόμενα Μέρη.

#### Άρθρο Ι2

1.- Κάθε Συμβαλλόμενο Μέρος μπορεί, κατά την υπογραφή, επικύρωση, ή προσχώρηση στην παρούσα Συμφωνία, να δηλώσει ότι δεν θεωρεί εαυτό δεσμευμένο από το άρθρο ΙΙ. Άλλα Συμβαλλόμενα Μέρη δεν θα δεσμεύονται από το άρθρο ΙΙ σε σχέση με οποιοδήποτε Συμβαλλόμενο Μέρος το οποίο διατύπωσε τέτοια επιφύλαξη.

2.- Οποιοδήποτε Συμβαλλόμενο Μέρος που διατύπωσε την επιφύλαξη που προβλέπεται στη παράγραφο Ι του παρόντος άρθρου μπορεί οποτεδήποτε να αποσύρει την επιφύλαξη αυτή



γνωστοποιώντας σχετικά στον Γενικό Γραμματέα των Ηνωμένων Εθνών.

### Άρθρο 13

1.- Μετά τη τριετή ισχύ της παρούσας Συμφωνίας, οποιοδήποτε Συμβαλλόμενο Μέρος μπορεί, με γνωστοποίηση προς τον Γενικό Γραμματέα των Ηνωμένων Εθνών, να ζητήσει όπως συγκληθεί διάσκεψη προς τον σκοπόν της αναθεώρησης του κειμένου της Συμφωνίας. Ο Γενικός Γραμματέας οφείλει να γνωστοποιήσει σ' όλα τα Συμβαλλόμενα Μέρη την αίτηση και διάσκεψη αναθεώρησης θα συγκληθεί από τον Γενικό Γραμματέα εάν, εντός περιόδου τεσσάρων μηνών από της ημερομηνίας της γνωστοποίησης από τον Γενικό Γραμματέα, όχι λιγότερα του ενός τετάρτου των Συμβαλλομένων Μερών γνωστοποιήσουν εις αυτόν ότι συμφωνούν με την αίτηση.

2.- Εάν διάσκεψη συγκληθεί σύμφωνα με τη παράγραφο 1 του παρόντος άρθρου, ο Γενικός Γραμματέας οφείλει να γνωστοποιήσει αυτό σ' όλα τα Συμβαλλόμενα Μέρη και να προσκαλέσει αυτά να υποβάλουν εντός περιόδου τριών μηνών τις προτάσεις που μπορεί να επιθυμούν να συζητηθούν στη Διάσκεψη. Ο Γενικός Γραμματέας οφείλει να κυκλοφορήσει σ' όλα τα Συμβαλλόμενα Μέρη τη προσωρινήν ημερήσια διάταξη της διασκέψεως, μαζί με τα κείμενα των προτάσεων αυτών, τρεις μήνες τουλάχιστο προ της ημερομηνίας της διεξαγωγής της διασκέψεως.

3.- Ο Γενικός Γραμματέας οφείλει να προσκαλέσει σε διάσκεψη, συγκληθείσα σύμφωνα με το παρόν άρθρο, όλες τις χώρες τις αναφερόμενες στο άρθρο 6, παράγραφος 1, και χώρες που γίνηκαν Συμβαλλόμενα Μέρη δυνάμει του άρθρου 6, παράγραφος 2.

Άρθρο 14

1.- Ανεξάρτητα της διαδικασίας αναθεώρησης της προβλεπομένης από το Άρθρο 13, Συμβαλλόμενο Μέρος μπορεί να προτείνει μία ή περισσότερες τροποποιήσεις των Παραρτημάτων της παρούσας Συμφωνίας. Προς τον σκοπό αυτόν οφείλει να διαβιβάσει το κείμενο αυτών στον Γενικό Γραμματέα των Ηνωμένων Εθνών. Ο Γενικός Γραμματέας μπορεί επίσης να προτείνει τροποποιήσεις των Παραρτημάτων της παρούσας Συμφωνίας προς τον σκοπό της εξασφάλισης συμφωνίας (αρμονίας) μεταξύ των Παραρτημάτων αυτών και λοιπών διεθνών συμφωνιών σχετικών με την μεταφοράν επικίνδυνων εμπορευμάτων.

2.- Ο Γενικός Γραμματέας οφείλει να διαβιβάσει οποιαδήποτε πρόταση που υποβλήθηκε σύμφωνα με τη παράγραφο 1 του παρόντος άρθρου σ' όλα τα Συμβαλλόμενα Μέρη και να πληροφορήσει σχετικά τις λοιπές χώρες τις αναφερόμενες στο άρθρο 6, παράγραφος 1.

3.- Οποιαδήποτε προταθείσα τροποποίηση των Παραρτημάτων θα θεωρείται ότι έγινε δεκτή εκτός εάν, εντός τριών μηνών από της ημερομηνίας κατά την οποίαν ο Γενικός Γραμματέας την κυκλοφορήσει, το ένα- τρίτο τουλάχιστο των Συμβαλλόμενων Μερών, ή πέντε τούτων εάν το ένα- τρίτο υπερβαίνει τον αριθμό αυτό, έχει δώσει στο Γενικό Γραμματέα γραπτή γνωστοποίηση της αντιρρήσεώς του προς την προταθείσα τροποποίηση. Εάν η τροποποίηση θεωρηθεί ότι έγινε δεκτή, θα τεθεί σε ισχύ για όλα τα Συμβαλλόμενα Μέρη, είτε στη λήξη συμπληρωματικής περιόδου τριών μηνών είτε, σε περιπτώσεις όπου παρόμοιες τροποποιήσεις έγιναν

ή ενδέχεται να γίνουν στις λοιπές διεθνείς συμφωνίες τις αναφερόμενες στη παράγραφο I του παρόντος άρθρου, στη λήξη περιόδου η διάρκεια της οποίας θα καθορισθεί από τον Γενικό Γραμματέα κατά τρόπο ώστε να επιτραπεί, οπουδήποτε είναι δυνατό, η ταυτόχρονη θέση σε ισχύ της τροποποίησης και εκείνων που έγιναν ή ενδέχεται να γίνουν στις λοιπές αυτές συμφωνίες· η περίοδος αυτή, , δεν θα είναι μικρότερη διάρκειας από ένα μήνα.

4.- Ο Γενικός Γραμματέας οφείλει, το ταχύτερο δυνατό, να γνωστοποιήσει σ' όλα τα Συμβαλλόμενα Μέρη και σ' όλες τις χώρες τις αναφερόμενες στο άρθρο 6, παράγραφος I, οποιαδήποτε αντίρρηση σε προτεινόμενη τροποποίηση που μπορεί να κληθεί από τα Συμβαλλόμενα Μέρη.

5.- Εάν η προτεινόμενη τροποποίηση των Παραρτημάτων δεν θεωρείται ότι έγινε δεκτή, αλλά εάν τουλάχιστο ένα Συμβαλλόμενο Μέρος, εκτός του Συμβαλλομένου Μέρους που πρότεινε την τροποποίηση έχει δώσει στον Γενικό Γραμματέα γραπτή γνωστοποίηση της συμφωνίας του με την πρόταση, συνέλευση όλων των Συμβαλλομένων Μερών και όλων των χωρών των αναφερομένων στο άρθρο 6, παράγραφος I, θα συγκληθεί από τον Γενικό Γραμματέα εντός τριών μηνών από της λήξεως της περιόδου των τριών μηνών εντός της οποίας, συμφώνως προς την παράγραφο 3 του παρόντος άρθρου, γνωστοποίηση πρέπει να δοθεί της αντιρρήσεως προς την τροποποίηση. Ο Γενικός Γραμματέας μπορεί επίσης να προσκαλέσει στη συνέλευση αυτή εκπροσώπους των:-

(α) διακρατικών οργανισμών που ενδιαφέρονται για

ζητήματα μεταφοράς·

- (β) διεθνών μη-κρατικών οργανισμών οι δραστηριότητες των οποίων σχετίζονται απ'ευθείας με τη μεταφορά επικίνδυνων εμπορευμάτων στις επικράτειες των Συμβαλλομένων Μερών.

6.- Τροποποίηση που υιοθετήθηκε από περισσότερα του μισού του συνολικού αριθμού των Συμβαλλομένων Μερών σε συνέλευση συγκληθείσα σύμφωνα με τη παράγραφο 5 του παρόντος άρθρου θα τίθεται σε ισχύ για όλα τα Συμβαλλόμενα Μέρη σύμφωνα με τη διαδικασία την συμφωνηθείσα στη συνέλευση αυτή από τη πλειοψηφία των παριστάμενων στη συνέλευση Συμβαλλόμενων Μερών.

#### Άρθρο 15

Επιπροσθέτως των γνωστοποιήσεων των προβλεπόμενων από τα άρθρα 13 και 14, ο Γενικός Γραμματέας των Ηνωμένων Εθνών οφείλει να γνωστοποιήσει στις χώρες τις αναφερόμενες στο άρθρο 6, παράγραφος 1, και στις χώρες που έγιναν Συμβαλλόμενα Μέρη δυνάμει του άρθρου 6, παράγραφος 2,

- (α) τις υπογραφές, επικυρώσεις και προσχωρήσεις σύμφωνα με το άρθρο 6·
- (β) τις ημερομηνίες στις οποίες η παρούσα Συμφωνία και τα Παραρτήματα αυτής τέθηκαν σε ισχύ σύμφωνα με το άρθρο 7·
- (γ) τις καταγγελίες σύμφωνα με το άρθρο 8·
- (δ) τη λήξη της Συμφωνίας σύμφωνα με το άρθρο 9·
- (ε) κοινοποιήσεις και καταγγελίες που λήφθηκαν σύμ-

φωνα με το άρθρο 10°

(στ) δηλώσεις και γνωστοποιήσεις που λήφθηκαν σύμφωνα με το άρθρο 12, παράγραφοι 1 και 2°

(ζ) την αποδοχή και την ημερομηνία θέσεως σε ισχύ των τροποποιήσεων σύμφωνα με το άρθρο 14, παράγραφοι 3 και 6.

#### Άρθρο 16

1.- Το Πρωτόκολλο Υπογραφής της παρούσας Συμφωνίας θα έχει την αυτή ισχύ, αποτέλεσμα και διάρκεια όπως η Συμφωνία, της οποίας θα θεωρείται σαν αναπόσπαστο τμήμα.

2.- Ουδεμία θα επιτρέπεται επιφύλαξη για τη παρούσα Συμφωνία, πλην εκείνων που διατυπώθηκαν στο Πρωτόκολλο Υπογραφής και εκείνων που έγιναν σύμφωνα με το άρθρο 12.

#### Άρθρο 17

Μετά την 15ην Δεκεμβρίου 1957, το πρωτότυπο της παρούσας Συμφωνίας θα κατατεθεί στον Γενικό Γραμματέα των Ηνωμένων Εθνών, ο οποίος οφείλει να διαβιβάσει επικυρωμένα αληθή αντίγραφα αυτού σε κάθε μία από τις χώρες που αναφέρονται στο άρθρο 6, παράγραφος 1.

ΣΕ ΠΙΣΤΩΣΗ ΤΩΝ ΟΠΟΙΩΝ οι υπογεγραμμένοι, εξουσιοδοτημένοι δεδντως προς τούτο, υπόγραψαν την παρούσα Συμφωνία.

ΚΑΤΑΡΤΙΣΤΗΚΕ στη Γενεύη, σήμερα τη τριακοστή Σεπτεμβρίου, χίλια Εννιακόσια Πενήντα Επτά, σε ένα αντίγραφο στην Αγγλική και Γαλλική γλώσσα για το κείμενο της κυρίας Συμφωνίας, και στη Γαλλική γλώσσα για τα Παραρτήματα, κάθε δε κείμενο είναι εξ ίσου αυθεντικό κείμενο της κυρίας Συμφωνίας.

Ο Γενικός Γραμματέας των Ηνωμένων Εθνών παρακαλείται να ετοιμάσει επίσημη μετάφραση των Παραρτημάτων στην Αγγλική γλώσσα και επισυνάψει αυτήν στα επικυρωμένα αληθή αντίγραφα τα αναφερόμενα στο άρθρο Ι7.

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ΠΡΩΤΟΚΟΛΛΟ ΥΠΟΓΡΑΦΗΣ

ΤΗΣ ΕΥΡΩΠΑΪΚΗΣ ΣΥΜΦΩΝΙΑΣ ΓΙΑ ΤΗ ΔΙΕΘΝΗ ΟΔΙΚΗ ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝΔΥΝΩΝ ΕΜΠΟΡΕΥΜΑΤΩΝ (ADR)

Προβαίνοντας στην υπογραφή της Ευρωπαϊκής Συμφωνίας για τη Διεθνή Οδική Μεταφορά Επικίνδυνων Εμπορευμάτων (ADR) ο υπογεγραμμένος, δέοντως εξουσιοδοτημένος)

Ι.- ΘΕΩΡΩΝΤΑΣ ότι οι δροί οι διέποντες την θαλάσσια μεταφορά επικινδύνων εμπορευμάτων προς ή από το Ηνωμένο Βασίλειο διαφέρουν βασικά από εκείνους που περιέχονται στο Παράρτημα Α της ADR και ότι είναι αδύνατο να τροποποιηθούν ώστε να συμφωνούν με το τελευταίο στο εγγύς μέλλον·

ΛΑΜΒΑΝΟΝΤΑΣ ΥΠΟΥΧΗ την υπόσχεση τη δοθείσα από το ΗΝΩΜΕΝΟ ΒΑΣΙΛΕΙΟ να υποβάλει σαν τροποποίηση του πιο πάνω αναφερθέντος Παραρτήματος Α ειδικό παράρτημα περιέχον ειδικές διατάξεις για οδική-θαλάσσια μεταφορά επικίνδυνων εμπορευμάτων μεταξύ της Ηπείρου και του Ηνωμένου Βασιλείου·

ΣΥΜΦΩΝΗΣΑ ότι, μέχρι της θέσεως σε ισχύ του πιο πάνω αναφερθέντος ειδικού παραρτήματος, επικίνδυνα εμπορεύματα μεταφερόμενα δυνάμει της ADR προς ή από το

Ηνωμένο Βασίλειο, θα συμμορφούται προς τις διατάξεις του Παραρτήματος Α της ADR καθώς και προς τους όρους του Ηνωμένου Βασιλείου για τη θαλάσσια μεταφορά επικινδύνων εμπορευμάτων.

- 2.- ΛΑΜΒΑΝΩ ΣΗΜΕΙΩΣΗ της δηλώσεως του αντιπροσώπου της Γαλλίας κατά την οποία η Κυβέρνησις της Γαλλικής Δημοκρατίας επιφυλάσσει του δικαιώματος, κατά παρέκβαση των διατάξεων του άρθρου 4, παράγραφος 2, να αρνηθεί να επιτρέψει όπως οχήματα σε υπηρεσία στην επικράτεια άλλου Συμβαλλομένου Μέρους, οποιαδήποτε κι' αν ήταν η ημερομηνία που τέθηκαν σε υπηρεσία, χρησιμοποιηθούν για τη μεταφορά επικινδύνων προϊόντων στη Γαλλική επικράτεια, εκτός εάν τα οχήματα αυτά πληρούν είτε τους για τη μεταφορά αυτή όρους του Παραρτήματος Β είτε τους για τη μεταφορά των άνω θέμα εμπορευμάτων όρους του Γαλλικού Κανονισμού που διέπει την οδική μεταφορά επικινδύνων εμπορευμάτων.
- 3.- ΠΡΟΤΕΙΝΩ όπως, προ της υποβολής σύμφωνα προς το άρθρο Ι4, παράγραφος Ι, ή άρθρο Ι3, παράγραφος 2, οι προτεινόμενες τροποποιήσεις της παρούσας Συμφωνίας ή των Παραρτημάτων αυτής συζητηθούν κατ' αρχήν, εφόσον είναι δυνατόν, σε συνεδριάσεις εμπειρογνομών των Συμβαλλόμενων Μερών και, εάν χρειασθεί, των λοιπών χωρών των αναφερομένων στο άρθρο 6, παράγραφος Ι, της Συμφωνίας και των διεθνών οργανισμών των αναφερόμενων στο άρθρο Ι4, παράγραφο 5, της Συμφωνίας.

ΕΥΡΩΠΑΪΚΗ ΣΥΜΦΩΝΙΑ ΓΙΑ ΤΗ ΔΙΕΘΝΗ ΟΔΙΚΗ ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝΔΥΝΩΝ  
ΕΜΠΟΡΕΥΜΑΤΩΝ (ADR)

ΠΑΡΑΡΤΗΜΑ Α

ΔΙΑΤΑΞΕΙΣ ΣΧΕΤΙΚΕΣ ΜΕ ΤΙΣ ΕΠΙΚΙΝΔΥΝΕΣ ΥΛΕΣ & ΕΙΔΗ

Π ε ρ ι ε χ ό μ ε ν ο

Μέρος Ι.- ΟΡΙΣΜΟΣ ΚΑΙ ΓΕΝΙΚΕΣ ΔΙΑΤΑΞΕΙΣ

	Περιθώρια
Ορισμοί .....	2000 και 2001
Γενικές διατάξεις .....	2002 - 2009

Μέρος ΙΙ.- ΚΑΤΑΣΤΑΣΕΙΣ ΥΛΩΝ

ΚΑΙ ΕΙΔΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΓΙΑ  
ΤΙΣ ΔΙΑΦΟΡΕΣ ΚΛΑΣΕΙΣ

Κλάση: Ια. Ειρηητικές ύλες και είδη,	2100	<u>και επόμενα</u>
Κλάση: Ιβ. Είδη γεμισμένα με ειρηητικές ύ- λες .....	2130	"
Κλάση: Ιγ. Πυροκροτητές (αναφλεκτῆρες), πυ- ροτεχνήματα και παρόμοια εμπο- ρεύματα .....	2170	"
Κλάση: 2. Αέρια: πεπιεσμένα, υγροποιημένα ή διαλυμένα υπό πίεση .....	2200	"
Κλάση: 3. Εύφλεκτα υγρά .....	2300	"
Κλάση: 4.1. Εύφλεκτα στερεά .....	2400	"
Κλάση: 4.2. Ύλες υποκείμενες σε αυτόματο ή αυτογενή ανάφλεξη .....	2430	"
Κλάση: 4.3. Ύλες που βγάζουν εύφλεκτα αέρια σε επαφή με το νερό .....	2470	και επόμενα
Κλάση: 5.1. Οξυγονούχες ύλες .....	2500	"
Κλάση: 5.2. Οργανικά υπεροξειδία .....	2550	"



				περιθώρια
Κλάση	6.1	Τοξικές ύλες .....	2600	<u>&amp; επόμενα</u>
Κλάση	6.2	Απεχθείς (σιχαμερές) ύλες και ουσί- ες που προξενούν μόλυνση .....	2650	"
Κλάση	7	Ραδιενεργείς ύλες .....	2700	"
Κλάση	8	Διαβρωτικές ύλες .....	2800	"

Μέρος III.- Προσθήκες ΠΑΡΑΡΤΗΜΑΤΟΣ Α

Προσθήκη	A.1	Όροι σταθερότητας και ασφάλειας διέποντες τις ειρηνητικές ύλες, εύφλεκτα στερεά και οργανικά υπεροξειδία. Κανόνες για δοκιμές 3I00		"
Προσθήκη	A.2	Διατάξεις σχετικές με τη φύση των από κράμα αλουμινίου δοχείων για ωρισμένα αέρια της Κλάσεως 2° διατάξεις σχετικές με τα υλικά και τη κατασκευή των δοχείων των προο- ριζόμενων για τη μεταφορά των βα- θειά-κατεψυγμένων (DEEPLY-REFRIGER- ATED) υγροποιημένων αερίων της Κλάσεως 2° και διατάξεις διέπουσες τις δοκιμές σε διανεμητές αεροζόλ και μη ξαναγε- μιζόμενα δοχεία για αέρια υπό πίε- ση, της Κλάσεως 2, IO° και II°...	3200	"
Προσθήκη	A.3	Δοκιμές σχετικές με εύφλεκτα υγρά των Κλάσεων 3 και 6.1 .....	3300	"
Προσθήκη	A.4	Υπό επιφύλαξη .....	3400	"

## Περιθώρια

Προσθήκη Α.5	Διατάξεις σχετικές με δοκιμές σε μεταλλικά βαρέλια αναφερόμενα στα περιθώρια 2303(6) & 2813(I)(γ)	3500	& επόμενα
Προσθήκη Α.6	Διατάξεις σχετικές με ραδιενεργείς ύλες Κλάσεως 7	3600	"
Προσθήκη Α.7	Υπό επιφύλαξη	3700	"
Προσθήκη Α.8	Υπό επιφύλαξη	3800	"
Προσθήκη Α.9	Διατάξεις σχετικές με ετικέτες κινδύνου· Επεξήγηση συμβόλων και προτύπων ετικετών	3900	"

Μέρος Ι

## ΟΡΙΣΜΟΙ ΚΑΙ ΓΕΝΙΚΕΣ ΔΙΑΤΑΞΕΙΣ

## ΟΡΙΣΜΟΙ

I - 1999

- (I) Για την εφαρμογή του παρόντος Παραρτήματος: 2000
- με τον όρο "αρμόδια αρχή" νοείται η αρχή που διορίστηκε σαν αρμόδια αρχή σε κάθε χώρα και κάθε ειδική περίπτωση από τη Κυβέρνηση·
  - με τον όρο "εύθραυστο κέλυφος (πακέτο)" νοείται κέλυφος (πακέτο) περιέχον εύθραυστο δοχείο (π.χ. δοχείο κατασκευασμένο από γυαλί, πορσελάνη, πηλό ή παρόμοια υλικά) που δεν κλείνεται σε συσκευασία με αποτελεσματική προστασία όλων των πλευρών του σε περίπτωση κρούσεως (βλέπε επίσης περιθώριο 2001(5))·
  - με τον όρο "αέριο" νοείται αέριο ή ατμός·

- με τον όρο "επικίνδυνες ύλες", όταν χρησιμοποιείται μόνος, νοούνται οι ύλες και τα είδη που ορίσθηκαν σαν ύλες και είδη της ADR. 2000 (Συνεχίζεται)
- με τον όρο "μεταφορά σε χύμα" νοείται η μεταφορά στερεάς ύλης χωρίς συσκευασία
- με τον όρο "RID" νοούνται οι Διεθνείς Κανονισμοί οι διέποντες τη Σιδηροδρομική Μεταφορά Επικινδύνων Εμπορευμάτων (Παράρτημα I της Διεθνούς Συμβάσεως Περί Σιδηροδρομικής Μεταφοράς Εμπορευμάτων (CIM)).

(2) Για την εφαρμογή του παρόντος Παραρτήματος, οι δεξαμενές (βλέπε ορισμούς Παραρτήματος Β) δεν τοποθετούνται στην αυτή βάση με τα δοχεία, του όρου "δοχείο" χρησιμοποιούμενου υπό την περιοριστική έννοια. Διατάξεις σχετικές με τα δοχεία έχουν εφαρμογή σε σταθερές δεξαμενές, συστοιχίες δοχείων, αφαιρετές δεξαμενές και δεξαμενές-δοχεία (TANK-CONTAINERS), μόνον εάν αυτό συνομολογείται ρητά.

(3) Με τον όρο "πλήρες φορτίο" νοείται οποιοδήποτε φορτίο προερχόμενο από έναν αποστολέα, για το οποίο φορτίο επιφυλάσσεται αποκλειστικά η χρήση οχήματος ή μεγάλου δοχείου (CONTAINER) και όλες οι εργασίες για τη φόρτωση και εκφόρτωση του οποίου διεξάγονται σύμφωνα προς τις οδηγίες του αποστολέα ή του παραλήπτη.

(I) Εκτός εάν ρητώς αναφέρεται ~~άλλως~~ το σύμβολο "°/ο" στο παρόν Παράρτημα αντιπροσωπεύει:- 2001

(α) προκειμένου περί μιγμάτων στερεών ή υγρών, ως και

προκειμένου περί διαλυμάτων ως και στερεών μουσκειμένων με υγρό: ποσοστό κατά βάρος βασιζόμενο επί του ολικού βάρους του μίγματος, του διαλύματος ή του μουσκεμένου (υγροποιημένου) στερεού.

2001  
(Συνεχίζεται)

(β) προκειμένου περί αεριοποιημένων μιγμάτων: ποσοστό κατ'όγκο βασιζόμενο επί του συνολικού όγκου του αεριοποιημένου μίγματος.

(2) Όλα τα βάρη τα αναφερόμενα για κόλα (πακέτα) στο παρόν Παράρτημα, εκτός εάν άλλως ορίζεται, είναι μικτά βάρη. Το βάρος των δοχείων (CONTAINERS) ή δεξαμενών των χρησιμοποιούμενων για τη μεταφορά εμπορευμάτων δεν συμπεριλαμβάνεται στο μικτό βάρος.

(3) Πιέσεις παντός είδους σχετικές με τα δοχεία (όπως πίεση δοκιμής, εσωτερική πίεση, πίεση ανοίγματος βαλβίδας-ασφαλείας) σημειώνονται πάντοτε σε πίεση θλιβομέτρου  $\text{KG}/\text{CM}^2$  (πίεση επί πλέον της ατμοσφαιρικής πίεσης). Όμως, η πίεση ατμού των υλών εκφράζεται πάντοτε σε απόλυτο πίεση  $\text{KG}/\text{CM}^2$ .

(4) Όπου το παρόν Παράρτημα καθορίζει βαθμό πληρώσεως δοχείων ή δεξαμενών, ο βαθμός αυτός πληρώσεως αναφέρεται πάντοτε σε θερμοκρασία των υλών  $15^{\circ}\text{C}$  εκτός εάν κάποια άλλη θερμοκρασία σημειούται.

(5) Εύθραυστα δοχεία ασφαλισμένα, είτε μόνα τους είτε σε ομάδες, με αποσβεστικό (των κτυπημάτων) υλικό σε μεγάλο δοχείο, δεν θεωρούνται εύθραυστα δοχεία υπό τον όρον ότι το γερό δοχείο είναι στεγανό και έτσι σχεδιασμένο ώστε σε περίπτωση θραύσης ή διαρροής των εύθραυστων δοχείων το περιεχόμενό τους να μη μπορεί να

διαφύγει από το γερό δοχείο, και ότι η μηχανική αντοχή του τελευταίου να μην εξασθενείται από διάβρωση κατά τη διάρκεια της μεταφοράς. (Συνεχίζεται)

#### ΓΕΝΙΚΕΣ ΔΙΑΤΑΞΕΙΣ

(I) Το παρόν Παράρτημα καθορίζει τα επικίνδυνα εμπορεύματα τα οποία εξαιρούνται της διεθνούς οδικής μεταφοράς και τα επικίνδυνα εμπορεύματα τα οποία γίνονται δεκτά για τέτοια μεταφορά υπό ωρισμένους όρους. Ομαδοποιεί τα επικίνδυνα εμπορεύματα σε περιοριστικές και μη-περιοριστικές Κλάσεις. Εν των επικινδύνων εμπορευμάτων των καλυπτομένων από τους τίτλους των περιοριστικών Κλάσεων (Κλάσεις Ια, Ιβ, Ιγ, 2, 4.2, 4.3, 5.2, 6.2 και 7), εκείνα που απαριθμούνται στα άρθρα τα σχετικά με τις Κλάσεις αυτές (περιθώρια 210I, 213I, 217I, 220I, 243I, 247I, 255I, 265I, και 270I) γίνονται δεκτά για μεταφορά υπό όρους ορισμένους στα άρθρα αυτά, και άλλα εξαιρούνται από τη μεταφορά. Μερικά από τα επικίνδυνα εμπορεύματα τα καλυπτόμενα από τους τίτλους των μη-περιοριστικών Κλάσεων (Κλάσεις 3, 4.I, 5.I, 6.I και 8), με σημειώσεις που παραθέτονται στα άρθρα τα σχετικά με τις διάφορες Κλάσεις, εξαιρούνται από τη μεταφορά· εν των λοιπών εμπορευμάτων των καλυπτομένων από τους τίτλους των μη-περιοριστικών Κλάσεων, εκείνα που αναφέρονται ή ορίζονται στα άρθρα τα σχετικά με τις Κλάσεις αυτές (περιθώρια 230I, 240I, 250I, 260I και 280I) γίνονται δεκτά για μεταφορά μόνον υπό όρους ορισμένους εις τα άρθρα αυτά, και εκείνα που δεν αναφέρονται ή ορίζον-

ται εις αυτά δεν θεωρούνται ότι είναι επικίνδυνα εμπορεύματα για τους σκοπούς της παρούσας Συμφωνίας και γίνονται δεκτά για μεταφορά χωρίς οποιουδήποτε ειδικούς όρους. (Συνεχίζεται)

(2) Οι Κλάσεις του Παραρτήματος αυτού είναι οι παρακάτω:-

Κλάση	Ια. Εκρηκτικές ύλες και είδη	Περιοριστική
Κλάση	Ιβ. Είδη γεμισμένα με εκρηκτικές ύλες	"
Κλάση	Ιγ. Πυροκροτητές (αναφλεκτῆρες), πυροτεχνήματα και παρόμοια εμπορεύματα	"
Κλάση	2. Αέρια: πεπιεσμένα, υγροποιημένα, ή διαλυμένα υπό πίεση	"
Κλάση	3. Εύφλεκτα υγρά	Μη-περιοριστική
Κλάση	4.Ι. Εύφλεκτα στερεά	"
Κλάση	4.2. Ύλες υποκειμένες σε αυτόματο ή αυτογενή ανάφλεξη	Περιοριστική
Κλάση	4.3. Ύλες που βγάζουν εύφλεκτα αέρια σε επαφή με το νερό	"
Κλάση	5.Ι. Οξυγονούχες ύλες	Μη-περιοριστική
Κλάση	5.2. Οργανικά υπεροξειδία	Περιοριστική
Κλάση	6.Ι. Τοξικές ύλες	Μη-περιοριστική
Κλάση	6.2. Απεχθείς (σιχαμερές). ύλες και ύλες που προξενούν μόλυνση	Περιοριστική
Κλάση	7. Ραδιενεργείς ύλες	"
Κλάση	8. Διαβρωτικές ύλες.	Μη-περιοριστική

(3) Κάθε μεταφορά εμπορευμάτων διεπόμενη από 2002 το παρόν Παράρτημα θα είναι το αντικείμενο ενός εγ- (Συνεχίζεται)  
γράφου μεταφοράς. Ο αποστολέας θα γνωρίζει γραπτώς στον μεταφορέα τις λεπτομέρειες που πρόκειται να συμπεριληφθούν στο έγγραφο μεταφοράς όπως αναφέρεται για κάθε κλάση στο Μέρος II του παρόντος παραρτήματος στις παραγράφους 2.Β. Το έγγραφο μπορεί να είναι εκείνο που απαιτείται από άλλες ισχύουσες διατάξεις. Εμπορεύματα η μεταφορά των οποίων διέπεται από τον τρόπον αυτόν θα περιγράφονται στο έγγραφο μεταφοράς σύμφωνα με τις ενδείξεις της παραγράφου Β των ειδικών διατάξεων κάθε κλάσεως. Οι λεπτομέρειες που θα καταχωρούνται στο έγγραφο μεταφοράς θα είναι συντεταγμένες στην επίσημη γλώσσα της προωθούσας (τα εμπορεύματα) χώρας, και επίσης, εάν η γλώσσα αυτή δεν είναι η Αγγλική, ή η Γαλλική, ή η Γερμανική, στην Αγγλική, Γαλλική ή Γερμανική, εκτός εάν, τυχόν, δασμολόγια (TARIFFS) διεθνούς οδικής μεταφοράς, ή συμφωνίες συναφθείσες μεταξύ των ενδιαφερομένων για την επιχείρηση της μεταφοράς χωρών, προβλέπουν αλλιώς. Το έγγραφο μεταφοράς θα συνοδεύεται, εάν κριθεί ενδεδειγμένον, από οδηγίες που θα εφαρμοσθούν σε περίπτωση ατυχήματος (βλέπε Παράρτημα Β, περιθώριο IO 185). Το έγγραφο μεταφοράς θα συνοδεύει τα μεταφερόμενα επικίνδυνα εμπορεύματα.

(4) Εάν λόγω του μεγέθους του φορτίου μία αποστολή δεν μπορεί να φορτωθεί ολόκληρη σε ένα μεταφορικό μέσο, τουλάχιστο τόσα χωριστά έγγραφα, ή αντίγραφα του

ενός εγγράφου, θα εκδίδονται όσα και τα φορτωθέντα μεταφορικά μέσα. Επί πλέον, σ' όλες τις περιπτώσεις, χωριστά έγγραφα μεταφοράς θα εκδίδονται για αποστολές ή τμήματα αποστολών τα οποία δεν μπορούν να φορτωθούν μαζί στο αυτό όχημα λόγω των απαγορεύσεων του Παραρτήματος Β.

2002  
(Συνεχίζεται)

(5) Εξωτερικές συσκευασίες συμπληρωματικές εκείνων που ορίζει το παρόν Παράρτημα μπορούν να χρησιμοποιούνται υπό τον όρον ότι δεν αντίκεινται στο πνεύμα των διατάξεων του παρόντος Παραρτήματος των σχετικών με τις εξωτερικές συσκευασίες. Εάν τέτοιες πρόσθετες συσκευασίες χρησιμοποιηθούν, οι προβλεπόμενες ενδείξεις και ετικέτες θα εφαρμοσθούν σ' αυτές.

(6) Εάν η μικτή συσκευασία διαφόρων επικίνδυνων υλών, μεταξύ των, ή με άλλα εμπορεύματα επιτρέπεται εκ των διατάξεων της παραγράφου Α.3 των ισχυουσών για τις διάφορες Κλάσεις διατάξεων, οι εσωτερικές συσκευασίες οι περιέχουσες διάφορες επικίνδυνες ύλες θα χωρίζονται προσεκτικά και αποτελεσματικά η μία από την άλλη στις συλλογικές συσκευασίες εάν επικίνδυνοι αντενέργειαι, όπως η παραγωγή επικίνδυνης θερμότητας, ανάφλεξης, ο σχηματισμός μιγμάτων που είναι ευαίσθητα στην τριβή ή κρούση, και η απελευθέρωση ευφλέκτων ή τοξικών αερίων, ενδέχεται να προκύψουν ως αποτέλεσμα βλάβης (ζημίας) ή καταστροφής των εσωτερικών συσκευασιών. Ειδικότερα, εάν εύθραυστα δοχεία χρησιμοποιηθούν και συγκεκριμένα εάν τα ρηθέντα δοχεία περιέχουν υγρά, ο κίνδυνος σχηματισμού επικινδύνων μιγμά-



των θα αποφεύγεται και προς τον σκοπόν αυτόν θα λαμβάνονται όλα τα κατάλληλα μέτρα, όπως η χρήση καταλλήλου αποσβεστικού υλικού σε επαρκή ποσότητα, η ασφάλεια των δοχείων με δεύτερη, γερή συσκευασία, και η υποδιαίρεση των συλλογικών συσκευασιών σε πολλά διαμερίσματα.

(7) Εάν μικτή συσκευασία χρησιμοποιηθεί, οι διατάξεις του παρόντος Παραρτήματος οι σχετικές με τις λεπτομέρειες στο έγγραφο μεταφοράς θα ισχύουν σε σχέση με κάθε μία από τα διάφορα είδη των επικινδύνων υλών που περιέχονται στη συλλογική συσκευασία, και η συλλογική συσκευασία θα φέρει όλες τις επιγραφές και όλες τις ετικέτες κινδύνου τις προβλεπόμενες στο παρόν Παράρτημα για τις επικίνδυνες ύλες που η συλλογική συσκευασία περιέχει.

(8) Εάν διαλύματα υλών απαριθμούμενα στο παρόν Παράρτημα δεν αναφέρονται ρητά στον κατάλογο της Κλάσης στην οποία οι διαλυμένες ύλες ανήκουν, αυτά εν τούτοις, θα θεωρούνται ως ύλες της ADR εάν η συμπύκνωσή των είναι τέτοια ώστε να διατηρείται ο εγγενής κίνδυνος στις ίδιες τις ύλες αυτές. η συσκευασία τους στη περίπτωση αυτή πρέπει να συμμορφώνεται προς τους όρους της παραγράφου Α των ειδικών διατάξεων που ισχύουν για την Κλάση στην οποία οι ρηθείσες ύλες ανήκουν, και εξυπακούεται ότι συσκευασίες που θα ήσαν ακατάλληλες για τη μεταφορά υγρών δεν πρέπει να χρησιμοποιούνται.

(9) Μίγματα υλών της ADR με άλλες ύλες θα θεωρούνται ως ύλες της ADR εάν διατηρούν τον εγγενή κίνδυνο στην ύλη που είναι ύλη της ADR.

(ΙΟ) Ο αποστολέας, είτε στο έγγραφο της μεταφο- 2002  
 ράς είτε με χωριστή δήλωση, πρέπει να βεβαιώνει ότι η (Συνεχίζε-  
 προσκομισθείσα ύλη μπορεί να μεταφερθεί οδικώς σύμφωνα ται)  
 με τις διατάξεις της ADR, ότι η κατάστασή της, επεξεργα-  
 σία και, η κατάλληλη συσκευασία και τοποθέτηση ετικέτας  
 συμμορφώνεται προς τις διατάξεις της ADR. Επί πλέον, εάν  
 πολλά επικίνδυνα εμπορεύματα συσκευάζονται μαζί σε μία  
 συλλογική συσκευασία ή σε ένα δοχείο (CONTAINER), ο απο-  
 στολέας υποχρεούται να δηλώσει ότι η μικτή αυτή συσκευα-  
 σία δεν απαγορεύεται.

(II) Ύλη της οποίας η ειδική ραδιενέργεια δεν  
 υπερβαίνει τα 0.002 MICROCURIE ανά γραμμάριο και η οποία  
 καλύπτεται υπό συλλογικό τίτλον οιασδήποτε Κλάσεως θα  
 εξαιρείται της μεταφοράς, εάν, επιπροσθέτως, καλύπτεται  
 υπό τον τίτλον περιοριστικής Κλάσεως στην οποία δεν εί-  
 ναι γραμμένη.

(I~~3~~) Ύλη της οποίας η ειδική ραδιενέργεια δεν  
 υπερβαίνει τα 0.002 MICROCURIE ανά γραμμάριο και η οποία  
 δεν είναι γραμμένη με την ονομασία της σε Κλάση, αλλά  
 καλύπτεται υπό δύο ή περισσότερων συλλογικών τίτλων δια-  
 φόρων Κλάσεων, θα υπόκειται στους όρους μεταφοράς που  
 αναφέρονται:-

(α) στη περιοριστική Κλάση, εάν μία από τις κλάσεις για τις  
 οποίες πρόκειται είναι περιοριστική Κλάση.

(β) στη Κλάση την αντιστοιχούσα για τον επικρατούντα  
 κίνδυνο τον παρουσιαζόμενο από την ύλη κατά τη διάρ-  
 κεια της μεταφοράς, εάν καμία από τις κλάσεις για τις  
 οποίες πρόκειται είναι περιοριστική Κλάση.

(I) Το παρόν Παράρτημα περιέχει για κάθε Κλάση 2003 πλην της Κλάσεως 7:

(α) κατάλογο των επικινδύνων υλών των αποτελούντων την Κλάση, και όπου έχει εφαρμογή, υπό μορφή περιθωρίου έχοντος αριθμό λήγοντα στο γράμμα "α", τις εξαιρέσεις τις επιτρεπόμενες από τις διατάξεις της ADR για μερικές από τις ύλες αυτές εάν συμμορφώνονται προς ωρισμένους όρους.

(β) διατάξεις υποδιαιρούμενες όπως παρακάτω:

A.- Κόλα (Πακέτα):-

I.- Γενικοί όροι συσκευασίας.

2.- Συσκευασία μιας ύλης ή ειδών του αυτού είδους.

3.- Μικτή συσκευασία.

4.- Ενδείξεις και ετικέτες κινδύνου επάνω στα κόλα (πακέτα).

B.- Λεπτομέρειες (στοιχεία) του εγγράφου μεταφοράς.

Γ.- Κενά κόλα (είδη συσκευασίας).

Δ.- (όπου ενδείκνυται) Άλλες διατάξεις.

(2) Διατάξεις σχετικές με:-

- την αποστολή σε χύμα, μέσα σε δοχεία (CONTAINERS) και σε δεξαμενές.
- τη μέθοδο διεκπεραιώσεως (προωθήσεως) και περιορισμούς στη προώθηση.
- απαγορεύσεις στη μικτή φόρτωση και τον
- εξοπλισμό μεταφοράς

μπορείτε να βρήτε στο Παράρτημα Β και στις προσθήκες του, που περιέχουν επίσης σχετικές

διατάξεις εφαρμοζόμενες ειδικά στην οδική μεταφορά.

2203  
(Συνεχίζεται)

(3) Οι προσθήκες του Παραρτήματος τούτου περιέχουν:-

Προσθήκη Α.1:- Όροι σταθερότητας και ασφαλείας αφορώντες τις εκρηκτικές ύλες, τα εύφλεκτα στερεά και οργανικά υπεροξειδία, με κανόνες για δοκιμές\*

Προσθήκη Α.2:- Συστάσεις σχετικές με τη φύση (προέλευση) των εκ κλάματος αλουμινίου δοχείων για ωρισμένα αέρια της Κλάσεως 2<sup>ο</sup> διατάξεις σχετικές με τα υλικά και την κατασκευή δοχείων, προοριζομένων για τη μεταφορά βαθειά-κατεψυγμένων (DEEPLY-REFRIGERATED) υγροποιημένων αερίων της Κλάσεως 2<sup>ο</sup> και διατάξεις σχετικές με δοκιμές σε διανεμητές αεροζόλ και μη-ξαναγεμιζόμενα δοχεία (CONTAINERS) για αέρια υπό πίεση της Κλάσεως 2, ΙΟ<sup>ο</sup> και ΙΙ<sup>ο</sup>.

Προσθήκη Α.3:- Δοκιμές (έλεγχοι) σχετικές με εύφλεκτα υγρά των Κλάσεων 3 και 6.Ι\*

Προσθήκη Α.5: Διατάξεις σχετικές με δοκιμές (ελέγχους) σε μεταλλικά βαρέρια αναφερόμενα στα περιθώρια 2303(6) και 2813(Ι)(γ)\*

Προσθήκη Α.6: Διατάξεις σχετικές με ραδιενεργείς ύλες της Κλάσεως 7\*

Προσθήκη Α.9: Διατάξεις σχετικές με τις ετικέτες κινδύνου, και τη επεξήγηση των συμβόλων.

Οι προσθήκες Α.4, Α.7 και Α.8 είναι υπό επιφύλαξη.

(4) Για τη Κλάση 7, οι λεπτομέρειες οι σχετικές 2003 με τους όρους της συσκευασίας, τη μικτή συσκευασία, τη <sup>(Συνεχί-</sup> ~~τοπο-~~ ζεται) θέτηση ετικετών και το μαρκάρισμα των κόλων καθώς και οι διατάξεις που διέπουν την αποθήκευση, διενπεραίωση και μεταφορά, καθορίζονται στους πίνακες του Παραρτήματος Α τους απαριθμούμενους στο περιθώριο 2702. Μερικές από τις λεπτομέρειες και τεχνικές διατάξεις που αφορούν την Κλάση αυτή έχουν επεξεργασθεί στη Προσθήκη Α.6 η οποία περιλαμβάνει επίσης τον πλήρη πίνακα ραδιοπυρηνούχων (RADIONUCLIDES) και μέθοδο ελέγχου των κόλων εξ υλών της Κλάσεως 7.

2004

Όπου οι διατάξεις οι σχετικές με τη μεταφορά "πλή- 2005 ρους φορτίου" έχουν εφαρμογή, οι αρμόδιες αρχές ενδέχεται να απαιτήσουν όπως το όχημα ή μεγάλο δοχείο (CONTAINER) το χρησιμοποιούμενο για τη σχετική επιχείρηση μεταφοράς φορτωθεί μόνο σε ένα σημείο και εκφορτωθεί μόνο σε ένα σημείο.

(1) Εάν το όχημα που διεξάγει επιχείρηση μεταφοράς σύμφωνα με τις διατάξεις της ADR μεταφερθεί σε τμήμα του ταξιδιού όχι με οδική ρυμούλκηση, τότε οποιεσδήποτε εθνικές ή διεθνείς διατάξεις οι οποίες, στο ~~αναφερόμενο~~ τμήμα, διέπουν την μεταφορά επικίνδυνων εμπορευμάτων με τον τρόπο της μεταφοράς τον χρησιμοποιηθέντα για τη μεταφορά του οχήματος της οδού, θα έχουν και μόνον εφαρμογή ~~για~~ <sup>για</sup> το ~~αναφερόμενο~~ τμήμα του ταξιδιού.

(2) Σε περιπτώσεις όπου η επιχείρηση μεταφοράς

που υπόκειται στις διατάξεις της ADR υπόκειται ομοίως για το σύνολο ή μέρος του οδικού ταξιδιού στις διατάξεις διεθνούς συμβάσεως η οποία ρυθμίζει τη μεταφορά επικινδύνων εμπορευμάτων με τρόπον μεταφοράς πλην της οδικής μεταφοράς δυνάμει άρθρων επεκτεινόντων τη δυνατότητα εφαρμογής της ~~καναδικής~~ συμβάσεως σε ωρισμένες υπηρεσίες αυτοκινήτων, τότε οι διατάξεις της διεθνούς συμβάσεως θα έχουν εφαρμογήν, για το ~~επο~~ <sup>θέμα</sup> ταξίδιο παράλληλα με τις διατάξεις εκείνες της ADR που δεν είναι ασυμβίβαστες· τα άλλα άρθρα της ADR δεν θα έχουν εφαρμογήν για το ~~επο~~ <sup>θέμα</sup> ταξίδιο.

2003  
(Συνεχίζεται)

2007-2009

Προς τον σκοπό της διεξαγωγής των απαραίτητων δοκιμών (ελέγχων) προς τροποποίηση των διατάξεων του παρόντος Παραρτήματος για να εφαρμοσθούν στις τεχνολογικές και βιομηχανικές αναπτύξεις, οι αρμόδιες αρχές των Συμβαλλόμενων Μερών μπορούν να συμφωνήσουν απ'ευθείας μεταξύ τους να εξουσιοδοτήσουν ορισμένες επιχειρήσεις μεταφοράς στις εδαφικές τους περιοχές (επικράτειες) με προσωρινή ανάκληση των διατάξεων του παρόντος Παραρτήματος. Η αρχή η οποία πήρε την πρωτοβουλία για την έγκριση της προσωρινής ανακλήσεως οφείλει να γνωστοποιήσει την ανάκληση στην αρμόδια υπηρεσία ανακλήσεων της Γραμματείας των Ηνωμένων Εθνών, και η υπηρεσία αυτή θα θέσει αυτήν υπόψη των Συμβαλλόμενων Μερών.

2010

2011-  
2019

Μέρος ΙΙ

## ΚΑΤΑΛΟΓΟΣ ΥΛΩΝ ΚΑΙ

## ΕΙΔΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΔΙΑΦΟΡΩΝ ΚΛΑΣΕΩΝ

## ΚΛΑΣΗ Ια.- ΕΚΡΗΚΤΙΚΕΣ ΥΛΕΣ ΚΑΙ ΕΙΔΗ

Σημείωση:- Ύλες και είδη που δεν μπορούν να εκραγούν σε επαφή με φλόγα και που δεν είναι περισσότερο ευαίσθητες σε κρούση, ή τριβή του δινιτροβενζολίου δεν υπόκεινται στις διατάξεις της Κλάσεως Ια.

I.- Κατάλογος υλών και ειδών

(I) Μεταξύ των υλών και ειδών που καλύπτονται 2100 υπό τον τίτλο της Κλάσεως Ια, μόνον εκείνες που αναγράφονται στο περιθώριο 2101 γίνονται δεκτές για μεταφορά, και τότε μόνο υπό την επιφύλαξη των διατάξεων του παρόντος Παραρτήματος και του Παραρτήματος Β. Οι ύλες αυτές και τα είδη που γίνονται δεκτά για μεταφορά υπό ορισμένους όρους θα θεωρούνται ως ύλες και είδη της ADR.

(2) Στις εκρηκτικές ύλες που γίνονται δεκτές για μεταφορά, η νιτρογλυκερίνη μπορεί να αντικατασταθεί εν όλω ή εν μέρει από:-

- (α) νιτρογλυκόλη, ή
- (β) δινιτροδιαιθυλενογλυκόλη
- (γ) ζάχαρο εμπλουτισμένο με άζωτο (εμπλουτισμένη με άζωτο σακχαρόζη), ή
- (δ) μίγμα των παραπάνω υλών.

I<sup>o</sup> Πολύ εμπλουτισμένη με άζωτο νιτροκυτταρίνη (όπως 2101 βαμβακοπυρίτις), τ.έ. με άζωτο άνω του 12.6 ετος εκατό, καλώς σταθεροποιημένο και περιέχον επιπροσθέτως:

όταν η νιτροκυτταρίνη δεν συμπιέζεται, όχι λιγότερο του 25<sup>6</sup>τσα εκατόν νερό ή αλκοόλη (μεθυλική, αιθυλική, κανονική προπυλική ή ισοπροπυλική, βουτυλική, ή αμυλική αλκοόλη ή μίγματα αυτών), συμπεριλαμβανομένης της μετουσιωμένης αλκοόλης ή μίγματα νερού και αλκοόλης. 2101

όταν η νιτροκυτταρίνη συμπιέζεται, όχι λιγότερο του 15<sup>6</sup>τσα εκατόν νερό, ή όχι λιγότερο του 12<sup>6</sup>τσα εκατόν κηρού παραφίνης ή άλλων παρομοίων υλών.

Βλέπε επίσης Προσθήκη Α.Ι., περιθώριο 3101.

Σημείωση: 1.- Η νιτροκυτταρίνη με περιεχόμενο αζώτου μη υπερβαίνον το 12.6<sup>6</sup>τσα εκατό είναι ύλη της Κλάσεως 4.1 εάν συμμορφώνεται με τις προδιαγραφές που αναφέρονται στο περιθώριο 2401, 7<sup>0</sup> (α), (β) ή (γ).

2.- Η νιτροκυτταρίνη υπό μορφήν ακάθαρτου λεπτού στρώματος νιτροκυτταρίνης (NITROCELLULOSE-FILM WASTE), ελευθέρου ζελατίνης, σε κυλίνδρους, φύλλα ή λωρίδες, είναι ύλη της Κλάσεως 4.2 (βλέπε περιθώριο 2431, 4<sup>0</sup>).

2<sup>0</sup> CORPITE PASTE (Κορδίτις πάστα), μη-ζελατινώδης ("POWDER CAKE"), προς χρήση στην κατασκευή ανάπνης πυρίτιδας και περιέχουσα άνω του 70<sup>6</sup>τσα εκατόν άνυδρης ύλης και όχι λιγότερο του 30<sup>6</sup>τσα εκατόν νερό· η άνυδρη ύλη δεν πρέπει να περιέχει άνω του 50<sup>6</sup>τσα εκατό νιτρογλυκερίνη ή παρόμοιες υγρές εκρηκτικές ύλες.

3<sup>0</sup> Ζελατινώδης νιτροκυτταρινούχος πυρίτις και ζελατινώδης νιτροκυτταρινούχος πυρίτις περιέχουσα νιτρογλυκερίνη



(νιτρογλυκερινούχος πυρίτις):-

2101

(α) μη-πορώδης και μη-κονιώδης

(Συνεχίζεται)

(β) πορώδης ή κονιώδης

Βλέπε επίσης Προσθήκη Α.Ι, περιθώριον 3102.

- 4<sup>ο</sup> Πλαστικοποιημένη νιτροκυτταρίνη περιέχουσα όχι λιγότερο του 12,6% εκατόν, αλλά λιγότερο του 18,6% εκατόν, πλαστικοποιητικές ύλες (όπως φθαλικό βουτύλιο ή πλαστικοποιητική ύλη τουλάχιστον ίση σε δραστηριότητα με το φθαλικό βουτύλιο), και της οποίας η νιτροκυτταρίνη έχει περιεχόμενον αζώτου μη υπερβαίνον το 12,6% εκατόν, επίσης υπό μορφή ρινισμάτων (CHIPS).

Σημειώσεις:- Πλαστικοποιημένη νιτροκυτταρίνη περιέχουσα όχι λιγότερο του 18,6% εκατόν φθαλικό βουτύλιο ή πλαστικοποιητική ύλη τουλάχιστον ίση σε δραστηριότητα είναι ύλη της κλάσεως 4.Ι (βλέπε περιθώριο 2401 7<sup>ο</sup> (β) και (γ)).

Βλέπε επίσης Προσθήκη Α.Ι., περιθώριο 3102, Ι.

- 5<sup>ο</sup> Μη-ζελατινώδης νιτροκυτταρινούχος πυρίτις. Βλέπε επίσης Προσθήκη Α.Ι, περιθώριο 3102.

- 6<sup>ο</sup> Τρινιτροτολουλη (τολίτης), επίσης όταν πιεσθεί ή χυθεί, τρινιτροτολουδλη μεμιγμένη με αλουμίνιο, μίγματα με την ονομασίαν υγρή τρινιτροτολουδλη, και τρινιτροανιζόλη.

Βλέπε επίσης Προσθήκη Α.Ι, περιθώριο 3103.

- 7<sup>ο</sup> (α) HEXYL (Εξυλένιο) (εξανιτροδιφαινυλαμίνη) και πικρικό οξύ (μελινίτις).

(β) PENTOLITES (Πεντολίτες) (μίγματα τετρανιτρικής πέντα-

ερυθριτόλης και τρινιτροτολουόλης) και HEXOLITES 2101  
 (Εξολίτες) (μίγματα τριμεθυλενίου-τρινιτραμίνης (Συνεχίζεται)  
 και τρινιτροτολουόλης) εάν το εις τρινιτροτολουόλην  
 περιεχόμενον τους είναι τέτοιο ώστε η ευαισθησία  
 τους σε περίπτωση κρούσεως δεν υπερβαίνει την ευαι-  
 σθησία της τετρώλης).

- (γ) PHLEGMATIZED PENTHRITE (Αδρανοποιημένος Πενθρίτης)  
 (τετρανιτρική πενταερυθριτόλη) και PHLEGMATIZED  
HEXOGEN (Αδρανοποιημένον Εξόγονον) (τριμεθυλένιον-  
 τρινιτραμίνιον), αμφότερα αδρανοποιημένα δι' ενσωμα-  
 τώσεως κηρού, κηρού παραφίνης ή άλλων παρόμοιων  
 δραστικών υλών σε τέτοια ποσότητα ώστε η ευαισθη-  
 σία των υλών αυτών σε περίπτωση κρούσεως να μην υπερ-  
 βαίνει την ευαισθησία της τετρώλης).

Για τα (α), (β) και (γ), βλέπε επίσης Προσθήκην Α.Ι.,  
 περιθώριο 3103.

Σημειώσεις:— Οι ύλες της 7<sup>ο</sup> (β) και το PHLEGMATIZED HEXOGEN  
 της 7<sup>ο</sup> (γ) μπορεί επίσης να περιέχουν αλουμίνιο.

- 8<sup>ο</sup> Ειρηνητικές οργανικές αζωτούχοι-συνθέσεις (ενώσεις):—  
 (α) διαλυτές στο νερό, π.χ. τρινιτρορεζορίνη  
 (β) αδιάλυτες στο νερό, π.χ. τετρώλη (τρινιτροφαινου-  
 λικομεθυλονιτραμίνιον).  
 (γ) αναφλεκτικά εμπύρια τετρώλης χωρίς μεταλλικό κά-  
 λυμμα.

Για τα (α) και (β), βλέπε επίσης Προσθήκην Α.Ι.,  
 περιθώριο 3103.

Σημειώσεις:— Εκτός για υγρή τρινιτροτολουόλη (6<sup>ο</sup>), οι

κρηκτικές οργανικές αζωτούχοι-συνθέσεις (ενώσεις) σε στερεά κατάσταση δεν γίνονται δεκτές για μεταφορά.

2101  
(Συνεχίζεται)

- 9<sup>ο</sup> (α) Υγρός πενθρίτης (τετρανιτρική πενταερυθριτόλη) και υγρόν εξογόνο (τριμεθυλένιο-τρινιτραμίνιο) υδροποιημένα εξ ολοκλήρου με όχι λιγώτερο του 20 ετα εκατό νερό στη περίπτωση του πρώτου και όχι λιγώτερο του 15 ετα εκατό στην περίπτωση του δευτέρου.
- (β) υγροί πεντολίτες (μίγματα πενθρίτου και τρινιτροτολουόλης) και υγροί εξολίτες (μίγματα εξογόνου και τρινιτροτολουόλης) η ευαισθησία των οποίων σε περίπτωση κρούσεως σε ξηρά κατάσταση υπερβαίνει εκείνη της τετρώλης και οι οποίες είναι υδροποιημένες εξ ολοκλήρου με όχι λιγώτερο του 15 ετα εκατό νερό.
- (γ) υγρά μίγματα πενθρίτου ή εξογόνου με κηρόν, κηρόν παραφίνης ή ύλες όμοιες με κηρόν ή κηρόν παραφίνης, η ευαισθησία των οποίων σε περίπτωση κρούσεως σε ξηρά κατάσταση υπερβαίνει εκείνη της τετρώλης και οι οποίες είναι υδροποιημένες εξ ολοκλήρου με όχι λιγώτερο του 15 ετα εκατό νερό.
- (δ) πεπιεσμένα αναφλεκτικά εμπύρια πενθρίτου χωρίς μεταλλικό κάλυμμα.

Για τα (α), (β) και (γ), βλέπε επίσης Προσθήκη Α.Ι, περιθώριο 3103.

10<sup>ο</sup> (α) Υπεροξειδίο Βενζοϋλλίου:-

Ι.- σε ξηρά κατάσταση ή με λιγώτερο του 10 ετα εκα-

τό νερό·

2101

- 2.- με λιγότερο του 30 ετα, εκατό αδρανοποιητική ύλη (PHLEGMATIZER). (Συνεχίζεται)

Σημείωση: - I.- Το υπεροξείδιο βενζοϋλίου με όχι λιγότερο του 10 ετα, εκατό νερό ή με όχι λιγότερο του 30 ετα, εκατό αδρανοποιητική ύλη (PHLEGMATIZER) είναι ύλη της κλάσεως 5.2 (βλέπε περιθώριο 255I, 8<sup>ο</sup> (α) και (β)).

2.- Το υπεροξείδιο βενζοϋλίου με όχι λιγότερο του 70 ετα, εκατό ξηρά και αδρανή στερεά δεν υπόκεινται στις διατάξεις της ADR.

(β) Υπεροξείδια Κυκλοεξανόνης (L-HYDROXY-L-HYDROPEROXY-DICYCLOHEXYL υπεροξείδιο και BIS-(L-HYDROXYCYCLOHEXYL) υπεροξείδιο και μίγματα των δύο τούτων συνθέσεων):

- I.- σε ξηρά κατάσταση ή με λιγότερο του 5 ετα, εκατό νερό·
- 2.- με λιγότερο του 30 ετα, εκατό αδρανοποιητικής ύλης (PHLEGMATIZER).

Σημείωση: - I.- Τα υπεροξείδια κυκλοεξανόνης και τα μίγματά τους με όχι λιγότερο του 5 ετα, εκατό νερό ή όχι λιγότερο του 30 ετα, εκατό αδρανοποιητική ύλη είναι ύλες της κλάσεως 5.2 (βλέπε περιθώριο 255I 9<sup>ο</sup> (α) και (β)).

2.- Τα υπεροξείδια κυκλοεξανόνης και τα μίγματά τους με όχι λιγότερο του 70 ετα, εκατό ξηρά και αδρανή στερεά δεν υπόκεινται στις διατάξεις της ADR.

(γ) Υπεροξειδίο Παραχλωροβενζουλίου:-

2101

1.- σε ξηρά κατάσταση ή με λιγώτερο του 10 τοι. ε- (Συνεχίζεται)  
κατό νερό.

2.- με λιγώτερο του 30 τοι. εκατό αδρανοποιητική ύλη (PHLEGMATIZER).

Σημείωσις:- 1.- Το υπεροξειδίο παραχλωροβενζουλίου με όχι λιγώτερο του 10 τοι. εκατό νερό ή με όχι λιγώτερο του 30 τοι. εκατό αδρανοποιητικής ύλης είναι ύλη της Κλάσεως 5.2 (βλέπε περιθώριο 255I I7<sup>o</sup> (α) και (β)).

2.- Το υπεροξειδίο παραχλωροβενζουλίου με όχι λιγώτερο του 70 τοι. εκατό ξηρά και αδρανή στερεά δεν υπόκειται στις διατάξεις της ADR.

II<sup>o</sup> (α) Μελανή πυρίτις (με βάσιν νιτρικού καλίου) υπό μορφήν κόκκων ή αλεύρου (κόνεως).

(β) ορυκτική πυρίτις βραδείας ενεργείας (SLOW MINING POWDERS) όμοια με μελανή πυρίτιδα (αποτελουμένη από νιτρικό νάτριο, θείο και ξυλάνθρακα, άνθρακα ή λιγνίτην, η αποτελουμένη από νιτρικό κάλιο μετά ή άνευ νιτρικού νατρίου, θείου άνθρακος ή λιγνίτου).

(γ) φυσίγγια πεπιεσμένης μελανής πυρίτιδας ή πυρίτιδας όμοιας με πεπιεσμένην μελανήν πυρίτιδα.

Σημείωσις:- Η πυκνότης της πεπιεσμένης μάζας δεν πρέπει να είναι μικρότερη των 1.5 γραμμαρίων ανά CM<sup>3</sup>.

Για τα (α) και (β), βλέπε επίσης Προσθήκη Α.Ι, περιθώριο 3104.

- I2<sup>ο</sup> (α) Νιτρικές ειρηκτικές ύλες, υπό μορφήν πυρίτιδος 2I0I  
 μη καλυπτόμενες υπό των II<sup>ο</sup> ή I4<sup>ο</sup> (α) ή (γ) και (Συνεχίζε-  
 αποτελούμενες βασικώς εκ νιτρικού αμμωνίου ή εκ ται)  
 μίγματος νιτρικού αμμωνίου και άλκαλι ή νιτρικών  
 υλών αλκαλικών γαιών ή μίγματος νιτρικού αμμωνίου  
 και χλωριούχου νατρίου, ή μίγματος άλκαλι ή νιτρι-  
 κών υλών αλκαλικών γαιών και χλωριούχου αμμωνίου,  
 ή μίγματος νιτρικού αμμωνίου με άλκαλι ή νιτρικών  
 υλών αλκαλικών γαιών και χλωριούχου αμμωνίου.  
 Μπορούν, επιπροσθέτως, να περιέχουν καύσιμες ύλες  
 (όπως ξυλάλευρον, ή άλλα φυτικά άλευρα ή υδρογο-  
 νάνθρακες), ευαισθητοποιητικές ύλες (π.χ. λεπτή  
 κόνις αλουμινίου), αρωματικές αζωτούχους-συνθέσεις,  
 νιτρογλυκερίνην ή νιτρογλυκόλην ή μίγμα των δύο,  
 και αδρανείς σταθεροποιητικές ή χρωστικές ύλες  
 (βλέπε επίσης Προσθήκην Α.Ι, περιθώριο 3I05).
- (β) Ειρηκτικές ύλες μη περιέχουσες ανόργανα νιτρικά  
άλατα, υπό μορφήν πυρίτιδας, αποτελούμενες βασικώς  
 εκ μίγματος αδρανών υλών (ως χλωριούχα άλκαλι) με  
 νιτρογλυκερίνην ή νιτρογλυκόλην ή μίγμα των δύο.  
 Μπορούν να περιέχουν, επιπροσθέτως, αρωματικές αζω-  
 τούχους-συνθέσεις και ύλες με αποτέλεσμα αδρανοποιη-  
 τικό, σταθεροποιητικό ή ζελατινώδες ή χρωστικό.  
 Βλέπε επίσης Προσθήκην Α.Ι, περιθώριο 3I05.
- I3<sup>ο</sup> Χλωρικές και υπερχλωρικές ειρηκτικές ύλες, τ.έ. μίγμα-  
 τα χλωριούχων ή υπερχλωριούχων άλκαλι ή μετάλλων αλκα-  
 λικών-γαιών με συνθέσεις πλούσιες εις άνθρακα. Βλέπε

επίσης Προσθήκη Α.Ι, περιθώριο 3106.

2101

14<sup>ο</sup> (α) Δυναμίτες με αδρανές απορροφητικό, και εκρηκτι- (Συνεχίζεται)  
κές ύλες όμοιες με δυναμίτη με αδρανές απορρο-  
φητικό.

(β) BLASTING GELATINE (εγκαιροφλεγής ζελατίνη) απο-  
τελούμενη από βαμβακοπυρίτιδα και όχι άνω του  
93 έτοιμ, εκατόν νιτρογλυκερίνη, και GELATINIZED  
DYNAMITES (ζελατινώδεις δυναμίτες) με περιεχόμε-  
νον νιτρογλυκερίνης μη υπερβαίνον το 85 έτοιμ, εκα-  
τόμ.

(γ) ζελατινώδεις νιτρικές εκρηκτικές ύλες, αποτε-  
λούμενες βασικώς εκ νιτρικού αμμωνίου, ή εκ μίγμα-  
τος νιτρικού αμμωνίου με νιτρικές ύλες άλκαλι ή  
μέταλλα αλκαλικών γαιών περιέχοντα όχι άνω του  
40 τοις εκατόν ζελατινώδους νιτρογλυκερίνης ή  
ζελατινώδους νιτρογλυκερίνης ή μίγματος των δύο.  
Μπορούν να περιέχουν, επιπροσθέτως, αζωτούχους-  
συνθέσεις ή καυσίμους ύλες (ως ξυλάλευρον ή έτε-  
ρον φυτικό άλευρον ή υδρογονάνθρακας) και, επι-  
προσθέτως άλλες άλλες αδρανείς ή χρωστικές ύλες.

Για τα (α), (β) και (γ), βλέπε επίσης Προσθήκη Α.Ι,  
περιθώριο 3107.

15<sup>ο</sup> Κενά είδη συσκευασίας, ακαθάριστα, που περιείχαν επι-  
κίνδυνες ύλες της Κλάσεως Ια.

## 2.- Διατάξεις

A.- Κόλα

I.- Γενικοί όροι συσκευασίας

(I) Τα είδη συσκευασίας θα είναι έτσι κλεισμένα

και στεγανά ώστε να αποφεύγεται οποιαδήποτε απώλεια του περιεχομένου. Η χρήση μεταλλικών λωρίδων ή συρμάτων προς εξασφάλισιν του κλεισίματος απαγορεύεται εκτός εάν ο τρόπος αυτός ειδικώς επιτρέπεται εκ των ειδικών διατάξεων των σχετικών με την συσκευασία των υλών ή εμπορευμάτων (ειδών).

2102  
(Συνεχίζεται)

(2) Τα υλικά από τα οποία τα είδη συσκευασίας και το κλείσιμο αυτών κατασκευάζονται δεν θα πρέπει να κινδυνεύουν να προσβληθούν από το περιεχόμενο ή να σχηματίζουν επιβλαβείς ή επικινδύνους συνθέσεις.

(3) Τα είδη συσκευασίας, περιλαμβανομένων των κλεισιμάτων αυτών, πρέπει να είναι επαρκώς άκαμπτα και γερά σε όλα τα τμήματά τους προς αποφυγήν οποιασδήποτε χαλαρώσεως διαρκούσης της μεταφοράς και για να πληρούν τους κανονικούς όρους μεταφοράς. Στερεές ύλες θα ασφαλίζονται σταθερά στις συσκευασίες τους, και εσωτερικές συσκευασίες θα ασφαλίζονται σταθερά στις εξωτερικές συσκευασίες. Εκτός εάν άλλως ορίζεται στη παράγραφο που τιτλοφορείται "Συσκευασία μιας ύλης ή εμπορευμάτων του αυτού είδους", τα εσωτερικά είδη συσκευασίας μπορούν να εγκλείονται στα εξωτερικά, είτε ένα-ένα είτε σε ομάδες.

(4) Φιάλες και άλλα γυάλινα δοχεία (σκεύη) πρέπει να είναι απηλλαγμένα από βλάβες που κινδυνεύουν να εξασθενίσουν την αντοχή τους· ειδικώτερα, πρέπει να έχουν καταλλήλως απαλλαγεί από εσωτερικές τάσεις (θραύσεως, κλπ.). Το πάχος των τοιχωμάτων δεν πρέπει να είναι μικρότερο των 2 mm (χιλ.).



(5) Αποσβεστικό (μαξιλάρια, κλπ.) υλικό θα 2102  
 πρέπει να ταιριάζει με τη φύση του περιεχομένου· (Συνεχίζε-  
 ειδικότερα, πρέπει να είναι απορροφητικό, εάν το πε- ται)  
 ριεχόμενο είναι υγρόν ή μπορούσε να εξιδρώσει υγρό.

2.- Συσκευασία μιάς ύλης ή εμπορευμάτων του αυτού  
είδους

(I) Οι ύλες της 1<sup>ο</sup> και 2<sup>ο</sup> θα συσκευάζονται:- 2103

- (α) σε ξύλινα δοχεία ή βαρέλια κατασκευασμένα από α-  
 διαπέραστη ινώδη σανίδα (ινοσανίδα)· αυτά τα δο-  
 χεία και βαρέλια θα είναι επίπροσθέτως εφοδιασμένα  
 με αδιαπέραστη από τα υγρά που περιέχουν εσωτερική  
 επένδυση· το κλείσιμό τους πρέπει να είναι στεγανό  
 ή
- (β) σε αδιαπέραστους σάκκους (π.χ. κατασκευασμένους από  
 ελαστικό ή κατάλληλη πλαστική ύλη όχι ευχερώς εύφλε-  
 κτη) ποποθετημένους σε ξύλινα κιβώτια· ή
- (γ) σε σιδηρά βαρέλια επενδεδυμένα εσωτερικώς με ψευδαρ-  
 γυρον ή μολυβδόν· ή
- (δ) σε δοχεία κατασκευασμένα από πλάκες κασιτέρου, φύλ-  
 λα ψευδαργύρου ή φύλλα αλουμινίου, τα οποία θα ασφα-  
 λίζονται με αποσβεστικό (μαξιλάρια, κλπ.) υλικό σε  
 ξύλινα κιβώτια.

(2) Μεταλλικά δοχεία θα είναι εφοδιασμένα με  
 κλείσιμον ή μηχανισμούς ασφαλείας που θα υποχωρούν όταν  
 η εσωτερική πίεση φθάσει σε τιμή όχι μεγαλύτερη των  
 $3 \text{ KG/CM}^2$ · η παρουσία αυτών των κλεισιμάτων ή μηχανισμών  
 ασφαλείας δεν πρέπει να εξασθενεί την αντοχήν του δοχείου  
 ούτε να εξασθενεί το κλείσιμο αυτού.

(3) Η νιτροκυτταρίνη της 1<sup>ο</sup>, εάν υγροποιηθεί 2103 αποκλειστικά με νερό, μπορεί να συσκευασθεί σε βαρέ- (Συνεχίζεται)  
λια από ινώδη σανίδα· η ινώδης σανίδα πρέπει να έχει υποστεί ειδική επεξεργασία ώστε να καταστεί τελείως αδιαπέραστη· τα κλεισίματα των βαρελιών πρέπει να είναι υδατο-ατμοσφραγισμένα.

(4) Κόλον περιέχον ύλες της 1<sup>ο</sup> δεν πρέπει να ζυγίζεται πάνω από 120 KG ή, εάν μπορεί να ρολλαρισθεί, πάνω από 300 KG. Εν τούτοις, όταν χρησιμοποιούνται βαρέλια από ινώδη σανίδα, το κόλον δεν πρέπει να ζυγίζεται πάνω από 75 KG.

Κόλον περιέχον ύλες της 2<sup>ο</sup> δεν πρέπει να ζυγίζεται πάνω από 75 KG.

(I) Ύλες της 3<sup>ο</sup> (α) και 4<sup>ο</sup> θα συσκευάζονται 2104

(α) εάν πρόκειται να μεταφερθούν σαν πλήρες φορτίο:-

(I) σε βαρέλια κατασκευασμένα από αδιαπέραστη ινώδη σανίδα· ή

(2) σε συσκευασίες κατασκευασμένες από ξύλο ή μέταλλο εκτός από μελανόν έλασμα σιδήρου·

(β) εάν δεν πρόκειται να μεταφερθούν σαν πλήρες φορτίο:-

I.- σε κυτία κατασκευασμένα από ινώδη σανίδα, πλάκες-κασσιτέρου, φύλλα ψευδαργύρου ή φύλλα αλουμινίου, ή από κατάλληλη πλαστική ύλη κατασκευασμένα έτσι ώστε να μην είναι ευχερώς εύφλεκτη, ή σε σάκους κατασκευασμένους από ύφασμα με πυκνή ύφανση ή από γερό χαρτί τουλάχιστον δι-φυλλο ή από γερό χαρτί ντυμένο με λεπτό φύλλο

αλουμινίου ή με κατάλληλη πλαστική ύλη. Οι συ- 2104  
σκευασίες αυτές θα τοποθετούνται σε ξύλινα (Συνεχίζε-  
κιβώτια ή ται)

2.- χωρίς προκαταρκτική συσκευασία σε κιβώτια/ή σακ-  
κούς:- (κυτία)

- α.- σε βαρέλια κατασκευασμένα από αδιαπέραστη  
ινώδη σανίδα ή σε ξύλινα βυτία (CASKS) ή
- β.- σε ξύλινες συσκευασίες επενδεδυμένες με φύ-  
λλα ψευδαργύρου ή φύλλα αλουμινίου ή
- γ.- σε δοχεία κατασκευασμένα από μέταλλο εκτός  
από μελανό έλασμα-σιδήρου.

(2) Εάν η πυρίτιδα είναι σε σωλήνες, ράβδους,  
νήματα, λωρίδες ή φύλλα, μπορεί επίσης να εγκλεισθεί,  
χωρίς προκαταρκτική συσκευασία σε κυτία ή σακκούς, μέσα  
σε ξύλινα κιβώτια.

(3) Μεταλλικά δοχεία θα είναι εφοδιασμένα  
με μηχανισμούς ασφαλείας ή κλεισίματα που θα υποχωρούν  
δταν η εσωτερική πίεσις φθάσει τιμήν όχι μεγαλύτερη  
των  $3 \text{ KG/CM}^2$ . η παρουσία των μηχανισμών αυτών και κλει-  
σιμάτων δεν πρέπει να εξασθενεί την αντοχήν του δοχεί-  
ου ούτε να εξασθενεί το κλείσιμό του.

(4) Το κλείσιμο των ξυλίνων κιβωτίων μπορεί  
να εξασφαλίζεται με λωρίδες (τσέρικια) ή σύρματα κατα-  
σκευασμένα από κατάλληλο μέταλλο στερεωμένο σφικτά γύρω από  
αυτά. Εάν οι λωρίδες ή τα σύρματα είναι κατασκευασμένα  
από σίδηρο θα καλύπτονται με υλικό που δεν θα κινδυνεύει  
να παράγει σπινθήρες όταν υποστεί κρούση ή τριβή.

(5) Το κόλον δεν πρέπει να ζυγίζεται πάνω από 2104  
 120 KG· όμως, όταν χρησιμοποιούνται βαρέλια (Συνεχίζεται)  
 από ινώδη σανίδα, το κόλον δεν πρέπει να ζυγίζεται πάνω  
 από 75 KG.

(I) Ύλεις της 3<sup>ο</sup> (β) και 5<sup>ο</sup> θα συσκευάζονται:- 2105

(α) εάν πρόκειται να μεταφερθούν σαν πλήρες φορτίο:-

1.- σε βαρέλια κατασκευασμένα από αδιαπέραστη ινώδη σανίδα· ή

2.- σε συσκευασίες κατασκευασμένες από ξύλο ή μέταλλο εκτός από μελανό έλασμα-σιδήρου·

(β) εάν δεν πρόκειται να μεταφερθούν σαν πλήρες φορτίο:-

1.- σε κυτία κατασκευασμένα από ινώδη σανίδα, πλάκες-κασσιτέρου ή φύλλα αλουμινίου. Το κυτίο δεν πρέπει να περιέχει πάνω από 1 KG πυρίτιδα και πρέπει να είναι τυλιγμένο με χαρτί. Οι συσκευασίες αυτές θα τοποθετούνται σε ξύλινες συσκευασίες·

ή

2.- σε σάκκους κατασκευασμένους από ύφασμα με πυκνή ύφανση ή από γερό χαρτί τουλάχιστο δι-φύλλο ή από γερό χαρτί επενδεδυμένο με λεπτό φύλλο αλουμινίου ή με κατάλληλη πλαστική ύλη. Οι σάκκοι αυτοί θα τοποθετούνται σε βαρέλια από ινώδη σανίδα ή σε ξύλινους κάδους (βυτία) ή σε ξύλινες συσκευασίες επενδεδυμένες με φύλλα ψευδαργύρου ή φύλλα αλουμινίου, ή σε δοχεία κατασκευασμένα από φύλλα ψευδαργύρου ή φύλλα αλουμινίου. Δοχεία κατα-

σκευασμένα από φύλλα ψευδαργύρου ή φύλλα αλουμινίου θα είναι τελείως επενδεδυμένα με ξύλο ή ινώδη σανίδα. (Συνεχίζεται)

(2) Μεταλλικά δοχεία θα είναι εφοδιασμένα με κλεισίματα ή μηχανισμούς ασφαλείας οι οποίοι θα υπόχωρουν όταν η εσωτερική πίεση φθάσει τιμήν όχι μεγαλύτεραν των  $3 \text{ KG/CM}^2$ . η παρουσία των κλεισιμάτων αυτών ή μηχανισμών ασφαλείας δεν πρέπει να εξασθενεί την αντοχήν του δοχείου ούτε να εξασθενεί το κλείσιμον αυτών.

(3) Το κλείσιμο των ξυλίνων κιβωτίων μπορεί να εξασφαλισθεί με λωρίδες ή σύρματα κατασκευασμένα από κατάλληλο μέταλλο στερεωμένα σφιχτά γύρω κ'αυτά. Εάν οι λωρίδες ή τα σύρματα είναι κατασκευασμένα από σίδηρο θα καλύπτονται από υλικό που δεν κινδυνεύει να παράγει σπινθήρες όταν υποβληθεί σε κρούση ή τριβή.

(4) Κόλον της (I) (α) δεν πρέπει να ζυγίζει πάνω από  $100 \text{ KG}$ . Όταν χρησιμοποιούνται βαρέλια από ινώδη σανίδα, το κόλον δεν πρέπει να ζυγίζει πάνω από  $75 \text{ KG}$ . Κόλον της (I) (β) δεν πρέπει να ζυγίζει πάνω από  $75 \text{ KG}$ . Δεν πρέπει να περιέχει πάνω από  $30 \text{ KG}$  πυρίτιδας νιτροκυτταρίνης.

(I) Ύλες της 6<sup>ο</sup> θα συσκευάζονται σε ξύλινα δοχεία. Βαρέλια κατασκευασμένα από αδιαπέραστη ινώδη σανίδα θα γίνονται επίσης δεκτά για στερεά τρινιτροτουόλη και για τρινιτροανιζόλη, και σιδερά δοχεία για μίγματα με την ονομασία υγρά τρινιτροτουόλη. 2106

(2) Τα μεταλλικά δοχεία θα είναι εφοδιασμένα με

κλεισίματα ή μηχανισμούς ασφαλείας που υποχωρούν όταν η εσωτερική πίεση φθάσει τιμήν όχι μεγαλύτεράν των 3 KG/CM<sup>2</sup>. η ύπαρξη των κλεισιμάτων αυτών ή μηχανισμών ασφαλείας δεν πρέπει να εξασθενεί την αντοχήν του δοχείου ούτε να εξασθενεί το κλείσιμό του.

2106  
(Συνεχίζεται)

(3) Κόλον δεν πρέπει να ζυγίζει πάνω από 120 KG ή, εάν μπορεί να ρολλαρισθεί, πάνω από 300 KG. Όμως, ~~όταν~~ χρησιμοποιούνται βαρέλια από ινώδη σανίδα, το κόλον δεν πρέπει να ζυγίζει πάνω από 75 KG.

(I) Ύλες της 7<sup>ο</sup> θα συσκευάζονται:

2107

(α) ύλες της 7<sup>ο</sup> (α): σε ξύλινα δοχεία ή σε βαρέλια κατασκευασμένα από αδιαπέραστη ινώδη σανίδα. Μόλυβδος και υλικά περιέχοντα μόλυβδον (κράματα ή συνθέσεις) δεν πρέπει να χρησιμοποιούνται στη συσκευασία ΗΕΧΥΛ (Εξυλενίου) (Εξανιτροδιφαινυλαμίνης) και πικρικού οξέος.

Το πικρικό οξύ μπορεί επίσης να συσκευασθεί όχι πάνω από 500 γραμμάρια ανά δοχείο, σε δοχεία κατασκευασμένα από γυαλί, πορσελάνη, κεραμική ύλη (πηλός) ή παρόμοια υλικά ή από κατάλληλη πλαστική ύλη, ασφαλισμένα σε ξύλινο κιβώτιο με αποσβεστικό υλικό (π.χ. κυματοειδής ινώδης σανίδα). Τα δοχεία θα κλείνονται με βούλωμα, από φελλό ή ελαστικό ή από κατάλληλη πλαστική ύλη, που θα κρατείται στη θέση του με πρόσθετο μηχανισμό (όπως πώμα, καπάκι, κορώνα, σφραγίδα ή δέσιμο) ικανόν να εμποδίσει οποιαδήποτε χαλάρωση του συστήματος κλεισίματος διαρκούσης της μεταφοράς.

(β) ύλες της 7<sup>ο</sup> (β) και (γ): όχι πάνω από 30 KG ανά σάκκιο, σε υφασματένιους σάκκους που δεν επιτρέπουν στο περιεχόμενο να διηθηθεί, ή σε σακκουλές κατασκευασμένες από γερό χαρτί ή κατάλληλη πλαστική ύλη, που θα τοποθετούνται σε ξύλινα στεγανά δοχεία ή βαρέλια κατασκευασμένα από σκληρή (κατόπιν βαφής) ινώδη σανίδα ικανά να κλείνουν έτσι ώστε να είναι στεγανά και των οποίων οι πυθμένες και τα καλύμματα θα είναι κατασκευασμένα από κόντρα πλακέ. Τα καλύμματα των κιβωτίων θα ασφαρίζονται με βίδες και των βαρελιών με κολλάρο.

2107  
(Συνεχίζεται)

(2) Κόλον περιέχον ύλες της 7<sup>ο</sup> (α) δεν πρέπει να ζυγίζει πάνω από 120 KG εάν είναι ξύλινο δοχείο· οσάκις χρησιμοποιούνται βαρέλια από ινώδη σανίδα, το κόλον δεν πρέπει να ζυγίζει πάνω από 75 KG. Κόλα περιέχοντα πικρικό οξύ συσκευασμένο σε εύθραυστα δοχεία ή σε δοχεία κατασκευασμένα από πλαστική ύλη δεν πρέπει να ζυγίζουν πάνω από 15 KG. Κόλον περιέχον ύλες της 7<sup>ο</sup> (β) ή (γ) δεν πρέπει να ζυγίζει πάνω από 75 KG· κιβώτια των οποίων το περιεχόμενο ζυγίζει πάνω από 30 KG θα είναι εφοδιασμένα με χειρολαβές.

(I) Ύλες και είδη της 8<sup>ο</sup> θα συσκευάζονται:- 2108

(α) ύλες της 8<sup>ο</sup> (α): σε δοχεία κατασκευασμένα από χάλυβα μη υποκείμενον σε σκουριά, ή από οποιοδήποτε άλλο κατάλληλο υλικό (το οποίο ειδικώτερα εξιδρώνει μόλυβδον και τα κράματα αυτού). Νιτρικές-συνθέσεις θα έχουν ομοιόμορφα υγροποιηθεί (μουσκεφθεί) με αρκετό νερό για να εξασφαλίζεται ότι περιέχουν όχι λιγότερο του

25.6τα, εκατόν νερό καθ' όλο το ταξίδι, σε κάθε ση- 2108  
 μείο της ύλης. Τα μεταλλικά δοχεία θα είναι εφο- (Συνεχίζε-  
 διασμένα με κλεισίματα ή μηχανισμούς ασφαλείας που ται)  
 υποχωρούν όταν η εσωτερική πίεση φθάσει τιμήν όχι  
 μεγαλύτερη των  $3 \text{ KG/CM}^2$ . η ύπαρξη των κλεισιμάτων  
 αυτών ή μηχανισμών ασφαλείας δεν πρέπει να εξασθενεί  
 την αντοχή του δοχείου ούτε να εξασθενεί το κλείσιμό  
 του. Δοχεία, εκτός εκείνων που είναι κατασκευασμένα  
 από χάλυβα μπ υποκειμενον σε σκουριά, θα εξασφαλίζον-  
 ται (στερεώνονται) με αποσβεστικό (μαξιλάρια, κλπ.)  
 υλικό σε ξύλινες συσκευασίες°

- (β) ύλες της 8<sup>ο</sup> (β):- όχι πάνω από 15 KG ανά σάκιο, σε  
 σάκους κατασκευασμένους από ύφασμα ή κατάλληλο πλα-  
 στικό υλικό, τοποθετημένους σε ξύλινες συσκευασίες°
- (γ) ύλες της 8<sup>ο</sup> (α) και (β) μπορούν επίσης να συσκευάζον-  
 ται, όχι πάνω από 500 γραμμάρια ανά δοχείο, σε δοχεία  
 κατασκευασμένα από γυαλί, πορσελάνη, είδη κεραμεικής  
 ή παρόμοια υλικά, ή από κατάλληλο πλαστική ύλη, σφε-  
 ρωμένα με αποσβεστικό υλικό (π.χ. κυματοειδή ινώδη  
 σανίδα) σε ξύλινο κιβώτιο. Το κέλον δεν πρέπει να πε-  
 ριέχει πάνω από 5 KG αζωτούχων συνθέσεων. Τα δοχεία  
 θα κλείουν με αναστολέα (STOPPER), κατασκευασμένον από  
 φελλό ή ελαστικό ή από κατάλληλη πλαστική ύλη, και θα  
 κρατείται στη θέση του με πρόσθετο μηχανισμό (όπως κα-  
 πάκι, κορώνα, σφραγίδα ή δέσιμο) ικανόν να εμποδίζει  
 οποιαδήποτε χαλάρωση του συστήματος κλεισίματος διαρ-  
 κούσης της μεταφοράς°



(δ) είδη (εμπορεύματα) της 8<sup>ο</sup> (γ): χωριστά σε χονδρό χαρτί 2108 και τοποθετημένα, όχι πάνω από 100 ανά κυτρίο, σε κυτρία από μεταλλικά ελάσματα. Όχι περισσότερα των 100 (Συνεχίζεται)  
τοιούτων κυτρίων θα συσκευάζονται σε κιβώτιο ξύλινης συσκευασίας.

(2) Κόλον των παραγράφων (I) (α) ή (β) δεν πρέπει να ζυγίζει πάνω από 75 KG· δεν πρέπει να περιέχει πάνω από 25 KG ύλες της 8<sup>ο</sup> (α) ή πάνω από 50 KG ύλες της 8<sup>ο</sup> (β). Κόλον της παραγράφου (I) (γ) δεν πρέπει να ζυγίζει πάνω από 15 KG, ή κόλον της παραγράφου I(δ) πάνω από 40 KG.

(I) Ύλες και είδη της 9<sup>ο</sup> θα συσκευάζονται: 2109

(α) ύλες της 9<sup>ο</sup> (α) έως (γ):-

1.- όχι πάνω από 10 KG ανά σάκκον, σε σάκκους από ύφανμα ή από κατάλληλη πλαστική ύλη, τοποθετημένους σε κυτρίο από αδιαπέραστη ινώδη σανίδα ή σε κυτρίο κατασκευασμένο από πλάκες-κασσιτέρου ή φύλλα αλουμινίου ή φύλλα ψευδαργύρου· ή

2.- όχι πάνω από 10 KG ανά δοχείο, σε δοχεία κατασκευασμένα από ινώδη σανίδα καταλλήλου αντοχής, εμποτισμένα με κηρόν παραφίνης ή καταστάσα αδιαπέραστη με άλλα μέσα.

Κυτρία κατασκευασμένα από πλάκες-κασσιτέρου ή φύλλα αλουμινίου ή φύλλα ψευδαργύρου και κυτρία ή δοχεία από άλλα είδη θα τοποθετούνται σε ξύλινο κιβώτιο επενδεδυμένο με κυματοειδή ινώδη-σανίδα· μεταλλικά κυτρία ούτω τοποθετημένα θα χωρίζονται το ένα από το άλλο με περιτύλιγμα από κυματοειδή ινώδη-σανίδα. Το κιβώτιο δεν πρέπει να περιέχει

πάνω από τέσσερα κυττία ή δοχεία άλλων ειδών. Τα καλύμματα των κιβωτίων θα στερεώνονται με βίδες. 2109  
(Συνεχίζεται)

(β) πενθρίτης (9<sup>ο</sup> (α)) μπορεί επίσης να συσκευάζεται είτε:-

(1) όχι πάνω από 5 KG ανά δοχείο, σε δοχεία κατασκευασμένα από γυαλί, πορσελάνη, είδη κεραμικής ή παρόμοια υλικά, ή από κατάλληλη πλαστική ύλη, κλεισμένα με αναστολέα (βούλωμα) από φελλό ή ελαστικό ή από κατάλληλη πλαστική ύλη· κάθε δοχείο θα τοποθετείται σε μεταλλικό δοχείο ερμητικώς κλεισμένο δια συγκολλησεως ή μαλακής συγκολλησεως και θα συγκρατείται από κτύπημα με υλικά που έχουν ελαστικότητα σε τρόπο ώστε να σφηνώνουν στερεά το εσωτερικό δοχείο χωρίς να αφήνουν άδειο χώρο. Όχι περισσότερα από 4 μεταλλικά δοχεία θα συσκευάζονται σε ξύλινο κιβώτιο επενδεδυμένο με κυματοειδή ινώδη-σανίδα και θα χωρίζονται το ένα από το άλλο με διάφορα πάχη κυματοειδούς ινώδους σανίδας ή άλλο υλικό ικανό να εκτελέσει την ίδια λειτουργία· ή

(2) όχι πάνω από 500 γραμμάρια ξηρού βάρους ανά δοχείο, σε δοχεία κατασκευασμένα από γυαλί, πορσελάνη, είδη κεραμικής ή παρόμοια υλικά, ή από κατάλληλη πλαστική ύλη, κλεισμένα με αναστολέα (βούλωμα) από φελλό ή ελαστικό ή από κατάλληλη πλαστική ύλη. Τα δοχεία αυτά θα τοποθετούνται σε ξύλινο κιβώτιο. Θα χωρίζονται το ένα από το άλλο με περιτύλιγμα κυματοειδούς ινώδους σανίδας και από τα πλευρά του κιβωτίου σε απόσταση όχι μικρότερη των 3 CM που θα γεμίζεται (ο κενός χώρος) με αποσβεστικό υλικό·

(γ) Το ΗΕΛΟΘΕΝ (εξογδόνον). (9<sup>ο</sup>(α)) μπορεί επίσης να συ- 2109.  
σκευάζεται όπως προβλέπεται στην (β)I, ανωτέρω, (Συνεχίζεται)  
για τον πενθρήτη.

(δ) είδη της 9<sup>ο</sup>(δ): πρώτα χωριστά σε γερό χαρτί και θα τοποθετούνται, όχι άνω των 3 KG ανά κιβώτιο, σε κιβώτια από ινώδη σανίδα βτα οποία θα στηρίζονται στη θέση τους με αποσβεστικό υλικό. τα κιβώτια αυτά, όχι άνω των 10 ανά ξύλινο κιβώτιο, θα στερεώνονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο κλεισμένο με βίδες σε τρόπο ώστε χώρος όχι μικρότερος των 3 CM να γεμίζεται με αποσβεστικό υλικό σ' όλα τα σημεία μεταξύ των, εκ σανίδος, ινώδους, κιβωτίων και του κιβωτίου συσκευασίας.

(2) Κόλον των (I) (α) ή (I) (β) I. δεν πρέπει να ζυγίζει πάνω από 75 KG. Κόλον της I(γ) δεν πρέπει να ζυγίζει πάνω από 10 KG. Κόλον της (I) (β) 2, ή (I) (δ) δεν πρέπει να ζυγίζει πάνω από 25 KG. Κόλα τα οποία, με το περιεχόμενό τους, ζυγίζουν πάνω από 30 KG θα είναι εφοδιασμένα με χειρολαβές.

(I) Ύλες της 10<sup>ο</sup> θα συσκευάζονται, όχι άνω των 500 γραμμαρίων ανά σάκκιο, σε στερεά δεμένους σάκκους από κατάλληλο εύκαμπτο υλικό. κάθε σάκκος θα τοποθετείται σε - κυτίο από μέταλλο, ινώδη-σανίδα ή χαρτόνι (χαρτοσανίδα). αυτά τα κυτία, όχι περισσότερα από 30 ανά κιβώτιο συσκευασίας, θα στερεώνονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο συσκευασίας με πλήρεις πλευρές πάχους όχι μικρότερου των 12 MM (χιλιοστών).

- (2) Το κόλον δεν πρέπει να ζυγίζει πάνω από 25 KG.
- (I) Ύλεις και είδη της II<sup>ο</sup> θα συσκευάζονται: 2III
- (α) ύλεις της II<sup>ο</sup>(α) και (β):
- (I) όχι άνω των 2.5 KG ανά σάκκιο, σε σάκκους τοποθετημένους σε κυτρία κατασκευασμένα από ινώδη σανίδα, πλάκες κασιτιέρου ή από αλουμίνιο. Τα κυτρία θα στερεώνονται με αποσβεστικό υλικό σε ξύλινα είδη συσκευασίας ή
- (2) σε σάκκους κατασκευασμένους από ύφασμα με πυκνή ύφανση, τοποθετημένους σε ξύλινα κιβώτια.
- (β) είδη της II<sup>ο</sup>(γ): ρολλαρισμένα με γερό χαρτί· κάθε ρόλος δεν πρέπει να ζυγίζει πάνω από 300 γραμμάρια. Οι ρόλλοι θα τοποθετούνται σε ξύλινο κιβώτιο επενδεδυμένο με γερό χαρτί.
- (2) Τα καλύμματα των ξυλίνων κιβωτίων θα στερεώνονται με βίδες· εάν οι βίδες είναι κατασκευασμένες από σίδερο θα επιχρύνονται με υλικό που δεν θα παράγει σπινθήρες όταν υποστεί κρούση ή τριβή.
- (3) Το κόλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG εάν μεταφέρεται ως τμήμα πλήρους φορτίου, και όχι περισσότερο από 35 KG εάν δεν μεταφέρεται ως τμήμα πλήρους φορτίου.
- (I) Ύλεις της I2<sup>ο</sup> θα φυσιγγιοποιούνται μέσα σε περιτυλίγματα κατασκευασμένα από κατάλληλη πλαστική ύλη ή χαρτί. Τα φυσιγγία θα φυσιγγίζονται σε κηρό παραφίνης, κηροζίνη ή ρητίνη, ή θα τυλίγονται σε κατάλληλη πλαστική ύλη, ώστε να προστατεύονται από την υγρασία. Ειρηκτικά

περιέχοντα πάνω από 6 εκατ. εκατόν υγρούς νιτρικούς εστέρας θα φυσιγγιοποιούνται με χαρτί επενδεδυμένο με κηρόν παραφίνης ή κηροζίνη ή με αδιαπέραστη πλαστική ύλη όπως το πολυαιθυλένιο. Τα φυσίγγια θα τοποθετούνται σε ξύλινα είδη συσκευασίας.

2112  
(Συνεχίζεται)

(2) Φυσίγγια μη επενδεδυμένα με κηρόν παραφίνης ή κηροζίνη, ή φυσίγγια σε αδιαπέραστα περιτυλίγματα, θα γίνονται πακέτα που ζυγίζουν όχι άνω των 2.5 KG το καθένα. Έτσι κατασκευασμένα πακέτα, τα περιτυλίγματα των οποίων πρέπει να αποτελούνται τουλάχιστο από γερό χαρτί, θα βυθίζονται σε κηρό παραφίνης, κηροζίνη ή ρητίνη ή θα περιτυλίγονται με κατάλληλη πλαστική ύλη ώστε να προστατεύονται από την υγρασία. Τα πακέτα θα τοποθετούνται σε ξύλινα είδη συσκευασίας.

(3) Τα κλεισίματα των ξυλίνων ειδών συσκευασίας μπορούν να ασφαρίζονται με μεταλλικές λωρίδες ή σύρματα δεμένα σφικτά γύρω τους.

(4) Το κέλον δεν πρέπει να ζυγίζει πάνω από 75 KG. Δεν πρέπει να περιέχει πάνω από 50 KG εκρηκτικών.

(5) Αντί των ξυλίνων συσκευασιών των προβλεπομένων στις παραγράφους (1) και (2), επιτρέπεται επίσης να χρησιμοποιούνται κατάλληλα κιβώτια, κατασκευασμένα από στερεά ινώδη σανίδα ή κυματοειδή ινώδη σανίδα, που είναι επαρκούς μηχανικής αντοχής και των οποίων τα πτερύγια (κλαπέτα) των καλυμμάτων και πυθμένων θα πρέπει να κλείνονται με κολλητικές ταινίες επαρκούς αντοχής. Το σχέδιο των κιβωτίων των κατασκευαζομένων από στερεά ινώδη σανίδα ή κυ-

ματοειδή ινώδη σανίδα πρέπει να εγκριθεί από την αρμό- 2II2  
 δια αρχή της χώρας της ανάχωρήσεως. Ένα τέτοιο κώ- (Συνεχίζεται)  
 λον δεν πρέπει να ζυγίζει πάνω από 30 KG\* δεν πρέπει  
 να περιέχει πάνω από 25 KG εκρηκτικά.

(I) Οι ύλες της I3<sup>ο</sup> θα φυσιγγιοποιούνται με  
 χάρτινα περιτυλίγματα. Φυσίγγια μη επιχρισμένα με κηρόν  
 παραφίνης ή κηροζίνην πρέπει αρχικά να γίνουν ρόλλοι με  
 χαρτί το οποίο έχει καταστεί αδιαπέραστο. Θα κατασκευά-  
 ζονται από χάρτινο περιτύλιγμα σε πακέτα ζυγίζοντα όχι  
 άνω των 2.5 KG το καθένα, και θα στερεώνονται με απο-  
 σβεστικό υλικό σε ξύλινα είδη συσκευασίας των οποίων το  
 κλείσιμο μπορεί να εξασφαλίζεται δια μεταλλικών ταινιών  
 ή συρμάτων στερεωμένων σφικτά πέριξ αυτών.

(2) Το κώλον δεν πρέπει να ζυγίζει πάνω από  
 35 KG.

(I) Ύλες της I4<sup>ο</sup> θα συσκευάζονται: 2II4

(α) ύλες της I4<sup>ο</sup>(α): φυσιγγιοποιημένες σε περιτυλίγματα  
 κατασκευασμένα από χαρτί το οποίο έχει καταστεί αδια-  
 πέραστο. Τα φυσίγγια θα πακετάρονται με χάρτινο περι-  
 τύλιγμα ή, εάν χωρίς χάρτινο περιτύλιγμα, θα στερεώ-  
 νονται με αδρανές αποσβεστικό υλικό σε ξύλινα είδη  
 συσκευασίας των οποίων το κλείσιμο μπορεί να εξασφα-  
 λίζεται δια μεταλλικών ταινιών ή συρμάτων δεμένων  
 (στερεωμένων) σφικτά γύρω τους.

(β) ύλες της I4<sup>ο</sup>(β): φυσιγγιοποιημένες σε περιτυλίγματα  
 κατασκευασμένα από χαρτί το οποίο έχει καταστεί α-  
 διαπέραστο. Τα φυσίγγια θα τοποθετούνται σε κυτίο

από ινώδη σανίδα. Τα κυτία από ινώδη σανίδα, περι- 2114  
τυλιγμένα με χαρτί το οποίο έχει καταστεί αδιαπέ- (Συνεχίζε-  
ραστο, θα στερεώνονται, "χωρίς να αφήνουν κενά δια- ται)  
στήματα, σε ξύλινα είδη συσκευασίας των οποίων το  
κλείσιμο μπορεί να εξασφαλιστεί με μεταλλικές ται-  
νίδες ή σύρματα δεμένα (στερεωμένα) σφικτά γύρω τους.

(γ) Όλες της I4<sup>ο</sup> (γ):-

I.- φυσίγγιοποιημένες σε περιτυλίγματα κατασκευασμέ-  
να από κατάλληλη πλαστική ύλη ή χαρτί. Τα φυσίγγια  
μπορούν να εμβυθίζονται σε κηρό παραφίνης, κηρο-  
ζίνη ή ρητίνη ή να περιτυλίγονται με κατάλ-  
ληλη πλαστική ύλη, ώστε να προφυλάσσονται από  
την υγρασία. Ειρηκτικά περιέχοντα άνω του 66 τοις  
εκατόν υγρούς νιτρικούς εστέρες θα φυσίγγιοιού-  
νται με χαρτί επιχρισμένο με κηρόν παραφίνης ή κη-  
ροζίνη ή με αδιαπέραστη πλαστική ύλη όπως το πο-  
λυαιθυλένιον. Τα φυσίγγια θα τοποθετούνται σε ξύ-  
λινα είδη συσκευασίας.

2.- φυσίγγια μη επιχρισμένα με κηρο παραφίνης ή κη-  
ροζίνη, ή φυσίγγια σε αδιαπέραστα περιτυλίγματα,  
θα παρασκευάζονται σε πακέτα ζυγίζοντα όχι πάνω  
από 2.5 KG το καθένα. Τα πακέτα αυτά, των οποίων  
το περιτύλιγμα πρέπει να είναι τουλάχιστον από  
γερό χαρτί, θα εμβυθίζονται σε κηρό παραφίνης,  
κηροζίνη ή ρητίνη ή θα περιτυλίγονται με κατάλ-  
ληλη πλαστική ύλη, ώστε να προστατεύονται από την

υγρασία. Τα πακέτα θα τοποθετούνται σε ξύλινα 2II4  
είδη συσκευασίας. (Συνεχίζεται)

- 3.- το κλείσιμο των ξυλίνων συσκευασιών μπορεί να εξασφαλίζεται δια μεταλλικών ταινιών ή συρμάτων δεμένων σφικτά γύρω τους.
- 4.- αντί των ξυλίνων συσκευασιών των περιγραφόμενων στις ανωτέρω παραγράφους I και 2, επιτρέπεται επίσης η χρησιμοποίηση καταλλήλων κιβωτίων, κατασκευασμένων από στερεά ινώδη σανίδα ή κυματοειδή ινώδη σανίδα που είναι επαρκούς μηχανικής αντοχής και των οποίων τα πτερύγια (κλαπέτα) των καλυμμάτων και πυθμένων θα πρέπει να κλείνονται με κολλητικές ταινίες επαρκούς αντοχής. Το σχέδιο των κιβωτίων των κατασκευασμένων από στερεά ινώδη σανίδα ή κυματοειδή ινώδη σανίδα πρέπει να εγκρίνεται από την αρμόδια αρχή της χώρας της αναχωρήσεως.

(2) Κόλον περιέχον ύλες της I4<sup>0</sup> (α) ή (β) δεν πρέπει να ζυγίζει πάνω από 35 KG. Κόλον περιέχον ύλες της I4<sup>0</sup> (γ) δεν πρέπει να ζυγίζει πάνω από 75 KG· δεν πρέπει να περιέχει εκρηκτικά πάνω από 50 KG. Στη περίπτωση συσκευασίας της παραγράφου I (γ) 4, το κόλον δεν πρέπει να ζυγίζει πάνω από 30 KG ούτε να περιέχει εκρηκτικά πάνω από 25 KG.

### 3.- Μικτή συσκευασία

Ύλες αναγραφόμενες κάτω από αριθμόν είδους του 2II5 περιθωρίου 2IOI δεν πρέπει να συμπεριλαμβάνονται στο αυτό κόλον είτε με ύλες ομαδοποιημένες κάτω από τον αυτόν ή



άλλον αριθμόν είδους του περιθωρίου αυτού, είτε με 2115  
 ύλες ή εμπορεύματα άλλων Κλάσεων, είτε με άλλα εμπο- (Συνεχίζε-  
 ρεύματα. ται)

Σημειώσεις:- Κόδα αναφερόμενα στο περιθώριο 2108(I)  
 (γ) μπορούν να περιέχουν οργανικάς αζωτούχους συν-  
 θέσεις έχουσας διαφορετικές συνθέσεις και ονομασίας.

4.- Ενδείξεις (μαρκάρισμα) και ετικέτες κινδύνου επί  
 των κδων (βλέπε Προσθήκη Α.9)

Κόδα περιέχοντα πικριδόν οξύ (7<sup>ο</sup> (α)) θα μαρ- 2116  
 κώνονται με την ονομασία της ύλης με σαφείς, ευαναγνώ-  
 στους και ανεξίτηλους ερυθρούς χαρακτήρες. Το μαρκάρισμα  
 αυτό θα είναι στην επίσημη γλώσσα της χώρας της αναχωρή-  
 σεως και επίσης, εάν η γλώσσα αυτή δεν είναι η Αγγλική, ή  
 η Γαλλική, ή η Γερμανική, στην Αγγλική, Γαλλική ή Γερμανι-  
 κή, εκτός εάν, τυχόν, δασμολόγια διεθνούς οδικής μετα-  
 φοράς, ή συμφωνίες συναφθείσες μεταξύ των ενδιαφερομένων  
 για την επιχείρηση της μεταφοράς κρατών, προβλέπουν άλλως.

(1) Κόδα περιέχοντα ύλες και είδη της Κλάσε- 2117  
 ως Ια θα φέρουν ετικέτα σύμφωνον προς το μοντέλο Νο.Ι.

(2) Κόδα περιέχοντα εύθραυστα δοχεία μη ορα-  
 τά από έξω θα φέρουν ετικέτα σύμφωνον προς το μοντέλο Νο.9.  
 Εάν τα εύθραυστα δοχεία περιέχουν υγρά, τα κόδα οφείλουν  
 εποπροσθέτως, εκτός προκειμένου περί σφραγισμένων αμπου-  
 λών, να φέρουν ετικέτες συμφώνους προς το μοντέλο Νο.8.  
 Οι ετικέτες αυτές θα τοποθετούνται ψηλά σε δύο αντίθετες  
 πλευρές των κιβωτίων ή κατά ισοδύναμον τρόπον οσάκις  
 χρησιμοποιούνται άλλα είδη συσκευασίας.

Β.- Λεπτομέρειες του εγγράφου της μεταφοράς

(1) Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς πρέπει να είναι σύμφωνα προς μίαν των ονομασιών των υπογραμμισμένων στο περιθώριο 2101. Όταν η ονομασία της ύλης δεν καθορίζεται στη περίπτωση της 8<sup>ο</sup> (ε) και (β), θα πρέπει να χρησιμοποιείται η εμπορική ονομασία. Η περιγραφή των εμπορευμάτων πρέπει να υπογραμμίζεται με κόκκινο και να ακολουθείται από λεπτομέρειες της κλάσεως, του αριθμού του είδους (ομού με, το τυχόν, γράμμα), και τα αρχικά "ADR" ή "RID" (π.χ. Ια 3<sup>ο</sup> (α) ADR)).

(2) Τα παρακάτω πρέπει να βεβαιούνται στο έγγραφο της μεταφοράς: "Η φύσις των εμπορευμάτων, και το είδος της συσκευασίας, είναι σύμφωνα με τις διατάξεις της ADR".

(3) Για αποστολές οι οποίες, υπό περιθώριο II 400 του Παραρτήματος Β, πρόκειται να γίνουν δεκτές για μεταφορά ως πλήρες φορτίο και μόνον, το έγγραφο της μεταφοράς θα εικονίζει επίσης το βάρος κάθε κόλου και τον αριθμόν και την φύση των ειδών συσκευασίας.

2120 -  
2125

Γ.- Κενά είδη συσκευασίας

(1) Τα είδη συσκευασίας της 15<sup>ο</sup> πρέπει να είναι 2126 ασφαλώς κλεισμένα και στεγανά στον ίδιο βαθμό σαν να ήσαν γεμάτα.

(2) Η περιγραφή στο έγγραφο μεταφοράς πρέπει να είναι: "Κενόν κόλον, Ια, 15<sup>ο</sup>, ADR (ή) RID". Η περιγραφή πρέπει να υπογραμμίζεται με κόκκινο.

2127-  
2129

## ΚΛΑΣΗ Ιβ.- ΕΙΔΗ ΓΕΜΙΣΜΕΝΑ ΜΕ ΕΚΡΗΚΤΙΚΕΣ ΥΛΕΣ

I.- Κατάλογος ειδών

(1) Μεταξύ των ειδών που καλύπτονται από τον τίτλο της Κλάσεως Ιβ, μόνον τα αναγραφόμενα στο περιθώριο 2Ι3Ι θα γίνονται δεκτά για μεταφορά, και τότε μόνον υπό την επιφύλαξη των διατάξεων του παρόντος Παραρτήματος και του Παραρτήματος Β. Τα είδη αυτά τα οποία γίνονται δεκτά υπό ωρισμένους όρους θα θεωρούνται ως είδη της ΑDR.

(2) Εάν τα είδη τα αναγραφόμενα εις 7<sup>ο</sup>, 10<sup>ο</sup> ή 11<sup>ο</sup> του περιθωρίου 2Ι3Ι συντρέθενται από, ή είναι γεμισμένα με, εκρηκτικές ύλες που αναγράφονται στο περιθώριο 2Ι01, οι ύλες αυτές πρέπει να πληρούν τους αφορώντας αυτούς όρους σταθερότητας και ασφαλείας τους αναγραφομένους στη Προσθήκη Α.Ι.

1<sup>ο</sup> Πυροσωλήνες, μη εμπυρευμένοι:-

2Ι3Ι

- (α) πυροσωλήνες ταχείας καύσεως (αναφλέξεως) (πυροσωλήνες αποτελούμενοι από χοντρό σωλήνα με πυρήνα (φυτίλλι) από μελανή πυρίτιδα, ή με φυτίλλι από νήματα εμποτισμένα με μελανή πυρίτιδα, ή με φυτίλλι από βαμβακό-νήματα εμπλουτισμένα με άζωτο)·
- (β) εκρηκτικοί πυροσωλήνες υπό μορφήν μικράς τομής μεταλλικών σωλήνων με λεπτά τοιχώματα και με πυρήνα γεμισμένον με εκρηκτική ύλη· βλέπε επίσης Προσθήκη Α.Ι, περιθώριο 3Ι08·
- (γ) εύκαμπτοι εκρηκτικοί πυροσωλήνες τυλιγμένοι σε ύφασμα ή πλαστική ύλη, μικράς τομής και με πυρήνα (φυτίλλι) γεμισμένον με εκρηκτική ύλη· βλέπε επί-

σης Προσθήκην Α.Ι, περιθώριο 3109)·

- (δ) εκρηκτικοί πυροσωλήνες ακαριαίας ενεργείας 2131  
(μικράς-τομής υφασμένοι πυροσωλήνες με πυρή- (Συνεχίζεται)  
να γεμισμένο με εκρηκτική ύλη πειό επικίν-  
δωνη από τον πενθρίτη).

Για άλλους πυροσωλήνες, βλέπε Κλάσιν Ιγ, 3<sup>ο</sup> (περιθώ-  
ριο 2171).

Μη-εκρηκτικά εμπύρια (εμπύρια τα οποία δεν παράγουν  
διαρρηκτικόν αποτέλεσμα είτε με τη βοήθεια πυροκροτη-  
τών είτε με άλλα μέσα):

- (α) κρουσιφλεγή καψύλλια·
- (β) 1.- εμπυρευμένοι θάλαμοι φυσίγγων κεντρικής-  
κρούσεως μη γεμισμένοι με προωθητική πυρίτιδα,  
για πυροβόλα όπλα όλων των διαμετρημάτων·
- 2.- εμπυρευμένοι θάλαμοι φυσίγγων RIM-FIRE, μη  
γεμισμένοι με προωθητική πυρίτιδα, για όπλα  
FLOBERT και ατομικά όπλα ομοίων διαμετρημάτων·
- (γ) φυτίλλια, ελικοειδή-εμπύρια και λοιπά όμοια εμπύ-  
ρια περιέχοντα μικρό γέμισμα (μελανή πυρίτιδα ή άλλες  
εκρηκτικές ύλες), που ενεργοποιούνται με τη τριβή,  
κρούση ή τον ηλεκτρισμό·
- (δ) πυροσωλήνες άνευ οιοδήποτε μηχανισμού, π.χ. πυρο-  
κροτητού, δημιουργούντες διαρρηκτικόν αποτέλεσμα  
και χωρίς μεταδοτικόν (τροφοδοτικόν) γέμισμα  
(TRANSMISSION CHARGE).

3<sup>ο</sup> Σιδηροδρομικά σήματα ομίχλης

4<sup>ο</sup> Φυσίγιοι φορητών (ατομικών) όπλων (με εξαίρεση τα πε-

ριέχοντα εκρηκτικό γέμισμα (βλέπε II<sup>ο</sup>):-

2131

(α) φυσίγγια κηνυγίου

(Συνεχίζε-  
ται)

(β) φυσίγγια FLOBERT

(γ) τροχιοδεικτικά φυσίγγια

(δ) εμπρηστικά φυσίγγια

(ε) λοιπά φυσίγγια κεντρικής-κρούσεως.

Σημείωση: - Πλην των φυσιγγίων κηνυγίου με μολυβδένια σκάγια, μόνον τα φυσίγγια το διαμέτρημα των οποίων δεν υπερβαίνει τα 13.2 MM (χιλιοστά) θα θεωρούνται ως είδη της 4<sup>ο</sup>.

5<sup>ο</sup> Εκρηκτικοί πυροσωλήνες:-

(α) πυροκροτητές μετά ή άνευ μηχανισμού βραδείας ενεργείας\* βραδείας ενεργείας συνδετικά τεμάχια για εκρηκτικούς πυροσωλήνες\*

(β) ηλεκτρικοί πυροκροτητές εφοδιασμένοι με πυροσωλήνες μετά ή άνευ μηχανισμών βραδείας ενεργείας\*

(γ) πυροκροτητές συνδεδεμένοι σταθερά με πυροσωλήνες μελανής πυρίτιδος\*

(δ) πυροκροτητές με αναφλεκτικά εμπύρια (πυροκροτητές συνδυασμένοι με μεταδοτικόν (τροφοδοτικόν) γέμισμα αποτελούμενον από πεπιεσμένον εκρηκτικόν)\* βλέπε επίσης Προσθήκη Α.Ι, περιθώριο 3110\*

(ε) πυροσωλήνες με πυροκροτητές (FUSED DETONATORS) μετά ή άνευ μεταδοτικού (τροφοδοτικού) γεμίματος\*

(στ) πυροκροτητές με καφύλλιον κρούσεως ("BOUCHONS ALLUMEURS"), μετά ή άνευ μηχανισμού βραδείας ενεργείας, μετά ή άνευ μηχανισμού πυροδοτήσεως, και άνευ μεταδοτικού (τροφοδοτικού) γεμίματος.

- 6° Ηχοβολιστικά καψύλλια (πυροκροτητές, μετά ή άνευ εμπυρίων, περιεχόμενοι σε μεταλλικούς σωλήνες). 2131  
(Συνεχίζεται)
- 7° Είδη με προωθητικό γέμισμα, πλην των αναγραφόμενων στη παράγραφο 8° είδη με εκρηκτικό γέμισμα είδη με προωθητικό και εκρηκτικό γέμισμα, υπό τον όρον ότι περιέχουν μόνον εκρηκτικές ύλες της Κλάσεως Ια, άπαντα χωρίς μηχανισμό παράγοντα διαρρηκτικό αποτέλεσμα (π.χ. πυροκροτητή). Το γέμισμα των ειδών αυτών μπορεί να περιλαμβάνει τροχιοδεικτική ύλη (βλέπε επίσης 8° και II°).
- Σημειώσεις:- Μη-εκρηκτικά εμπύρια (2°) επιτρέπονται στα είδη αυτά.
- 8° Είδη γεμισμένα με τροχιοδεικτικές ύλες ή ύλες προοριζόμενες για σηματοδοσία, μετά ή άνευ προωθητικού γεμίματος, μετά ή άνευ απορριπτικού γεμίματος, και άνευ εκρηκτικού γεμίματος, εις τα οποία η προωθητική ή τροχιοδεικτική ύλη συμπιέζεται κατά τέτοιο τρόπο ώστε τα είδη να δύνανται να εκραγούν όταν αναφλεγούν.
- 9° Καπνογόνοι μηχανισμοί περιέχοντες χλωρικά (άλατα) ή μεταφέροντες εκρηκτικό γέμισμα ή εκρηκτικό αναφλεκτικό γέμισμα.

Για καπνογόνες ύλες για αγροτικούς και δασικούς σκοπούς, βλέπε Κλάση Ιγ, περιθώριο 2171 27°.

- 10° Διατρητικοί μηχανισμοί περιέχοντες γέμισμα από δυναμίτη ή από εκρηκτική ύλη όμοια με δυναμίτη, μετά πυροσωλήνων και άνευ οιασδήποτε μηχανισμού παράγοντος διαρρηκτικό αποτέλεσμα (π.χ. πυροκροτητή), μηχανισμοί κοίλου-γεμί-

σματος για βιομηχανικούς σκοπούς, περιέχοντες όχι άνω του I KG εκρηκτικής ύλης ασφαλισμένης εντός θήκης, καθ' άνευ πυροκροτητή.

2131  
(Συνεχίζεται)

II<sup>ο</sup> Είδη με εκρηκτικό γέμισμα, είδη με προωθητικό και εκρηκτικό γέμισμα, άπαντα εφοδιασμένα με μηχανισμό παράγοντα διαρρηκτικόν αποτέλεσμα (π.χ. πυροκροτητής), το σύνολο καλώς ασφαλισμένο. Το βάρος κάθε είδους δεν πρέπει να υπερβαίνει τα 25 KG.

## 2.- Διατάξεις

### A.- Κόλα

#### I.- Γενικοί όροι συσκευασίας

2132

(1) Τα είδη συσκευασίας θα είναι έτσι κλεισμένα και στεγανά ώστε να εμποδίζουν την απώλεια του περιεχομένου. Η χρήση μεταλλικών ταινιών ή συρμάτων δεμένων γύρω από τον κόλλο για να εξασφαλίζουν το κλείσιμόν τους επιτρέπεται· η χρήση των είναι υποχρεωτική σε κιβώτια πού έχουν καλύμματα με μεντεσέδες εάν τα καλύμματα δεν είναι εφοδιασμένα με αποτελεσματικό μηχανισμό ώστε να αποφεύγεται οποιαδήποτε χαλάρωση του κλεισίματος.

(2) Τα υλικά από τα οποία τα είδη συσκευασίας και τα κλεισίματά των κατασκευάζονται πρέπει να μη κινδυνεύουν να προσβληθούν από το περιεχόμενό τους ή να σχηματίζουν με αυτό επιβλαβείς ή επικίνδυνες ενώσεις.

(3) Τα είδη συσκευασίας, συμπεριλαμβανομένων των κλεισιμάτων των, πρέπει να είναι σταθερά στερεωμένα στα είδη συσκευασίας των, και τα εσωτερικά είδη συσκευασίας σταθερά στερεωμένα στα εξωτερικά είδη συσκευασίας.

Εκτός εάν αλλιώς ορίζεται στο άρθρο το τιτλοφορούμενο "Συσκευασία εμπορευμάτων του αυτού είδους", τα εσωτερικά είδη συσκευασίας μπορούν να εγληισθούν στα εξωτερικά, είτε ένα-ένα είτε σε ομάδες.

2132  
(Συνεχίζεται)

(4) Το αποσβεστικό υλικό θα ταιριάζει στη φύση του περιεχομένου.

2.- Συσκευασία εμπορευμάτων του αυτού είδους

Είδη της I<sup>ο</sup> θα συσκευάζονται ως εξής:

2133

- (α) είδη της I<sup>ο</sup>(α) και (β): σε ξύλινες συσκευασίες ή σε βαρέλια κατασκευασμένα από αδιαπέραστη ινώδη σανίδα. Το κέλον δεν πρέπει να ζυγίζει πάνω από 120 KG· εν τούτοις, βαρέλι από ινώδη σανίδα δεν πρέπει να ζυγίζει πάνω από 75 KG.
- (β) είδη της I<sup>ο</sup>(γ): ρολλαρισμένα σε μήκη των 250 μ. σε καρούλια από ξύλο ή ινώδη σανίδα. Τα καρούλια θα τοποθετούνται σε ξύλινα κιβώτια κατά τέτοιο τρόπο ώστε να μη μπορούν να έρχονται σε επαφή είτε το ένα με το άλλο είτε με τις πλευρές των κιβωτίων. Το κιβώτιο δεν πρέπει να περιέχει πάνω από 1.000 μ. πυροσωλήνα·
- (γ) είδη της I<sup>ο</sup>(δ): ρολλαρισμένα σε μήκη μέχρι 125 μ. σε καρούλια από ξύλο ή ινώδη σανίδα τα οποία θα συσκευάζονται σε ξύλινα κιβώτια, κλεισμένο με βίδες, και έχον πλευρές πάχους όχι λιγώτερο των 18 MM (χιλ.), κατά τέτοιο τρόπο ώστε τα καρούλια να μη μπορούν να έλθουν σε επαφή είτε το ένα με το άλλο είτε με τις πλευρές του κιβωτίου. Το κιβώτιο δεν πρέπει να πε-



ριέχει πάνω από 1.000 μ. εκρηκτικού πυροσωλήνος στιγ- 2133  
μιαίας ενεργείας. (Συνεχίζε-

ται)

(I) Είδη της 2<sup>ο</sup> θα συσκευάζονται ως εξής:-

- (α) είδη της 2<sup>ο</sup>(α): καψύλλια με ακάλυπτο εκρηκτικό γέμι-  
σμα, όχι πάνω από 500 ανά κυτίο ή μικρό κιβώτιο, και  
καψύλλια με καλυπτομένη εκρηκτική γόμωση, όχι πάνω  
από 5.000 ανά κυτίο ή μικρό κιβώτιο, σε μεταλλικά κυ-  
τία από ινώδη σανίδα ή μικρά ξύλινα κιβώτια. Οι συ-  
σκευασίες αυτές θα τοποθετούνται σε ξύλινο ή μεταλλι-  
κό κιβώτιο συσκευασίας.
- (β) είδη της 2<sup>ο</sup>(β)1: εμπυρευμένοι θάλαμοι φυσιγγίων κεν-  
τρικής κρούσεως, μη γεμισμένοι με προωθητική πυρίτι-  
δα, για πυροβόλα όπλα όλων των διαμετρημάτων, σε κιβώ-  
τια από ξύλο ή ινώδη σανίδα ή σε υφασματένιους σάκκους.
- (γ) είδη της 2<sup>ο</sup>(β)2: εμπυρευμένοι θάλαμοι φυσιγγίων RIM-  
FIRE, μη γεμισμένοι με προωθητική πυρίτιδα, για όπλα  
FLOBERT και πυροβόλα όπλα ομοίων διαμετρημάτων, όχι  
πάνω από 5000 ανά κυτίο, σε κυτία κατασκευασμένα από  
μεταλλικό έλασμα ή ινώδη σανίδα τα οποία θα τοποθετούν-  
ται σε κιβώτιο συσκευασίας κατασκευασμένο από ξύλο ή  
μεταλλικό έλασμα. ~~ε όμωσ~~, οι εμπυρευμένοι αυτοί  
θάλαμοι φυσιγγίων RIM-FIRE μπορούν επίσης να συσκευά-  
ζονται, όχι πάνω από 25.000 ανά σάκκο, σε σάκκο ο  
οποίος θα ασφαρίζεται με κυματοειδή ινώδη σανίδα σε κι-  
βώτιο συσκευασίας κατασκευασμένο από ξύλο ή σίδηρο.
- (δ) είδη της 2<sup>ο</sup>(γ) και (δ): σε κυτία από ινώδη σανίδα,  
ξύλο ή μεταλλικό έλασμα τα οποία θα τοποθετούνται σε

είδη συσκευασίας κατασκευασμένα από ξύλο ή μέταλλο. 2I34

(2) Κόβον περιέχον είδη της 2<sup>ο</sup> (α), (γ) ή (δ) (Συσεχίζε-  
δεν πρέπει να ζυγίζει πάνω από 100 KG. ται)

(I) Είδη της 3<sup>ο</sup> θα συσκευάζονται σε κιβώτια κατα- 2I35  
σκευασμένα από σανίδες πάχους όχι μικρότερου των 18 MM  
(χιλ.), με γλωσσίδι και αυλάκια και συναρμολογούμενα  
με ξύλινες βίδες. Τα σήματα ομίχλης θα ασφαρίζονται σε  
κιβώτια με αποσβεστικό υλικό κατά τέτοιο τρόπο ώστε να  
μη μπορούν να έρχονται σε επαφή είτε το ένα με το άλλο  
είτε με τις πλευρές του κιβωτίου.

(2) Το κόβον δεν πρέπει να ζυγίζει πάνω από 50KG.

(I) Είδη της 4<sup>ο</sup> (α), (β) και (ε) θα τοποθετούνται 2I36  
σφικτά σε σταθερά κλεισμένα κυτία κατασκευασμένα από  
έλασμα, ξύλο ή ινώδη σανίδα· τα κυτία αυτά θα τοποθε-  
τούνται, χωρίς κενά διαστήματα, σε κιβώτια συσκευασίας  
κατασκευασμένα από μέταλλο, ξύλο, σκληρή σανίδα, στερεά  
ινώδη σανίδα ή κυματοειδή ινώδη σανίδα· η ινώδης σανίδα  
πρέπει να έχει γίνει αδιαπέραστη δι'εμποτισμού και να  
να είναι επαρκούς μηχανικής αντοχής.

Κιβώτια από ινώδη σανίδα θα κλείνονται με κολ-  
λητικές ταινίες επαρκούς αντοχής. Το μοντέλο παραγωγής  
κιβωτίων κατασκευαζομένων από στερεά ινώδη σανίδα ή κυ-  
ματοειδή ινώδη σανίδα πρέπει να εγκριθεί από την αρμόδια  
αρχή της χώρας της αναχώρησης.

(2) Είδη της 4<sup>ο</sup> (γ) και (δ) θα τοποθετούνται, όχι  
πιο πάνω των 400 ανά κυτίο, σε κυτία κατασκευασμένα από μεταλ-  
λικό φύλλο (έλασμα), ξύλο ή ινώδη σανίδα· τα κυτία αυτά

θα συσκευάζονται ασφαλώς σε κιβώτια συσκευασίας κατασκευασμένα από μέταλλο ή ξύλο.

2136  
(Συνεχίζεται)

(3) Το κέλον δεν πρέπει να ζυγίζει πάνω από 100 KG. ε  $\theta \mu \omega \varsigma$ , όπου χρησιμοποιούνται κιβώτια από Χάρντμπόρντ (HARDBOARD) ή ινοσανίδα, το κέλον το περιέχον είδη της 4(α), (β) ή (ε) δεν πρέπει να ζυγίζει πάνω από 40 KG.

(I) Είδη της 5<sup>ο</sup> θα συσκευάζονται ως κάτωθι:-

2137

(α) είδη της 5<sup>ο</sup>(α): όχι άνω των 100 ανά δοχείον προκειμένου περί πυροκροτητών και όχι άνω των 50 ανά δοχείον προκειμένου περί συνδετικών τεμαχίων, σε δοχεία, κατασκευασμένα από έλασμα ή αδιαπέραστη ινοσανίδα, όπου και θα προστατεύονται καλώς κατά της αναφλέξεως και θα ασφαρίζονται με αποσβεστικό υλικό. Δοχεία από έλασμα (φύλλο-μετάλλου) θα επενδύονται με εύκαμπτο υλικό. Τα καλύμματα θα ασφαρίζονται γύρω-γύρω με κολλητικές ταινίες. Τα δοχεία, όχι άνω των 5 ανά πακέτο ή κυτίο προκειμένου περί πυροκροτητών και όχι άνω των 10 ανά πακέτο ή κυτίο προκειμένου περί συνδετικών τεμαχίων, θα κλείνονται σε πακέτο ή τοποθετούνται σε κυτίο από ινοσανίδα. Τα πακέτα ή κυτία θα συσκευάζονται σε ξύλινο κιβώτιο κλεισμένο με βίδες και με πλευρές πάχους όχι μικροτέρου των 18 MM (χιλ.). ή σε είδος συσκευασίας από φύλλο-μετάλλου, του είδους τούτου συσκευασίας ή του κιβωτίου ασφαλιζόμενων με αποσβεστικό υλικό σε κιβώτιο συσκευασίας με πλευρές όχι μικροτέρου πάχους των 18 MM (χιλ.)

κατά τέτοιο τρόπο ώστε να υπάρχει διάστημα όχι μι- 2137  
κρότερο των 3 CM γεμισμένο με αποσβεστικό υλικό (Συνεχίζε-  
σε όλα τα σημεία μεταξύ του ξυλίνου κιβωτίου ή της ται)  
συσκευασίας εκ φύλλου-μετάλλου και του κιβωτίου συ-  
σκευασίας.

(β) είδη της 5<sup>ο</sup>(β): όχι άνω των 100 ανά πακέτο, σε πακέτα  
με εναλλάξ πυροκροτητές κείμενους προς τα αντίθετα  
άκρα του πακέτου. Όχι περισσότερα των 10 τούτων θα  
δένονται μαζί για να σχηματίζουν ένα συλλογικό πακέ-  
το. Όχι περισσότερα των πέντε συλλογικών τούτων πα-  
κέτων θα ασφαρίζονται με αποσβεστικό υλικό σε ξύλινο  
κιβώτιο συσκευασίας με πλευρές πάχους όχι μικρότερου  
των 18 MM (χιλ.), ή σε συσκευασία από φύλλο-μετάλλου  
κατά τέτοιο τρόπο ώστε να περιέχεται ένα διάστημα  
όχι μικρότερο των 3 CM γεμισμένο με αποσβεστικό υ-  
λικό σε όλα τα σημεία μεταξύ των συλλογικών πακέτων  
και του κιβωτίου συσκευασίας ή της συσκευασίας από  
φύλλο-μετάλλου.

(γ) είδη της 5<sup>ο</sup>(γ): πυροσωλήνες εφοδιασμένοι με πυροκρο-  
τητήρες, ρολλαρισμένοι σε πηνία· όχι άνω των 10 πη-  
νίων θα γίνονται ρολλό το οποίο θα τυλίγεται με χαρ-  
τί. Όχι περισσότεροι των 10 ρόλλοι θα ασφαρίζονται  
με αποσβεστικό υλικό σε μικρό ξύλινο κιβώτιο κλει-  
σμένο με βίδες και με πλευρές/πάχους όχι μικρότερου των 18  
MM (χιλ.) κατά τέτοιο τρόπο ώστε να υπάρχει διάστη-  
μα όχι μικρότερο των 3 CM γεμισμένο με αποσβεστικό  
υλικό σε όλα τα σημεία μεταξύ των μικρών κιβωτίων

και του κιβωτίου της συσκευασίας\*

2137

(δ) είδη της 5<sup>ο</sup>(δ):

(Συνεχίζε-  
ται)

1.- όχι άνω των 100 πυροκροτητών ανά κιβώτιο, σε ξύλινα κιβώτια με πλευρές πάχους όχι μικρότερου των 18 MM (χιλ.), κατά τέτοιο τρόπο ώστε οι πυροκροτητές να χωρίζονται μεταξύ τους όχι λιγώτερο από 1 CM καθώς και από τις πλευρές του κιβωτίου. Οι αντίστοιχες πλευρές θα είναι ματισμένες και ο πυθμ~~ός~~<sup>ός</sup> και το κάλυμμα θα ασφαλιζονται με βίδες. Εάν το κιβώτιο είναι επενδεδυμένο με φύλλο ψευδαργύρου ή φύλλο αλουμινίου, πλευρικό πάχος 16 MM (χιλ.) είναι επαρκές. Το κιβώτιο θα ασφαλιζεται με αποσβεστικό υλικό σε κιβώτιο συσκευασίας με πλευρές πάχους όχι μικρότερου των 18 MM (χιλ.) κατά τέτοιο τρόπο ώστε να υπάρχει ένα διάστημα όχι μικρότερο των 3 CM γεμισμένο με αποσβεστικό υλικό σε όλα τα σημεία μεταξύ αυτού και του κιβωτίου συσκευασίας\* ή

2.- όχι άνω των 5 πυροκροτητών ανά κυτίον; σε κυτία από φύλλο-μετάλλου, των πυροκροτητών τοποθετημένων εις αυτά εντός ξυλίνων πλαισίων από λεπτές λωρίδες ξύλου ή εντός διατρήτων τεμαχίων ξύλου. Το κάλυμμα θα ασφαλιζεται γύρω-γύρω με κολλητικές ταινίες. Όχι περισσότερα των 20 κυτίων από φύλλο-μετάλλου θα τοποθετούνται σε κιβώτιο συσκευασίας με πλευρές πάχους όχι μικρότερου των 18 MM (χιλ.)\*

(ε) είδη της 5<sup>ο</sup>(ε): όχι άνω των 50 ανά κιβώτιο, σε ξύλινα

κιβώτια με πλευρές πάχους όχι μικρότερου των 18 MM 2137  
 (χιλ.). Τα είδη θα ασφαρίζονται εντός των κιβωτίων (Συνεχίζε-  
 ται)  
 δσα ξυλίνου κατασκευάσματος κατά τέτοιο τρόπο ώστε  
 να χωρίζονται όχι λιγώτερο του 1 CM μεταξύ των και  
 από τις πλευρές του κιβωτίου. Οι πλευρές του κιβωτίου  
 θα είναι ματισμένες και ο πυθμ~~ήν~~ και το κάλυμμα θα α-  
 ασφαρίζονται με αποσβεστικό υλικό σε κιβώτιο συσκευα-  
 σίας με πλευρές πάχους όχι μικρότερου των 18 MM (χιλ.)  
 κατά τέτοιο τρόπο ώστε να υπάρχει ένα διάστημα όχι μι-  
 κρότερο των 3 CM (εκ.) γεμισμένο με αποσβεστικό υλικό  
 σε όλα τα σημεία μεταξύ των κιβωτίων και του κιβωτίου  
 συσκευασίας. Το διάστημα μπορεί να μειωθεί όχι λιγώτε-  
 ρο του 1 CM (εκ.) εάν γεμισθεί με πλάκες από πορώδη ξύ-  
 λινη ίνα. Εάν τα είδη συσκευασθ~~ών~~ επί μέρους (ατομικά)  
 και έχουν σταθερά στερεωθεί σε ερμητικώς κλείνοντα κυ-  
 τία κατασκευασμένα από φύλλο μετάλλου ή πλαστική ύλη,  
 μπορούν να τοποθετηθούν σε ξύλινο κιβώτιο συσκευασίας  
 με πλευρές πάχους όχι μικρότερου των 18 MM (χιλ.). Τα  
 είδη πρέπει να χωρίζονται μεταξύ των και να έχουν στα-  
 θερά ασφαλισθεί με πλάκες από ινώδη σανίδα ή ξύλινη ίνα.  
 (ατ) είδη της 5<sup>ο</sup> (στ):

I.- όχι άνω των 50 ανά κιβώτιο, σε ξύλινα ή μεταλλικά  
 κιβώτια: στα κιβώτια αυτά κάθε εκρηκτικό τμήμα  
 του "BOUCHON ALLUMEUR" (πυροκροτητού με καψύλλιο  
 κρούσεως) θα έχουν έτσι τακτοποιηθεί σε ξύλινο με  
 εγχοπές υποστήριγμα ώστε η απόστασις μεταξύ των  
 γειτνιαζόντων πυροκροτητών και μεταξύ των εξω-

έξω πυροκροτητών "BOUCHONS ALLUMEURS" και της 2I37 πλευράς του κιβωτίου δεν είναι μικρότερη των 2 CM (εκ.)· κλείνοντας το κάλυμμα του κιβωτίου θα εξασφαλίζεται πλήρης ακινησία του συνόλου· όχι περισσότερα των 3 κιβωτίων θα τοποθετούνται, μη αφήνοντας κενά διαστήματα, σε ξύλινο κιβώτιο συσκευασίας με πλευρές πάχους όχι μικρότερου των 18 MM (χιλ.)· ή

- 2.- σε κυτία κατασκευασμένα από ξύλο ή μέταλλο· στα κυτία αυτά κάθε "BOUCHON ALLUMEUR" θα υποστηρίζεται από πλαίσιο κατά τρόπο ώστε η απόσταση μεταξύ δύο "BOUCHON ALLUMEURS" και μεταξύ ενός "BOUCHON ALLUMEUR" και της πλευράς του κυτίου να μην είναι μικρότερη των 2 CM (εκ.) και να εξασφαλίζεται η ακινησία του συνόλου· τα κυτία αυτά θα τοποθετούνται σε κιβώτιο συσκευασίας με πλευρές πάχους όχι μικρότερου των 18 MM (χιλ.) κατά τέτοιο τρόπο ώστε να υπάρχει διάστημα όχι μικρότερο των 3 CM (εκ.) γεμισμένο με απορροστικό υλικό σε όλα τα σημεία μεταξύ των κυτίων και μεταξύ των κυτίων και του κιβωτίου συσκευασίας· το κέλυφος δεν πρέπει να περιέχει περισσότερα από 150 "BOUCHON ALLUMEURS".

(2) Το κάλυμμα του κιβωτίου συσκευασίας θα κλείνει με βίδες ή μεντεσέδες και πτυσσόμενες ράβδους/μπάρες.

(3) Κάθε κέλυφος περιέχον είδη της 5<sup>ο</sup> θα είναι εφοδιασμένο με κλείσιμο προστατευόμενο είτε από μολυβδένιες

είτε άλλες σφραγίδες επί δύο κεφαλών κοχλίου εις τα άκρα 2I37  
του κυρίου άξονος του καλύμματος ή των πτυσσομένων ρά- (Συνεχίζε-  
βδων, είτε από λωρίδα, φέρουσα το εμπορικό σήμα, κολλη-  
ται)  
μένη με γόμμα στο κάλυμμα και στις δύο αντίθετες πλευρές  
του κιβωτίου.

(4) Το κδλον δεν πρέπει να ζυγίζει πάνω από 75KG·  
κδλα ζυγίζοντα πάνω από 30 KG θα είναι εφοδιασμένα με χει-  
ρολαβές.

(I) Είδη της 6<sup>ο</sup> θα ρολλαρισθούν χωριστά σε χαρτί 2I38  
και θα τοποθετηθούν σε περιτυλίγματα κυματοειδούς ινοσανί-  
δας. Θα συσκευασθούν όχι περισσότερα των 25 ανά κυτίο, σε  
κυτία από ινοσανίδα ή φύλλο μετάλλου. Τα καλύμματα θα σαφα-  
λίζονται γύρω-γύρω με κολλητικές ταινίες. Όχι πάνω από  
20 κυτία θα τοποθετούνται σε ξύλινο κιβώτιο συσκευασίας.

(2) Το κδλον δεν πρέπει να ζυγίζει πάνω από 50KG.  
Κδλα ζυγίζοντα άνω των 30 KG θα είναι εφοδιασμένα με χειρο-  
λαβές.

(I) Είδη της 7<sup>ο</sup> θα συσκευάζονται σε ξύλινα κι- 2I39  
βώτια κλεισμένα με βίδες ή μεντεσέδες και πτυσσομένες ρά-  
βδους (μπάρες) και με πλευρές πάχους όχι μικρότερου των  
16 MM (χιλ.), ή σε δοχεία κατασκευασμένα από μέταλλο ή  
κατάλληλη πλαστική ύλη επαρκούς αντοχής. Τα καλύμματα και  
οι πυθμένες των ξυλίνων κιβωτίων μπορούν επίσης να κατα-  
σκευάζονται από πολύ πεπιεσμένη χαρτοσανίδα με πλευρές ι-  
σης αντοχής. Είδη ζυγίζοντα άνω των 20 KG μπορούν επίσης  
να προωθούνται σε σκελετοκιβώτια ή χωρίς συσκευασία.

(2) Το κδλον δεν πρέπει να ζυγίζει πάνω από



100 KG εάν περιέχει είδη καθέβα των οποίων το περιεχόμε- 2139  
νον ζυγίζει πάνω από 30 KG θα είναι εφοδιασμένα με χει- (Συνεχίζε-  
ρολαβές. ται.)

(1) Είδη της 8<sup>ο</sup> θα συσκευάζονται σε ξύλινα κιβώ- 2140  
τια, σε βαρέλια από ινοσανίδα η οποία έχει καταστεί αδια-  
πέραστη, ή σε δοχεία μεταλλικά ή από κατάλληλη πλαστική  
ύλη επαρκούς αντοχής. Η κεφαλή αναφλέξεως θα προστατεύε-  
ται κατά τέτοιο τρόπο ώστε να αποφεύγεται οποιαδήποτε δια-  
σπορά του γεμίσματος από το είδος.

(2) Το κδλον δεν πρέπει να ζυγίζει πάνω από 100KG\*  
Ομως, ε'τσι χρησιμοποιούνται βαρέλια από ινοσανί-  
δα, το κδλον δεν θα ζυγίζει πάνω από 75 KG. Κιβώτια των  
οποίων το περιεχόμενον ζυγίζει πάνω από 30 KG θα είναι  
εφοδιασμένα με χειρολαβές.

Είδη της 9<sup>ο</sup> θα κλείνονται σε ξύλινα είδη συ- 2141  
σκευασίας. Το κδλον δεν πρέπει να ζυγίζει πάνω από 75KG\*  
κδλα ζυγίζοντα πάνω από 30 KG θα είναι εφοδιασμένα με  
χειρολαβές.

Είδη της 10<sup>ο</sup> θα συσκευάζονται σε ξύλινα κι- 2142  
βώτια. Κδλα ζυγίζοντα πάνω από 30 KG θα είναι εφοδιασμένα  
με χειρολαβές.

Είδη της 11<sup>ο</sup> θα συσκευάζονται ως εξής : 2143  
(α) είδη διαμέτρου μικρότερας των 13.2 MM (χιλ.): όχι  
περισσότερα των 25 ανά κυτίο, συσκευασμένα σφικτά  
σε κυτία από ινοσανίδα κλείνοντα σταθερά σε δοχεία  
κατασκευασμένα από κατάλληλη πλαστική ύλη επαρκούς  
αντοχής\* τα κυτία αυτά ή δοχεία θα τοποθετούνται,

χωρίς άδεια διαστήματα, σε ξύλινο κιβώτιο, με πλευ- 2143  
ρές πάχους όχι μικρότερου των 18 MM (χιλ.), το ο- (Συνεχίζεται)  
ποίο μπορεί να έχει επενδυθεί με πλάκες-κασσοτέ-  
ρου, φύλλο ψευδαργύρου ή φύλλο αλουμινίου, ή με κα-  
τάλληλη πλαστική ύλη· επαρκούς αντοχής.

Το κόλον δεν πρέπει να ζυγίζει πάνω από  
60KG. Κόλα ζυγίζοντα πάνω από 30 KG θα είναι εφοδιασμέ-  
να με χειρολαβές.

(β) είδη διαμέτρου από 13.2 MM (χιλ.) μέχρι 57 MM (χιλ.):

I.- χωριστά

σε σωλήνα κατασκευασμένον από ινοσανίδα ή από  
κατάλληλη πλαστική ύλη, γερδόν, εφαρμοστόν, κλει-  
νοντα γερά και στα δύο άκρα· ή

σε σωλήνα κατασκευασμένον από ινοσανίδα ή κατάλ-  
ληλη πλαστική ύλη, γερδόν, εφαρμοστόν, κλεισμένον  
στο ένα άκρο και ανοικτόν στο άλλο· ή

σε σωλήνα κατασκευασμένον από ινοσανίδα ή κατάλ-  
ληλη πλαστική ύλη, ανοικτόν, και στα δύο άκρα  
αλλά με εσωτερική προεξοχή ή άλλον κατάλληλον  
εσωτερικόν μηχανισμόν ώστε να αποδεύγεται η μετα-  
κίνηση του είδους.

Συσκευασμένα κατά τον τρόπο αυτόν, όχι πε-  
ρισσότερα από:-

300 είδη διαμέτρου όχι μικρότερης των 13.2 MM (χιλ.)

και όχι μεγαλύτερης των 21 MM (χιλ.)· ή

60 είδη διαμέτρου άνω των 21 MM (χιλ.), αλλά όχι

άνω των 37 MM (χιλ.)· ή

25 είδη διαμέτρου μεγαλύτερης των 37 MM (χιλ.) 2I43  
αλλά όχι μεγαλύτερης των 57 MM (χιλ.) θα το- (Συνεχίζε-  
ποθετούνται σε στρώματα σε ξύλινο κιβώτιο με ται)  
πλευρές πάχους όχι μικρότερου των 18 MM (χιλ.),  
το δε ξύλινο κιβώτιο θα είναι επενδεδυμένο  
με πλάκα κασιτέρου, φύλλο ψευδαργύρου, ή  
φύλλο αλουμινίου.

Προκειμένου περί ειδών συσκευασμένων σε σωλήνες  
ανοικτές και στα δύο άκρα ή στο ένα, το κιβώτιο της συ-  
σκευασίας θα είναι επενδεδυμένο στη πλευρά ή στις πλευ-  
ρές που γειτνιάζουν με τα ανοικτά άκρα των σωλήνων με  
φύλλα πιλήματος πάχους όχι μικρότερου των 7 MM (χιλ.)  
ή με φύλλο του αυτού πάχους διπλής όψεως κυματοειδούς  
ινοσανίδος ή ομοίου υλικού.

Το κέλον δεν πρέπει να ζυγίζει πάνω από 100 KG.  
Κόλα ζυγίζοντά πάνω από 30 KG θα είναι εφοδιασμένα  
με χειρολαβές.

- 2.- είδη διαμέτρου 20 MM (χιλ.) μπορούν επίσης να συσκευά-  
ζονται, όχι περισσότερα των 10 ανά κυτίον, σε γερά κυ-  
τία από ινοσανίδα επενδεδυμένα με κηρόν παραφίνης και  
εφοδιασμένα με κυψελοειδές κάτω παρέμβλημα και με χω-  
ρίσματα από ινοσανίδα επιχρισμένη με κηρόν παραφίνης.  
Τα κυτία θα κλείνονται με κομμωμένη δικλείδα (κλαπέτο).  
Όχι περισσότερα των 30 κυτίων θα συσκευάζονται σφικτά  
σε ξύλινο κιβώτιο με πλευρές πάχους όχι μικρότερου των  
18 MM (χιλ.), το δε ξύλινο κιβώτιο θα είναι επενδεδυμέ-  
νο με φύλλο ψευδαργύρου, πλάκα κασιτέρου ή φύλλο α-  
λουμινίου.

Το κόλον δεν πρέπει να ζυγίζει πάνω από 100KG. 2143  
Κόλα ζυγίζοντα πάνω από 30 KG θα είναι εφοδιασμένα με (Συνεχίζε-  
χειρολαβές. ται)

- 3.- είδη διαμέτρου όχι μεγαλύτερας των 30 MM (χιλ.) μπο-  
ρούν, σε αριθμό μη υπερβαίνοντα τον αναφερόμενον υπό  
στοιχείον I., ανωτέρω, να τοποθετούνται επίσης σε ται-  
νίες και συσκευάζονται σε γερό χαλύβδινο δοχείο. Το  
δοχείο αυτό μπορεί να είναι κυλινδρικό.

Τα είδη αυτά τοποθετημένα σε ταινίες θα περ-  
βάλλονται από κατάλληλο μηχανισμό ώστε να αποτελούν συμ-  
παγή μονάδα και να αποφεύγεται η απόσπαση του καθενός των  
ειδών. Μία ή περισσότερες μονάδες θα στερεώνονται στο  
δοχείο κατά τέτοιο τρόπο ώστε να μη μετατοπίζονται.

Τα άκρα των ειδών των τοποθετημένων σε ταινίες  
θα ακουμπούν πάνω σε αντικραδατικά μη μεταλλικά υπο-  
στηρίγματα.

Το κάλυμμα του δοχείου πρέπει να κλείνει κατά  
τρόπον στεγανόν και να ασφαρίζεται με μηχανισμόν ασφαλί-  
σεως δυνάμενον να σφραγισθεί ώστε τα είδη να μη μπορούν  
να πέσουν.

Το κόλον δεν πρέπει να ζυγίζει πάνω από 100KG.  
Κόλα ζυγίζοντα πάνω από 30 KG θα είναι εφοδιασμένα με  
χειρολαβές. Υποδοχείς ικανοί να ρολλαρισθούν θα έχουν  
τα καπάκια τους εφοδιασμένα με γερή χειρολαβή ώστε να  
μπορούν να μεταφερθούν.

- 4.- είδη διαμέτρου όχι μικρότερης των 30 MM (χιλ.) και όχι  
μεγαλυτέρας των 57 MM (χιλ.) μπορούν επίσης να συσκευά-

ζονται χωριστά σε γερό, εφαρμοστό, ερμητικά-κλει-  
 σμένο κυλινδρικό κυτίο κατασκευασμένο από ινώδη  
 σανίδα, ίνα ή κατάλληλη πλαστική ύλη. Όχι περισ-  
 σότερα των 40 των κυτίων αυτών θα τοποθετούνται σε  
 στρώματα σε ξύλινο κιβώτιο με πλευρές πάχους όχι  
 μικρότερου των 18 MM (χιλ.)

2143  
 (Συνεχίζεται)

Το κόλον δεν πρέπει να ζυγίζει πάνω από 100KG.  
 Κόλα ζυγίζοντα πάνω από 30 KG θα είναι εφοδιασμένα  
 με χειρολαβές.

- (γ) λοιπά είδη της II<sup>ο</sup>: σύμφωνα με τις διατάξεις του περι-  
 θωρίου 2139(I). Το κόλον δεν πρέπει να ζυγίζει πάνω  
 από 100 KG. Κόλα ζυγίζοντα πάνω από 30 KG πρέπει να εί-  
 ναι εφοδιασμένα με χειρολαβές.

Σημείωση: - Προκειμένου περί ειδών περιεχόντων  
 τόσον προωθητικόν όσον και εκρηκτικόν γέμισμα,  
 η διάμετρος εις την οποίαν αναφερόμεθα είναι  
 εκείνη του κυλινδρικού τμήματος του περιέχοντος  
 το εκρηκτικό γέμισμα.

### 3.- Μικτή συσκευασία

(I) Είδη αναφερόμενα υπό αριθμόν είδους του περι- 2144  
 θωρίου 2131 μπορούν να μη συμπεριλαμβάνονται στο αυτό κό-  
 λον είτε με είδη-διαφόρου είδους αλλά του αυτού αριθμού  
 είδους, είτε με είδη άλλου αριθμού είδους του ανωτέρω περι-  
 θωρίου, είτε με ύλες ή είδη ανήκοντα σε άλλες Κλάσεις, είτε  
 με άλλα εμπορεύματα.

(2) Τά παρακάτω, όμως, είδη μπορούν να συμπεριλαμ-  
 βάνονται στο αυτό κόλον:-

(α) είδη της I<sup>ο</sup>, μεταξύ των.

2I44

Όταν είδη της I<sup>ο</sup>(α) και (β) συμπεριληφθούν στο αυτό κώλον, θα συσκευάζονται σύμφωνα με το περιθώριο 2I33(α). (Συνεχίζεται)

Όταν είδη της I<sup>ο</sup>(γ) συμπεριληφθούν στο αυτό κώλον με είδη της I<sup>ο</sup>(α) ή (β) ή αμφότερα, τα είδη της I<sup>ο</sup>(γ) θα συσκευάζονται σύμφωνα με τις διατάξεις τις ισχύουσες γι' αυτά και η εξωτερική συσκευασία θα είναι η προβλεπομένη για είδη της I<sup>ο</sup>(α) ή (β). Το κώλον δεν πρέπει να ζυγίζει πάνω από 120 KG.

(β) είδη της 2<sup>ο</sup>(α) με εκείνα της 2<sup>ο</sup>(β), υπό τον όρον ότι αμφότερα περιέχονται σε εσωτερικά είδη συσκευασίας αποτελούμενα εκ κυτίων τοποθετημένων σε ξύλινα κιβώτια. Το κώλον δεν πρέπει να ζυγίζει πάρα πάνω από 100 KG.

(γ) είδη της 4<sup>ο</sup>, μεταξύ των, λαμβανομένων υπόψει των διατάξεων για εσωτερικά είδη συσκευασίας, εντός ξυλίνου εσωτερικής συσκευασίας. Το κώλον δεν πρέπει να ζυγίζει πάνω από 100 KG.

(δ) είδη της 7<sup>ο</sup> με εκείνα της 5<sup>ο</sup>(α), (δ), (ε) και (στ), υπό τον όρον ότι η συσκευασία των τελευταίων τούτων εμποδίζει την μετάδοσιν πιθανής εκτυρσοκροτήσεως στα είδη της 7<sup>ο</sup>. Σε ένα κώλον, ο αριθμός των ειδών 5<sup>ο</sup>(α), (δ), (ε) και (στ) πρέπει να είναι ο αυτός με εκείνον των ειδών 7<sup>ο</sup>. Το κώλον δεν πρέπει να ζυγίζει περισσότερο από 100 KG.

4.- Μαρκάρισμα και ετικέτες κινδύνου πάνω στα κώλα

(βλέπε Προσθήκη Α.9)

Κόδα περιέχοντα είδη της Κλάσεως Ιβ θα φέ- 2Ι45  
ρουν ετικέτα σύμφωνον με το μοντέλο Νο.Ι. Όμως... ,  
κόδα περιέχοντα είδη της Ι<sup>ο</sup>(δ), 5<sup>ο</sup> και 6<sup>α</sup> θα φέρουν  
δύο ετικέτες σύμφωνες προς το μοντέλο Νο.Ι.

2Ι46

Β.- Λεπτομέρειες (στοιχεία) του εγγράφου της μεταφοράς

(Ι) Η περιγραφή των εμπορευμάτων στο έγγραφο μετα- 2Ι47  
φοράς πρέπει να συμφωνεί με μίαν των ονομασιών των υπο-  
γραμμισμένων στο περιθώριο 2Ι3Ι· πρέπει να έχει κθκκινη  
υπογράμμιση και να ακολουθείται από λεπτομέρειες (στοι-  
χεία) της κλάσεως, τον αριθμό του είδους, μαζί με το,  
τυχόν, γράμμα, και τα αρχικά "ADR" ή "RID" (π.χ., Ιβ 2<sup>ο</sup>(α),  
ADR).

(2) Τα παρακάτω πρέπει να βεβαιώνονται στο έγ-  
γραφο της μεταφοράς:-

"Η φύση των εμπορευμάτων, και το είδος συσκευασίας  
συμφωνούν με τις διατάξεις της ADR".

2Ι48-

2Ι62

Γ.- Κενά είδη συσκευασίας

Καμμία διάταξη.

2Ι63

2Ι64-

2Ι69

ΚΛΑΣΗ Ιγ.- ΑΝΑΦΛΕΚΤΗΡΕΣ, ΠΥΡΟΤΕΧΝΗΜΑΤΑ  
ΚΑΙ ΠΑΡΟΜΟΙΑ ΕΜΠΟΡΕΥΜΑΤΑ

Ι.- Κατάλογος εμπορευμάτων

(Ι) Μεταξύ των υλών και των ειδών των καλυπτομέ- 2Ι70  
νων υπό τον τίτλον της Κλάσεως Ιγ, μόνον τα αναγραφόμενα  
στο περιθώριο 2Ι7Ι θα γίνονται δεκτά για μεταφορά, και  
τότε μόνον υπό την επιφύλαξη των διατάξεων του παρόντος  
Παραρτήματος και του Παραρτήματος Β. Αυτές οι ύλες και  
είδη που πρόκειται να γίνουν δεκτά για μεταφορά υπό ωρι-  
σμένους όρους θα θεωρούνται ως ύλες και είδη της ΑDR.

(2) Τα είδη που πρόκειται να γίνουν δεκτά πρέπει  
να πληρούν τους παρακάτω όρους:-

- (α) Το εκρηκτικό γέμισμα θα συγκροτείται, τακτοποιείται  
και δεανέμεται κατά τοιούτον τρόπον ώστε ούτε η τρι-  
βή, το κούνημα ή κρούση, ακόμη και η ανάφλεξη των συ-  
σκευασμένων ειδών να μπορούν να οδηγήσουν σε μία έκ-  
ρηξη του όλου περιεχομένου του κδλου.
- (β) λευκός ή κίτρινος φωσφόρος μπορεί να μη χρησιμοποιεί-  
ται εκτός με είδη της 2<sup>ο</sup> και 20<sup>ο</sup>.
- (γ) η εκρηκτική σύνθεση των πυροτεχνημάτων (2Ι<sup>ο</sup>-24<sup>ο</sup>),  
μαγνησίου (26<sup>ο</sup>) και οι καπνογόνας συνθέσεις των πα-  
ρασιτοκτόνων (27<sup>ο</sup>), δεν πρέπει να περιέχουν χλωρικά  
άλατα.
- (δ) το εκρηκτικό γέμισμα πρέπει να πληροί τους όρους στα-  
θερότητας της Προσθήκης Α.Ι, περιθώριο 3ΙΙΙ.

Α.- Αναφλεκτήρες:

2Ι7Ι

- Ι<sup>ο</sup> (α) Πυρεία ασφαλείας (με βάση χλωρικού καλίου και  
θείου.



(β) πυρεια με βασιν χλωρικού καλίου και υποθειούχου φωσφόρου (σεσικισουλφίδιο του φωσφόρου), ως και αναφλεκτήρες τριβής. 2171

2° Ταινίες εμπυρίων για φανούς ασφαλείας και ταινίες εμποτισμένων σε κηρό παραφίνης εμπυρίων για φανούς ασφαλείας. 1.000 εμπύρια δεν πρέπει να περιέχουν ειρηκτικό πάνω από 7.5 γραμμάρια.

Για ταινίες καφυλλίων, βλέπε 15°.

3° Πυροσωλήνες βραδείας-καύσεως (πυροσωλήνες αποτελούμενοι από λεπτό αδιαπέραστο σωλήνα με στενό τμήμα πυρήνος μελανής πυρίτιδος).

Για άλλους πυροσωλήνες, βλέπε Κλάσιν Ιβ, 1° (περιθώριο 2131).

4° Νήμα πυροκυλίνης (PYROXIN THREAD) (βαμβακόνημα εμπλουτισμένο με άζωτο). Βλέπε επίσης Προσθήκη Α:Ι, περιθώριο 3101.

5° Σωληνωτοί αναφλεκτήρες ("LANCES D'ALLUMAGE") (σωλήνες από ινοσανίδα, περιέχοντες μικρή ποσότητα συνθέσεως πυροσωλήνος εξ οξυγονοποιημένων υλών και οργανικών υλών και, πιθανόν, εξ αρωματικών συνθέσεων εμπλουτισμένων με άζωτο) και καφύλλια θερμότη με δισκία αναφλεκτήρων.

6° Αναφλεκτήρες ασφαλείας για πυροσωλήνες (φυσίγγια από χαρτί περιέχοντα εμπύριον διαπερασμένο με νήμα (φύτελι) προοριζόμενον να προκαλέσει τριβήν, ή σκάονγ, ή παρόμοιους μηχανισμούς).

7° (α) Ηλεκτρικά εμπύρια χωρίς πυροκροτητή.

(β) δισκία για ηλεκτρικά εμπύρια.

2171  
(Συνεχίζεται)

8<sup>ο</sup> Ηλεκτρικοί αναφλεκτήρες (π.χ. αναφλεκτήρες προοριζόμενοι για ανάφλεξη φωτογραφικού μαγνησίου). Το γέμισμα του καθενός τούτων δεν πρέπει να υπερβαίνει τα 30 KG ούτε να περιέχει πάνω από 106τμκ εκατόν βροντώδη υδράργυρο.

Σημείωση:- Συσκευές τύπου ηλεκτρικού λαμπτήρος παράγουν ξαφνικό φως και περιέχουν γέμισμα αναφλέξεως όμοιο με εκείνο των ηλεκτρικών αναφλεκτών δεν υπόκεινται στις διατάξεις της ADR.

B.- Πυροτεχνικά είδη και παιγνίδια:- καψύλλια και (ταινίες) καψυλλίων: εκρηκτικά είδη\*

9<sup>ο</sup> Πυροτεχνικά είδη εσωτερικού (π.χ. Κύλινδροι BOSCO, βόμβες κονφετί, κοτιγιδόν). Είδη με βάση εμπλουτισμένο με άζωτο βάμβακα (κολλοδιοβάμβακας) δεν πρέπει να περιέχουν περισσότερο από 1 γραμμάρια ανά είδος.

10<sup>ο</sup> Εκρηγνυόμενα κουφέτα (μπομπόνια), λουλουδο-κροτίδες, ταινίες εμπλουτισμένες με αζωτούχο χαρτί (κολλοδιοχαρτο).

11<sup>ο</sup> (α) Εκρηγνυόμενα μπιζέλια, εκρηγνυόμενες βομβίδες και λοιπά όμοια πυροτεχνικά παιγνίδια περιέχοντα βροντώδη άργυρο\*

(β) εκρηγνυόμενα πυρεία (σπίρτα)\*

(γ) εξαρτήματα με βροντώση άργυρο.

προστίθεται ότι:- στα ανωτέρω (α), (β) και (γ):-

1.000 είδη δεν πρέπει να περιέχουν πάνω από 2.5 γραμμάρια βροντώδη άργυρο.

- Ι2° Ειρηνητικά χαλίκια, το καθένα μεταφέρων, εξωτερικά, 2171  
γέμισμα ειρηνητικής ύλης πλην κροτικού άλατος όχι (Συνεχίζεται)  
πάνω από 3 γραμμάρια.
- Ι3° Πυροτεχνικά πυρεία (π.χ. Βεγγαλικά πυρεία, πυρεία  
χρυσής βροχής, ή πυρεία CASCADE-OF-FLOWERS).
- Ι4° Μαγικά κεριά χωρίς κεφαλές αναφλέξεως.
- Ι5° Καψύλλια για παιδικά παιχνίδια, ταινίες καψυλλίων  
και ελατήρια καψυλλίων.  
Ι.000 καψύλλια δεν πρέπει να περιέχουν πάνω από 7.5  
γραμμάρια ειρηνητικής ύλης ελευθέρως από κροτικό άλας.  
Για ταινίες καψυλλίων για φανούς ασφαλείας,  
βλέπε 2°.
- Ι6° Ειρηνητικοί φελλοί με ειρηνητικό γέμισμα έχουν βάση  
φωσφόρου και χλωρικού άλατος ή με γέμισμα κροτικού  
άλατος ή ομοίας συνθέσεως πεπιεσμένο σε φυσίγγια  
κάρντ-μπόρντ. Ι.000 φελλοί δεν πρέπει να περιέχουν  
περισσότερο από 60 γραμμάρια ειρηνητικής ύλης εκ χλω-  
ρικού άλατος ούτε περισσότερο από Ι0 γραμμάρια κρο-  
τικού άλατος συνθέσεως με βάση κροτικού άλατος.
- Ι7° Στρόγγυλα βαρελότα με ειρηνητικό γέμισμα έχουν βάση  
φωσφόρου και χλωρικού άλατος. Ι.000 βαρελότα δεν πρέ-  
πει να περιέχουν πάνω από 45 γραμμάρια ειρηνητικής ύ-  
λης.
- Ι8° Καψύλλια από κάρντ-μπόρντ (πυρομαχικά παιχνιδιών) με  
ειρηνητικό γέμισμα έχουν βάση φωσφόρου και χλωρικού ά-  
λατος ή με γέμισμα κροτικού άλατος ή ομοίας συνθέσεως.  
Ι.000 καψύλλια δεν πρέπει να περιέχουν πάνω από 25  
γραμμάρια ειρηνητικής ύλης.

19° Καψύλλια από κάρντ-μπόρντ εκρηγνυόμενα κάτω από το πδι, με προστατευμένο γέμισμα έχον βάση φωσφόρου και χλωρικού άλατος. 1.000 καψύλλια δεν πρέπει να περιέχουν περισσότερα από 30 γραμμάρια εκρηκτικής ύλης.

2171  
(Συνεχίζεται)

20° (α) Εκρηκτικά φύλλα (DETONATING SHEETS).

(β) MARTINIKAS (έτσι καλούνται τα Ισπανικά πυροτεχνήματα).

Αμφότερα περιλαμβάνουν ένα μίγμα από λευκό (κίτρινο) και ερυθρό φωσφόρο με χλωρικό κάλιο και όχι λιγώτερο του 50% εκατόν αδρανών υλών που δεν συμμετέχουν στην αποσύνθεση του μίγματος φωσφόρου και χλωρικού άλατος. Ένα φύλλο δεν πρέπει να ζυγίζει πάνω από 2,5 γραμμάρια και ένα MARTINIKA πάνω από 0,1 γραμμάρια.

#### Γ.- Πυροτεχνήματα

21° Πύραυλοι (ρουκέτες) ANTI-HAIL χωρίς πυροκροτητή, βόμβες και εσχάρες (όλμοι) (FIREPOTS).

Το γέμισμα, συμπεριλαμβανομένου του προωθητικού γεμίσματος, δεν πρέπει να ζυγίζει πάνω από 14 KG ανά είδος, ή βόμβα ή ο όλμος (FIREPOT) όχι πάνω από 18 KG συνολικά.

22° Εμπρηστικές βόμβες, ρουκέτες, Ρωμαϊκά κεριά, πηγές (πίδακες), τροχοί και παρόμοια πυροτεχνήματα, με γέμισμα μη ζυγίζον πάνω από 1.200 γραμμάρια ανά είδος.

23° CANNON SHOTS (Βλήματα Πυροβόλου), ζυγίζον το καθένα όχι πάνω από 600 γραμμάρια κοκκώδους μελανής πυρίτιδας ή 220 γραμμάρια εκρηκτικής ύλης όχι περισσότερον επικίν-

δύνης της πυρίτιδας αλουμινίου με υπερχλωριόν κάλιο, 2Ι7Ι  
RIFLE SHOTS (Βλήματα Τυφελίου) (κροτινά) το καθένα πε- (Συνεχίζε-  
 ριέχον όχι πάνω από 20 γραμμ. κοκκώδη πυρίτιδα, άπαντα ται)  
 εφοδιασμένα με πυροσωλήνες με καλυμμένα άκρα και παρό-  
 μοια είδη παράγοντα δυνατή επιπυροκρότηση (κρότο).

Για σιδηροδρομικά σήματα ομίχλης, βλέπε Κλάση  
 Ιβ, 3<sup>ο</sup> (περιθώριο 2Ι3Ι).

24<sup>ο</sup> Μικρά πυροτεχνήματα (π.χ. στρακαστρούκες, σφείδια, χρυσή  
 βροχή, αργυρή βροχή, εάν περιέχουν όχι πάρα πάνω από  
 Ι.000 γραμμάρια κοκκώδη μελανή πυρίτιδα ανά Ι44 είδη  
 υφαιστεια και κομήτες χειρός, εάν περιέχουν όχι πάρα  
 πάνω από 30 γραμμάρια κοκκώδους μελανής πυρίτιδος το κα-  
 θένα).

25<sup>ο</sup> Βεγγαλικά χωρίς κεφαλές αναφλέξεως (π.χ. Βεγγαλικές δάδες,  
 φώτα, φλόγες).

26<sup>ο</sup> MAGNESIUM FLASH-POWDERS (Μαγνήσιο για φλάς φωτογραφικών  
 μηχανών), όχι πάρα πάνω από 5 γραμμάρια ανά σακκούλα ή  
 σωλήνα, σε χάρτινες σακκούλες ή μικρούς γυάλινους σω-  
 λήνες.

Δ.- Παρασιτοκτόνα (ύλες και είδη):-

27<sup>ο</sup> Καπνογόνες ύλες για γεωργικούς και δασικούς σκοπούς,  
 και καπνογόνα φυσίφγια προς χρήσιν ως παρασιτοκτόνα.

Για καπνογόνους μηχανισμούς περιέχοντας χλωρικά  
 άλατα ή μεταφέροντα εκρηκτικό γέμισμα ή εκρηκτικό ανα-  
 φλεκτικό γέμισμα, βλέπε Κλάσιν Ιβ, 9<sup>ο</sup> (περιθώριο 2Ι3Ι).

2.- ΔιατάξειςΑ.- ΚόλαI.- Γενικοί όροι συσκευασίας

(1) Τα είδη συσκευασίας θα είναι έτσι κλεισμένα 2I72 και στεγανά ώστε να αποφεύγεται οποιαδήποτε απώλεια του περιεχομένου.

(2) Τα είδη συσκευασίας, συμπεριλαμβανομένων των κλεισιμάτων των, πρέπει να είναι επαρκώς άκαμπτα και γερά σε όλα τα μέρη τους ώστε να αποφεύγεται οποιαδήποτε χαλάρωση διαρκούσης της μεταφοράς και να πληρούν τους κανονικούς όρους μεταφοράς. Τα είδη θα πρέπει να ασφαρίζονται σταθερά, και οι εσωτερικές συσκευασίες σταθερά ασφαλισμένες στις εξωτερικές συσκευασίες. Εκτός εάν άλλως ειδικώς ορίζεται στο άρθρο υπό τον τρίτον "Συσκευασία μιας ύλης ή εμπορευμάτων του αυτού είδους", τα εσωτερικά είδη συσκευασίας μπορούν να εσωκλείονται σε εξωτερικά είδη συσκευασίας, είτε ένα-ένα είτε ομαδικά.

(3) Το αποσβεστικό υλικό θα ταιριάζει με τη φύση του περιεχομένου.

2.- Συσκευασία μιας ύλης ή εμπορευμάτων του αυτού είδους

(I) Είδη της I<sup>ο</sup>(α) θα συσκευάζονται σε κυτία ή 2I73 βιβλία. Τα κυτία αυτά ή βιβλία θα τυλίγονται με χοντρό χαρτί ώστε να αποτελούν ένα συλλογικό κόλον, όλες οι πτυχές του οποίου θα κολλούνται. Τα βιβλία μπορούν επίσης να τοποθετούνται σε κυτία κατασκευασμένα από ινώδη δανίδα ή από υλικό όχι ευχερώς εύφλεκτο (π.χ. ακετυλοκυτταρίνη).

Τα από ινώδη σανίδα κυτία ή τα συλλογικά κόλα θα τοπο- 2173  
θετούνται σε γερό κιβώτιο κατασκευασμένο από ξύλο, μέ- (Συνεχίζεται)  
ταλλο, σανίδα πεπιεσμένου ξύλου, γερή στερεά ινώδη σανίδα  
ή διπλής όψεως κυματοειδούς ινώδους σανίδας.

Όλες οι ενώσεις των μεταλλικών κιβωτίων θα κλεί-  
νονται με μαλακή κόλληση ή με διπλή-ραφή.

Τα κιβώτια από ινώδη σανίδα θα κλείνονται με  
ενωμένα πτερύγια (κλαπέτα). Τα άκρα των εξωτερικών πτερυ-  
γίων, και όλες οι ενώσεις, είτε θα κολλούνται είτε θα  
κλείνουν σταθερά δι' άλλου καταλλήλου μέσου.

Εάν τα από ινώδη σανίδα κυτία ή τα συλλογικά  
πακέτα συσκευάζονται σε κιβώτια από ινώδη σανίδα, το βά-  
ρος του κόλου δεν θα υπερβαίνει τα 20 KG.

(2) Είδη της I<sup>ο</sup>(β) θα είναι έτσι συσκευασμένα σε  
κυτία ώστε να αποφεύγεται κάθε μετακινήσις. Όχι περισ-  
σότερα από I2 από αυτά τα κυτία θα εγκλείονται σε πακέτο,  
όλες οι πτυχές του οποίου θα κολλούνται.

Όχι περισσότερα από I2 από αυτά τα πακέτα θα  
τυλίγονται με γερό χαρτί ώστε να αποτελούν ένα συλλογικό  
πακέτο, όλες οι πτυχές του οποίου θα κολλούνται. Τα συλ-  
λογικά πακέτα θα τοποθετούνται σε γερό κιβώτιο κατα-  
σκευασμένο από ξύλο, μέταλλο, χάρντ-μπόρντ πεπιεσμένου  
ξύλου, γερή στερεά ινώδη σανίδα ή διπλής όψεως κυματοει-  
δή ινώδη σανίδα.

Όλες οι ενώσεις των μεταλλικών κιβωτίων θα  
ασφαλίζονται με μαλακή συγκόλληση ή διπλή ραφή.

Κιβώτια από ινώδη σανίδα θα κλείνονται με  
ενωμένα πτερύγια (κλαπέτα). Τα άκρα των εξωτερικών πτε-

ρυγίων, και όλες οι ενώσεις, πρέπει είτε να κολλούνται 2173  
είτε να κλείνονται σταθερά δι' άλλου καταλλήλου μέσου. (Συνεχίζεται)

Εάν τα συλλογικά πακέτα συσκευάζονται σε  
κιβώτια από ινώδη σανίδα, το βάρος του κόλου δεν πρέ-  
πει να υπερβαίνει τα 20 KG.

(I) Είδη της 2<sup>ο</sup> θα συσκευάζονται σε κυτία κατα- 2174  
σκευασμένα από φύλλο μετάλλου ή ινώδη σανίδα. Όχι πε-  
ρισσότερα από 30 κιβώτια από φύλλο μετάλλου ή 144 κιβώ-  
τια από ινώδη σανίδα θα κλείνονται σε ένα πακέτο το οποίο  
δεν πρέπει να περιέχει περισσότερο από 90 γραμμάρια εκ-  
ρηκτικής ύλης. Τα πακέτα αυτά θα τοποθετούνται σε κιβώ-  
τιο συσκευασίας, με καλώς ενωμένες πλευρές πάχους όχι  
μικροτέρου των 18 MM (χιλ.), επενδεδυμένο με γερό χαρτί  
ή με λεπτό φύλλο ψευδαργύρου ή αλουμινίου ή με φύλλο από  
πλαστική ύλην όχι ευχερώς εύφλεκτη. Πλευρικών πάχους 11  
MM (χιλ.) αρκεί για κόλον που ζυγίζει όχι πάνω από 35 KG  
εάν το κιβώτιο περιβληθεί με σιδερένια ταινία.

(2) Το κόλον δεν πρέπει να ζυγίζει πάνω από 100 KG.

(I) Είδη της 3<sup>ο</sup> θα συσκευάζονται σε ξύλινα κι- 2175  
βώτια επενδεδυμένα με γερό χαρτί ή λεπτό φύλλο ψευδαρ-  
γύρου ή αλουμινίου.

Μικρές αποστολές που ζυγίζουν όχι πάνω από  
20 KG, περιτυλιγμένες με κυματοειδή ινώδη σανίδα, μπο-  
ρούν επίσης να γίνονται πακέτα με γερό δι-φύλλο χαρτί  
συσκευασίας ασφαλώς δεμένα με σπάγγο.

(2) Οσάκις χρησιμοποιούνται βαρέλια από ινώδη



σανίδα, το κέλον δεν πρέπει να ζυγίζει πάνω από 75 KG.

(I) Νήμα πυροκυλίνης (PYROXYLIN THREAD) (4°) 2I76  
θα ρολλάρεται, σε μήκη όχι υπερβαίνοντα τα 30 μ. ανά  
ρόλλον, ή ρόλλους ινώδους σανίδας. Ο κάθε ρόλλος θα  
τυλίγεται σε χαρτί. Όχι περισσότεροι από 10 από αυτούς-  
τους ρόλλους θα τυλίγονται σε χαρτί συσκευασίας ώστε να  
αποτελούν πακέτα τα οποία θα ασφαρίζονται με αποσβεστικό  
υλικό σε μικρά ξύλινα κιβώτια. Τα κιβώτια θα τοποθε-  
τούνται σε ξύλινο κιβώτιο συσκευασίας.

(2) Το κέλον δεν πρέπει να περιέχει πάνω από  
6.000 μ. νήματος πυροκυλίνης (PYROXYLIN THREAD).

(I) Είδη της 5° θα συσκευάζονται, όχι περισσότερα 2I77  
από 25 ανά κυτίον, σε κυτία κατασκευασμένα από  
πλάκα κασιτέρου ή ινώση σανίδα· εν τούτοις, καψύλλια  
θερμότη μπορούν να συσκευάζονται, όχι περισσότερα από  
100 ανά κυτίον, σε κυτία από ινώδη σανίδα. Όχι περισ-  
σότερα από 40 από αυτά τα κυτία θα ασφαρίζονται με  
αποσβεστικό υλικό σε ξύλινο κιβώτιο κατά τέτοιο τρόπο  
ώστε να μη μπορούν να έλθουν σε επαφή είτε μεταξύ των  
είτε με τις πλευρές του κιβωτίου.

(2) Το κέλον δεν πρέπει να ζυγίζει πάνω από  
100 KG.

(I) Είδη των 6° - 8° θα συσκευάζονται:- 2I78

(α) είδη της 6°: σε ξύλινα κιβώτια·

(β) είδη της 7°(α): σε ξύλινα κιβώτια ή σε ξύλινα βυ-  
τία ή σε βαρέλια κατασκευασμένα από αδιαπέραστη  
ινώδη σανίδα·

(γ) είδη της 7<sup>ο</sup>(β): όχι περισσότερα των 1.000 ανά κυτίο, ασφαλιζόμενα με αποσβεστικό υλικό από πριονόσκονη (πριονίδια) σε κυτία από ινώδη σανίδα διηρημένα σε όχι λιγώτερο από τρία διαμερίσματα περιέχοντα το καθένα περίπου τον αυτόν αριθμόν ειδών και διαχωριζόμενα με τιθέμενα μεταξύ αυτών φύλλα από ινώδη σανίδα. Τα καλύμματα των κυτίων θα ασφαλίζονται με κομμωμένες γύρω-γύρω ταινίες. Όχι περισσότερα από 100 από τα κυτία αυτά από ινώδη σανίδα θα τοποθετούνται σε διάτρητο δοχείο από φύλλο-σιδήρου. Το δοχείο τούτο θα ασφαλίζεται με αποσβεστικό υλικό σε κιβώτιο συσκευασίας ξύλινο το οποίο θα κλείνει με βίδες και του οποίου οι πλευρές θα έχουν πάχος όχι μικρότερο των 18 MM (χιλ.), κατά τοιούτο τρόπο ώστε να υπάρχει διάστημα όχι λιγώτερο των 3 CM (εκ.) γεμισμένο με αποσβεστικό υλικό σε όλα τα σημεία μεταξύ του δοχείου από φύλλο-σιδήρου και του κιβωτίου συσκευασίας.

2178  
(Συνεχίζεται)

(δ) είδη της 8<sup>ο</sup>: σε κυτία από ινώδη σανίδα. Τα κυτία θα γίνονται πακέτο το οποίο θα περιέχει όχι περισσότερους από 1.000 ηλεκτρικούς αναφλεκτήρες. Το πακέτο θα τοποθετείται σε ξύλινο κιβώτιο συσκευασίας.

(2) Προκειμένου περί βαρελίων από ινώδη σανίδα, το κόλον που περιέχει είδη της 7<sup>ο</sup>(α) δεν πρέπει να ζυγίζει περισσότερο από 75 KG. Κόλον που περιέχει είδη της 7<sup>ο</sup>(β) δεν πρέπει να ζυγίζει περισσότερο από 50 KG.

εάν ζυγίζεται περισσότερο από 30 KG θα είναι εφοδιασμέ- 2178  
νο με χειρολαβές. (Συνεχίζε-

(I) Είδη των 9<sup>ο</sup> - 26<sup>ο</sup> θα εγκλείονται (εσω- 2179  
τερική συσκευασία):-

(α) είδη των 9<sup>ο</sup> και 10<sup>ο</sup>: σε χάρτινα είδη συσκευασίας  
ή σε κυψίλα·

(β) είδη της II<sup>ο</sup>(α): όχι περισσότερα των 500 ανά κυ-  
τίο από ινώδη σανίδα ή ανά μικρό ξύλινο κιβώτιο,  
ασφαλιζόμενα με αποσβεστικό υλικό από πριονίδια:

1.- σε κυψίλα από ινώδη σανίδα τα οποία θα τυλιγόν-  
ται με χαρτί· ή

2.- σε μικρά ξύλινα κιβώτια·

(γ) είδη της II<sup>ο</sup>(β): όχι περισσότερα των 10 ανά βιβλίο,  
σε βιβλία· όχι περισσότερα των 100 βιβλίων μαζί θα  
συσκευάζονται σε κυτίο από ινώδη σανίδα ή τυλιγόν-  
ται με γερό χαρτί·

(δ) είδη της II<sup>ο</sup>(γ): όχι περισσότερα από 10 ανά σακκού-  
λα, σε σακκούλες χάρτινες ή από κατάλληλη πλαστική  
ύλη· όχι περισσότερες από 100 σακκούλες μαζί θα  
συσκευάζονται σε κυτίο από ινώδη σανίδα·

(ε) είδη της I2<sup>ο</sup>: όχι περισσότερα από 25 ανά κυτίο,  
σε κυψίλα από ινώδη σανίδα·

(στ) είδη της I3<sup>ο</sup>: σε κυψίλα τυλιγμένα σε χαρτί ώστε να  
αποτελούν πακέτα περιέχοντα το καθένα όχι περισσό-  
τερα από 12 κυψίλα·

(ζ) είδη της I4<sup>ο</sup>: σε κυψίλα ή σακκούλες από χαρτί ή  
κατάλληλη πλαστική ύλη. Οι συσκευασίες αυτές θα

τυλίγονται σε χαρτί ώστε να αποτελούν πακέτα περιέχοντα το καθένα όχι περισσότερα των 144 των (Συνεχίζεται)  
ειδών αυτών· 2179

(η) είδη της I5<sup>ο</sup>: σε κυτία από ινώδη σανίδα περιέχονται το καθένα:-

όχι περισσότερα των 100 καφυλλίων, το καθένα, γεμισμένο με όχι περισσότερα των 5 MG εκρηκτικής ύλης·

ή

όχι περισσότερα των 50 καφυλλίων το καθένα γεμισμένο με όχι περισσότερα των 7,5MG εκρηκτικής ύλης.

Όχι περισσότερα των 12 από τα κυτία αυτά θα γίνονται χάρτινος ρόλλος, και όχι περισσότεροι από 12 ρόλλοι θα τυλίγονται σε χαρτί συσκευασίας, ώστε να αποτελούν πακέτο.

Ταινίες των 50 καφυλλίων, το καθένα καφυλλίο γεμισμένο με όχι περισσότερα των 5 MG εκρηκτικής ύλης μπορούν να συσκευάζονται κατά τον ακόλουθο τρόπο:-

5 ταινίες ανά κυτίο, σε κυτία από ινώδη σανίδα τυλιγμένα 6 μαζί σε χαρτί ισοδύναμο σε αντοχή με χαρτί KRAFT (χοντρό χαρτί συσκευασίας) κατωτάτου βάρους 40 MG/μ<sup>2</sup>. 12 μικρά πακέτα θα τυλίγονται μαζί σε χαρτί της αυτής ποιότητας ώστε να αποτελέσουν ένα μεγάλο πακέτο·

- (θ) είδη της I6<sup>0</sup>: ασφαλιζόμενα με αποσβεστικό υλικό, 2179  
δχι περισσότερα των 50 ανά κυτίο, σε κυτία από (Συνεχίζε-  
ινώδη σανίδα. Οι φελλοί θα κολλούνται στον πυθ-  
τάι)  
μένα των κυτίων ή θα τοποθετούνται στη θέση τους  
με κάποια ισοδύναμο μέθοδο. Το κάθε κυτίο θα τυ-  
λίγεται με χαρτί και δχι περισσότερα από 10 κυ-  
τία θα τυλίγονται σε χαρτί συσκευασίας ώστε να  
αποτελούν πακέτο·
- (ι) είδη της I7<sup>0</sup>: δχι περισσότερα των 5 ανά κυτίο,  
σε κυτία από ινώδη σανίδα. Όχι περισσότερα των  
200 κυτίων, τακτοποιημένων σε ρόλλους, θα τοποθε-  
τούνται μαζί σε συλλογικό κυτίο από ινώδη σανίδα·
- (κ) είδη της I8<sup>0</sup>: ασφαλιζόμενα με αποσβεστικό υλικό,  
δχι περισσότερα των 10 ανά κυτίο, σε κυτία από  
ινώδη σανίδα. Όχι περισσότερα των 100 κυτίων,  
τακτοποιημένων σε ρόλλους, θα τυλίγονται με χαρτί  
ώστε να αποτελέσουν πακέτο·
- (λ) είδη της I9<sup>0</sup>: ασφαλιζόμενα με αποσβεστικό υλικό,  
δχι περισσότερα των 15 ανά κυτίο, σε κυτία από  
ινώδη σανίδα. Όχι περισσότερα των 144 κυτίων,  
τακτοποιημένων σε ρόλλους, θα συσκευάζονται σε  
δεύτερο κυτίο από ινώδη σανίδα·
- (μ) είδη της 20<sup>0</sup>(α): ασφαλιζόμενα με αποσβεστικό υλικό,  
δχι περισσότερα των 144 ανά κιβώτιο, σε κιβώτια  
από ινώδη σανίδα·
- (ν) είδη της 20<sup>0</sup>(β): δχι περισσότερα των 75 ανά κυτίο,  
σε κυτία από ινώδη σανίδα· δχι περισσότερα των 72

κυτίων θα τυλίγονται με ινώδη σανίδα ώστε να αποτελέσουν ένα πακέτο.

2179  
(Συνεχί-  
ζεται)

- (ξ) είδη της 21<sup>ο</sup>: σε κυτία από ινώδη σανίδα ή σε γερό χαρτί. Εάν το σημείο αναφλέξεως των ειδών δεν καλύπτεται από προστατευτικό καψύλλιο, το καθέβα είδος πρέπει πρώτα να τυλιχθεί χωριστά με χαρτί. Το προωθητικό γέμισμα των βομβών που ζυγίζουν πάνω από 5 KG θα προστατεύεται από χάρτινο κιβώτιο καλύπτον το κάτω μέρος της βόμβας.
- (ο) είδη της 22<sup>ο</sup>: σε κυτία από ινώδη σανίδα ή σε χοντρό χαρτί. Όπως και, μεγάλα πυροτεχνήματα δεν χρειάζεται να έχουν εσωτερική συσκευασία εάν το σημείο αναφλέξεώς τους καλύπτεται από προστατευτικό κάλυμμα.
- (π) είδη της 23<sup>ο</sup>: ασφαλιζόμενα με αποσβεστικό υλικό σε κυτία κατασκευασμένα από ξύλο ή ινώδη σανίδα. Οι κεφαλές αναφλέξεως θα προστατεύονται από προστατευτικό κάλυμμα.
- (ρ) είδη της 24<sup>ο</sup>: σε κυτία από ινώδη σανίδα ή σε γερό χαρτί.
- (σ) είδη της 25<sup>ο</sup>: σε κυτία από ινώδη σανίδα ή σε γερό χαρτί. Εν τούτοις, μεγάλα πυροτεχνήματα δεν χρειάζεται να έχουν εσωτερική συσκευασία εάν το σημείο αναφλέξεώς τους έχει καλυφθεί με προστατευτικό κάλυμμα.
- (τ) είδη της 26<sup>ο</sup>: σε κυτία από ινώδη σανίδα. Το κυτίο δεν πρέπει να περιέχει περισσότερους από 3 γυάλι-

• νους σωλήνες.

2179

(2) Οι εσωτερικές συσκευασίες οι αναφερόμενες στο (I) θα συσκευάζονται:- (Συνεχίζεται)

(α) συσκευασίες περιέχουσες είδη των 10<sup>ο</sup>, 13<sup>ο</sup> και 14<sup>ο</sup>, σε ξύλινα κιβώτια συσκευασίας\*

(β) συσκευασίες περιέχουσες ύλες ή είδη των 9<sup>ο</sup>, 11<sup>ο</sup>, 12<sup>ο</sup> και 15<sup>ο</sup> - 26<sup>ο</sup>, σε ξύλινα κιβώτια συσκευασίας με καλά ενωμένες πλευρές πάχους όχι μικρότερου των 18 MM (χιλ.), επενδεδυμένα με γερό χαρτί ή λεπτό φύλλο ψευδαργύρου ή φύλλο αλουμινίου. Πλευρικό πάχος 11 MM (χιλ.) αρκεί για κόλον που ζυγίζει όχι πάνω από 35 KG εάν το κιβώτιο περιβάλλεται από σιδερή ταινία.

Το περιεχόμενο του κιβωτίου συσκευασίας περιορίζεται ως κάτωθι:-

προκειμένου για είδη της 17<sup>ο</sup>, σε εξωτερικά κυττά από ινώδη σανίδα\*

προκειμένου για είδη της 18<sup>ο</sup>, σε 25 πακέτα\*

προκειμένου για είδη της 20<sup>ο</sup>(α), σε 50 κιβώτια από ινώδη σανίδα\*

προκειμένου για είδη της 20<sup>ο</sup>(β), σε 50 πακέτα,

το καθένα των 72 κυττών από ινώδη σανίδα\* και

προκειμένου για είδη της 21<sup>ο</sup>, σε αριθμό ειδών τέ-

τοιο ώστε το βάρος του ολικού γεμίσματος να μην

υπερβαίνει τα 56 KG\*

(γ) συσκευασία περιέχουσα MAGNESIUM FLASH-POWDERS

(Μαγνήσιον Φωτογραφιών) (26<sup>ο</sup>), είτε σύμφωνα με

την (β) ανωτέρω, είτε σε ξύλινα κιβώτια συσκευασίας, 2179  
 το καθένα ζυγίζον όχι πάνω από 5 ΚΒ, ή, προκειμένου (Συνεχίζεται)  
 για συσκευασίες χαρτίνων σακκουλών, σε γερά κιβώτια  
 από ινώδη σανίδα το καθένα ζυγίζον όχι πάνω από 5 ΚΓ.

(3) Ξύλινα κιβώτια περιέχοντα είδη με εκρηκτικό γέμισμα με βάσιν φωσφόρου και χλωρικού άλατος πρέπει να κλείνονται με βίδες.

(4) Κόλον περιέχον είδη των 9<sup>ο</sup>, 11<sup>ο</sup>, 12<sup>ο</sup>, 15<sup>ο</sup> - 22<sup>ο</sup> ή 24<sup>ο</sup> - 26<sup>ο</sup> δεν πρέπει να ζυγίζει πάνω από 100 ΚΓ· δεν πρέπει να ζυγίζει πάνω από 50 ΚΓ εάν περιέχει είδη της 23<sup>ο</sup> ή πάνω από 35 ΚΓ εάν οι πλευρές του κιβωτίου είναι πάχους μόνον 11 ΜΜ (χιλ.) και το κιβώτιο περιβάλλεται από σιδερένια ταινία.

(1) Ύλες των ειδών της 27<sup>ο</sup> θα συσκευάζονται 2180  
 σε ξύλινα κιβώτια επενδεδυμένα με χαρτί συσκευασίας, λαδόχαρτο ή κυματοειδή ινώδη σανίδα. Ουδεμία επένδυση απαιτείται εάν οι ύλες αυτές και τα είδη τυλιχθούν με χαρτί ή ινώδη σανίδα.

(2) Το κόλον δεν πρέπει να ζυγίζει πάνω από 100ΚΓ.

(3) Καπνογόνα φυσίγγια προς χρήση ως παρασιτοκτόνα μπορούν, εάν είναι τυλιγμένα με χαρτί ή ινώδη σανίδα να συσκευασθούν επίσης:-

(α) σε κυτία από κυματοειδή ινώδη σανίδα ή σε γερά κιβώτια από ινώδη σανίδα· τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 20 ΚΓ· ή

(β) σε συνηθή κιβώτια από ινώδη σανίδα· τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 5 ΚΓ.



Μικτή Συσκευασία

(1) Ύλες και είδη ομαδοποιημένα υπό τον αυτόν αριθμόν είδους μπορούν να συμπεριλαμβάνονται στο ίδιο κώλον. Οι εσωτερικές συσκευασίες θα είναι σύμφωνες με όσα έχουν καταχωρηθεί για κάθε επικίνδυνη ύλη, και η εξωτερική συσκευασία θα είναι εκείνη που έχει καταχωρηθεί για τις επικίνδυνες ύλες του ~~ε~~ θέμα αριθμού είδους. Εν προκειμένω, κιβώτιο από ινώδη σανίδα περιέχον είδη της 20<sup>ο</sup> (α) θα θεωρείται ισοδύναμο με πακέτο περιέχον είδη της 20<sup>ο</sup> (β).

2181

(2) Εάν μικρότερες ποσότητες δεν προβλέπονται υπό του άρθρου του φέροντος τον τίτλον "Συσκευασία μιας ύλης ή εμπορευμάτων του αυτού είδους", οι επικίνδυνες ύλες της Κλάσεως αυτής, σε ποσότητες μη υπερβαίνουσες τα 6 KG για όλες τις επικίνδυνες ύλες τις αναφερόμενες υπό τον αυτόν αριθμόν είδους ή υπό το αυτό γράμμα, μπορούν να εγκλείονται στο ίδιο κώλον είτε με επικίνδυνες ύλες άλλου αριθμού είδους ή άλλου γράμματος της αυτής Κλάσεως, ή με επικίνδυνες ύλες ανήκουσες σε άλλες Κλάσεις (εάν μικτή συσκευασία επιτρέπεται επίσης προκειμένου για τέτοιες ύλες), ή με άλλα εμπορεύματα υπό την επιφύλαξη των παρακάτω ειδικών όρων.

Τα εσωτερικά είδη συσκευασίες πρέπει να πληρούν τους γενικούς και ειδικούς όρους συσκευασίας. Επιπροσθέτως πρέπει να τηρούνται οι γενικές διατάξεις οι περιεχόμενες στα περιθώρια 2001(5) και 2002(6) και (7).

Το κόλον δεν πρέπει να ζυγίζεται πάνω από  
100 KG, ή πάνω από 50 KG εάν περιέχει είδη της 25<sup>ο</sup>.

2181  
(Συνεχίζεται)

Ειδικοί όροι:-

Αριθμός Είδους	Περιγραφή Ύλης	Ανωτάτη Ποσότητα ανά δο- ανά κό- χείο λον		Ειδικές Διατάξεις
1 <sup>ο</sup>	Πυρελα	5 KG	5 KG	Δεν πρέπει να συσκευάζονται μαζί με όλες των Κλάσεων 3, 4.1 και 4.2
2 <sup>ο</sup> & 3 <sup>ο</sup>	Ταινίες εμπυρίων και πυροσωλήνες βραδείας καύσεως	Μικτή συσκευασία απαγορεύεται		
4 <sup>ο</sup>	Νήμα Πυροκυλίνης	1.500 μ. νήματος πυροκυλίνης		
5 <sup>ο</sup> - 8 <sup>ο</sup>	Όλα τα είδη	Μικτή συσκευασία απαγορεύεται		
9 <sup>ο</sup> - 20 <sup>ο</sup>	Όλα τα είδη			Μικτή συσκευασία επιτρέπεται μόνον με μικρά είδη ή μη- πυροτεχνικά παιγνί- δια, από τα οποία πρέπει να τηρούνται χωριστά. Το συλλο- γικό κιβώτιο πρέπει να πληροί τους προ- βλεπομένους για τα

Αριθμός Είδους	Περιγραφή Υλης	Ανωτάτη Ποσότητα ανά δο- ανά κδ- χελο λον	Ειδικές Διατάξεις
			περιεχόμενα εις αυτά είδη για τα οποία το περιθώριο 2179(2) και (3) επιβάλλει τους πειό αυστηρούς όρους
21 <sup>ο</sup> - 25 <sup>ο</sup>	Όλα τα είδη		Μικτή συσκευασία επι- τρέπεται μόνο μετα- ξύ των. Το συλλογι- κό κιβώτιο πρέπει να πληροί τους προ- βλεπομένους για τα περιεχόμενα εις αυτά είδη για τα οποία το περιθώριο 2179(2) και (3) επιβάλλει τους πειό αυστηρούς όρους.
26 <sup>ο</sup> & 27 <sup>ο</sup>	Όλα τα είδη και ύλες	Μικτή συσκευασία απαγορεύεται	

4.- Μαρκάρισμα και ετικέτες κινδύνου επί των κδλων

(βλέπε Προσθήκη Α.9)

(1) Κδλα περιέχοντα είδη της Κλάσεως Iγ, 16<sup>ο</sup>, ή 2182  
21<sup>ο</sup> έως 23<sup>ο</sup>, θα φέρουν ετικέτα σύμφωνον με το μοντέ-  
λο Νο. I.

(2) Κδλα περιέχοντα εύθραυστα δοχεία μη ορατά 2183  
από έξω θα φέρουν ετικέτα σύμφωνον με το μοντέλο Νο.9.

Β.- Λεπτομέρειες του εγγράφου της μεταφοράς

(1) Η περιγραφή των εμπορευμάτων στο έγγραφο της 2184 μεταφοράς πρέπει να συμφωνεί με μία των ονομασιών των υπογραμμισμένων στο περθώριο 2171· πρέπει να έχει κω- κινή υπογράμμιση και να ακολουθείται από τις λεπτομέ- ρειες της Κλάσεως, τον αριθμόν του είδους (μαζί με το, τυχόν, γράμμα), και τα αρχικά της "ADR" ή της "RID" (π.χ., Iγ, I<sup>ο</sup>(α), ADR). Η διατύπωση "Πυροτεχνήματα της ADR, Iγ, αριθμός είδους . . . .", με λεπτομέρειες των α- ριθμών του είδους υπό τους οποίους αι μεταφερόμενες ύλες ή είδη αναγράφονται, επιτρέπεται επίσης στο έγ- γραφο μεταφοράς.

(2) Προκειμένου περί υλών και ειδών των 2<sup>ο</sup>, 4<sup>ο</sup>, 5<sup>ο</sup>, 8<sup>ο</sup>, 9<sup>ο</sup>, 11<sup>ο</sup>, 12<sup>ο</sup> και 15<sup>ο</sup> - 27<sup>ο</sup>, τα παρακάτω πρέπει να βεβαιώνονται στο έγγραφο της μεταφοράς: "Η φύσις των εμπορευμάτων, και η συσκευασία, συμφωνούν με τις διατά- ξεις της ADR".

2185-  
2189

Γ.- Κενά Είδη Συσκευασίας

Καμμία διάταξη

2190

2191-  
2199

## ΚΛΑΣΗ 2.- ΑΕΡΙΑ: ΠΕΠΙΕΣΜΕΝΑ, ΥΓΡΟΠΟΙΗΜΕΝΑ

## Η ΔΙΑΛΥΟΜΕΝΑ ΥΠΟ ΠΙΕΣΗ

I.- Κατάλογος υλών

(1) Μεταξύ των υλών και ειδών που καλύπτονται 2200 από τον τίτλον της Κλάσεως 2, μόνον τα απαριθμούμενα στο περιθώριο 220I θα γίνονται δεκτά για μεταφορά, και τότε μόνον υπό την επιφύλαξη των διατάξεων του παρόντος Παραρτήματος και των διατάξεων του Παραρτήματος Β. Οι ύλες και είδη που γίνονται δεκτά για μεταφορά υπό ορισμένους όρους θα θεωρούνται ως ύλες και είδη της ADR.

(2) Οι ύλες που έχουν κριτικήν θερμοκρασίαν κατωτέραν των  $50^{\circ}\text{C}$  ή, εις  $50^{\circ}\text{C}$ , πίεση ατμού μεγαλύτεραν των  $3\text{ KG/CM}^2$  θεωρούνται ως ύλες της Κλάσεως 2.

(3) Οι ύλες και τα είδη της Κλάσεως 2 ταξινομούνται ως κάτωθι:-

A : Πεπιεσμένα αέρια έχοντα κριτικήν θερμοκρασίαν κάτω των  $-10^{\circ}\text{C}$ .

B : Υγροποιημένα αέρια έχοντα κριτικήν θερμοκρασίαν  $-10^{\circ}\text{C}$  ή άνω:

(α) Υγροποιημένα αέρια έχοντα κριτικήν θερμοκρασίαν  $70^{\circ}\text{C}$  ή άνω.

(β) Υγροποιημένα αέρια έχοντα κριτικήν θερμοκρασίαν  $-10^{\circ}\text{C}$  ή άνω, αλλά κάτω των  $70^{\circ}\text{C}$ .

Γ : Βαθειά-κατεψυγμένα (DEEPLY-REFRIGIRATED) υγροποιημένα αέρια:

Δ : Αέρια διαλυόμενα υπό πίεση.

Ε : Διανεμητές Αεροζόλ και μη-ξαναγεμιζόμενα δοχεία

(CONTAINERS) αερίου υπό πίεση\*

2200

ΣΤ : Αέρια υποκείμενα σε ειδικούς όρους\* και

(Συνεχίζεται)

Z : Κενά δοχεία και κενές δεξαμενές.

Οι ύλες και τα είδη της κλάσεως 2 υποδιαιρούνται συμφώνως προς τις χημικές τους ιδιότητες, ως κάτωθι:-

- (α) άφλεκτα\*
- (α T) άφλεκτα, τοξικά\*
- (β) εύφλεκτα\*
- (β T) εύφλεκτα, τοξικά\*
- (γ) χημικώς ασταθή\*
- (γ T) Χημικώς ασταθή, τοξικά.

Εκτός εάν αλλιώς ορίζεται, οι χημικώς ασταθείς ύλες θα θεωρούνται ότι είναι άφλεκτες.

Τις ονομασίες των διαβρωτικών αερίων και ειδών που περιέχουν τέτοια αέρια θα ακολουθεί η λέξη "διαβρωτικό" σε εισαγωγικά.

(4) Οι ύλες της κλάσεως 2 που απαριθμούνται μεταξύ των χημικών ασταθών αερίων θα φέρονται δεκτές για μεταφορά μόνον εάν τα απαραίτητα μέτρα έχουν παρθεί ώστε να αποφεύγεται η επικίνδυνη αποσύνθεσή τους, αυτοξειδοαναγωγή ή πολυμερισμός διαρκούσης της μεταφοράς.

Προς τον σκοπόν αυτόν, πρέπει να λαμβάνεται ειδικότερη μέριμνα να εξασφαλίζεται ότι τα δοχεία και οι δεξαμενές δεν περιέχουν ύλες που θα μπορούσαν να προαγάγουν αυτές τις αντιδράσεις.

Δ.- Πεπλεγμένα αέρια (βλέπε επίσης περιθώριο 220Iα υπό 220I στοιχείο (α). Για αέρια της I<sup>ο</sup> (α) και (β) και 2<sup>ο</sup> (α) μέσα σε

διανεμητές αεροζόλ ή σε μη-ξαναγεμιζόμενα δοχεία CONTAINERS) για αέρια υπό πίεση, βλέπε υπό στοιχεία ΙΟ<sup>ο</sup> και ΙΙ<sup>ο</sup>). (Συνε-  
χίζεται)

Αέρια έχοντα κριτικήν θερμοκρασίαν κάτω των -10<sup>ο</sup> C θεωρούνται ότι είναι πεπιεσμένα αέρια για τους σκοπούς της ADR.

1<sup>ο</sup> Καθαρά αέρια και τεχνικώς-καθαρά αέρια

(α) Άφλεκτα

ΑΡΓΟΝ· ήλιον· κρυπτόν· νέον· άζωτον· οξυγόνον·  
τετραφθορομεθάνιο (R I4).

(α T) Άφλεκτα, τοξικά

Τριφθοροούχο βόριο· φθόριο (διαβρωτικόν)· τετρα-  
φθοριούχο πυρίτιο (διαβρωτικόν).

(β) Εύφλεκτα

Δευτέριο· υδρογόνο· μεθάνιο.

(β T) Εύφλεκτα, τοξικά

Μονοξειδίο του άνθρακος

(γ T) Χημικώς ασταθή, τοξικά

Μονοξειδίδιαζώτου NO (άφλεκτο).

2<sup>ο</sup> Μίγματα αερίων

(α) Άφλεκτα

Μίγματα δύο ή περισσότερων των παρακάτω αερίων:  
σπάνια αέρια (περιέχοντα όχι περισσότερο του 10<sup>ο</sup>/ο  
Ξένον (XENON) κατ'όγκον), άζωτοθ, οξυγόνον, διοξει-  
δίο του άνθρακος (όχι περισσότερο του 30<sup>ο</sup>/ο κατ'  
όγκον)· άφλεκτα μίγματα των δύο ή περισσότερων των

παρακάτω αερίων: υδρογόνου, μεθανίου, αζώτου, σπανίων αερίων (περιεχόντων όχι περισσότερον του 10<sup>ο</sup>/ο Ξένον κατ'όγκον), όχι περισσότερον του 30<sup>ο</sup>/ο διοξειδίου του άνθρακος κατ'όγκον· άζωτον περιέχον όχι άνω του 6<sup>ο</sup>/ο αιθυλενίου κατ'όγκον· αήρ. 2201  
(Συνεχίζεται)

(β) Εύφλεκτα

Μίγματα όχι λιγώτερο του 90<sup>ο</sup>/ο μεθανίου κατ'όγκον με υδρογονάνθρακες των 3<sup>ο</sup>(β) και 5<sup>ο</sup>(β)· εύφλεκτα μίγματα δύο ή περισσότερων των παρακάτω αερίων: υδρογόνου, μεθανίου, αζώτου, σπανίων αερίων (περιεχόντων όχι άνω του 10<sup>ο</sup>/ο Ξένον κατ'όγκον), όχι άνω του 30<sup>ο</sup>/ο διοξειδίου του άνθρακος κατ'όγκον· φυσικόν αέριον.

(β T) Εύφλεκτα, τοξικά

Αέριο Πόλεως (Δήμου): μίγματα υδρογόνου μέ όχι άνω του 10<sup>ο</sup>/ο σεληνιούχου υδρογόνου (HYDROGEN SELENIDE) ή φωσφίνην ή σιλάνιον ή γερμανομεθάνιο κατ'όγκον ή με όχι άνω του 15<sup>ο</sup>/ο αρσίνην κατ'όγκον· μίγματα αζώτου ή σπανίων αερίων (περιεχόντων όχι άνω του 10<sup>ο</sup>/ο Ξένον κατ'όγκον) με όχι άνω του 10<sup>ο</sup>/ο σεληνιούχου υδρογόνου ή φωσφίνην ή σιλάνιον ή γερμανομεθάνιον κατ'όγκον ή με όχι άνω του 15<sup>ο</sup>/ο αρσίνην κατ'όγκον· υδραέριο· αέριο χημικής συνθέσεως (π.χ. εκ της μεθόδου FISCHER-TROPSCH)· μίγματα μονοξειδίου του άνθρακος με υδρογόνο ή με μεθάνιο.

(γ T) Χημικώς ασταθή, τοξικά

Μίγματα υδρογόνου με όχι άνω του 10<sup>ο</sup>/ο διβοράνιο κατ'



δγκον\* μίγματα αζώτου ή σπανίων αερίων (περιεχόντων 220I  
 όχι άνω του 10<sup>ο</sup>/ο Ξένον κατ'δγκον) με όχι άνω του (Συνεχί-  
 10<sup>ο</sup>/ο διβοράνιο κατ'δγκον. ζεται)

B.- Υγροποιημένα αέρια (βλέπε επίσης περιθώριο 220Iα υπό  
 στοιχεία (β) και (ε). Για αέρια των 3<sup>ο</sup> έως 6<sup>ο</sup> μέσα σε δια-  
 νεμητές αεροζδλ ή μέσα σε μη-ξαναγεμιζόμενα δοχεία (CONTAIN-  
 ERS) για αέρια υπό πίεση, βλέπε υπό στοιχεία 10<sup>ο</sup> και 11<sup>ο</sup>):

Αέρια έχοντα κριτικήν θερμοκρασίαν -10<sup>ο</sup>C ή άνω θεω-  
 ρούνται ότι είναι υγροποιημένα αέρια για τους σκοπούς της ADR.

(α) Υγροποιημένα αέρια έχοντα κριτικήν θερμοκρασίαν  
 70<sup>ο</sup> ( ή άνω:

3<sup>ο</sup> Καθαρά αέρια και τεχνικώς-καθαρά αέρια

(α) Αφλεκτα

Βρωμοχλωριοδιφθοριομεθάνιον (R 12 B 1)\* χλωριο-  
διφθοριομεθάνιο (R 22)\* χλωριοπενταφθοριοαιθάνιο  
 (R 115)\* 1-χλωριο-2,2,2-τριφθοριοαιθάνιο (R 133α)  
διχλωριοδιέφθοριομεθάνιο (R 12)\* διχλωριοφθοριο-  
μεθάνιο (R 21)\* 1,2-διχλωριο-1,1,2,2-τετραφθοριο-  
αιθάνιο (R 114)\* οκταφθοριοκυκλοβουτάνιο (RC 318).

(α T) Αφλεκτα, τοξικά

Αμμωνία: χλωριούχο βόριον (διαβρωτικόν)\* χλώριον  
 (διαβρωτικόν)\* τριφθοριούχον χλώριον (διαβρωτικόν)\*  
εξαφθοριοπροπυλένιον (R 216)\* υδροβρώμιο (διαβρω-  
 τικόν)\* μεθυλοβρωμίδιο\* νιτροζυχλωρίδιο (διαβρωτι-  
 κόν)\* διοξειδίου του αζώτου NO<sub>2</sub> (υπεροξειδίου αζώ-  
 του, τετροξειδίου του αζώτου N<sub>2</sub>O<sub>4</sub>) (διαβρωτικόν)\*  
φωσγένιον (διαβρωτικόν)\* διοξειδίου του θείου\*

φθοριούχο SULBURYL· εξαφθοριούχο βολφράμιο. 220I

(β) Εύφλεκτα

(Συνεχίζεται)

Βουτάνιο· I-Βουτυλένιο (I-βουτένιο)· I-χλωρο-

I,I-διφθοριοαιθάνιο (R I42β)· CIS-2-βουτυλένιο

(CIS-2-βουτένιο)· κυκλοπροπάνιο·

I,I-διφθοριοαιθάνιο (R I52α)· ισοβουτάνιο· ισο-

βουτυλένιο (ισοβουτένιο)· μεθυλαιθάνιο· προπάνιο·

προπυλένιο· TRANS-2-βουτυλένιο (TRANS-2-βουτένιο)·

I,I I-τριφθοριοαιθάνιο.

(β T) Εύφλεκτα, τοξικά

Αρσίνη· διχλωροσιλάνιο· διμεθυλαμίνη· διμεθυλαι-

θέρας· διμεθυλαιθάνιο· αιθυλαμίνη· αιθυλοχλωρίδιο·

σεληνιούχο υδρογόνο· υδροθείο· μεθυλαμίνη· μεθυλο-

χλωρίδιο· μεθυλική μερκαπτάνη· τριμεθυλαμίνη· πρω-

τριμεθυλαιθάνιο.

(γ) Χημικώς ασταθή

I,3-βουταδιένιο· χλωριούχο βινύλιο.

(γ-T) Χημικώς ασταθή, τοξικά

Κυανογόνο· χλωροκυανίδιο (άφλεκτον) (διαβρωτικόν)·

οξείδιο αιθυλενίου· μεθυλοβινυλοαιθέρας·

τριφθοριοχλωροαιθυλένιο (R III3)· βινυλοβρωμίδιο.

Σημειώσεις:- Στη περίπτωση των αλογόνων υδραγονανθράκων,

η χρήση ονομασιών συνήθων στο εμπόριο, όπως οι παρακάτω,

επιτρέπεται: ALGOPRENE, ARCTON, EDIFREN, FLUGENE, FORANE,

FREON, FRESANE, FRIGEN, ISCEON, KALTRON, ακολουθούμενες

από τον αριθμόν αναγνώρισεως της ύλης χωρίς το γράμμα R.

4° Μίγματα αερίων

220I

(Συνεχίζεται)

(α) Αφλεκτα

Μίγματα υλών της 3° (α) μετά ή άνευ εξαφθοριοπροπυλενίου της 3° (α Τ), τα οποία ως:

μίγμα F I έχουν πίεση ατμού εις 70° C μη υπερβαίνουσιν τα 13 KG/CM<sup>2</sup> και πυκνότητα εις 50° C όχι μικροτέραν της πυκνότητας του διχλωροφθοριομεθανίου (I.30)°

μίγμα F 2 έχουν πίεση ατμού εις 70° C μη υπερβαίνουσιν τα 19 KG/CM<sup>2</sup> και πυκνότητα εις 50° C όχι μικροτέραν της πυκνότητας του διχλωροφθοριομεθανίου (I.2I)°

μίγμα F 3 έχουν πίεση ατμού εις 70° C μη υπερβαίνουσιν τα 30 KG/CM<sup>2</sup> και πυκνότητα εις 50° C όχι μικροτέραν της πυκνότητας του χλωροδιφθοριομεθανίου (I.09)°

Σημειώσεις:- I.- Τριχλωροφθοριομεθάνιον (R II), τριχλωροτριφθοριομεθάνιον (R II3) και χλωροτριφθοριομεθάνιον (R I33) δεν είναι υγροποιημένα αέρια εντός της εννοίας της ADR και επομένως δεν υπόκεινται στους όρους της ADR. Μπορούν εν τούτοις να συμπεριληφθούν εις την σύνθεση των μιγμάτων F I έως F 3.

2.- Βλέπε Σημειώσιν υπό στοιχείον 3°.

Το αζεοτροπικόν μίγμα του διχλωροδιφθοριομεθανίου (R I2) και I,I-διφθοριοαιθανίου (R I52α), γνωστόν ως R 500°

Το αζεοτροπικόν μίγμα του χλωροπενταφθοριομεθανίου (R II5) και χλωροδιφθοριομεθανίου (R 22), γνωστόν

ως R 502\*

2201

Το μίγμα του Ι9 έως 2Ι τους εκατόν κατά βάρος διχλωροδιφθοριομεθανίου (R Ι2) και 79 έως 8Ι εκατόν εκατόν κατά βάρος βρωμοχλωροδιφθοριομεθανίου (R Ι2 ΒΙ).

(Συνεχίζεται.)

((α Τ) Άφλεκτα, τοξικά

Μίγματα μεθυλοβρωμιδίου και χλωροπικρίνης έχοντα πίεση ατμού άνω των 3 KG/CM<sup>2</sup> εις 50°C.

(β) Εύφλεκτα

Μίγματα υδρογονανθράκων της 3<sup>ο</sup>(β) και αιθανίου και αιθυλενίου της 5<sup>ο</sup>(β), τα οποία ως:

μίγμα Α έχουν πίεση ατμού εις 70°C μη υπερβαίνουσαν τα 11 KG/CM<sup>2</sup> και πυκνότητα εις 50°C όχι κάτω των 0.525\*

μίγμα Α 0 έχουν πίεση ατμού εις τους 70°C μη υπερβαίνουσαν τα 16 KG/CM<sup>2</sup> και πυκνότητα εις 50°C/όχι κάτω των 0.495\*

μίγμα Α Ι έχουν πίεση ατμού εις 70°C μη υπερβαίνουσαν τα 21 KG/CM<sup>2</sup> και πυκνότητα εις 50°C όχι κάτω των 0.485\*

μίγμα Β έχουν πίεση ατμού εις 70°C μη υπερβαίνουσαν τα 26 KG/CM<sup>2</sup> και πυκνότητα εις 50°C όχι κάτω των 0.450\*

μίγμα Γ έχουν πίεση ατμού εις 70°C μη υπερβαίνουσαν τα 31 KG/CM<sup>2</sup> και πυκνότητα εις 50°C όχι κάτω των 0.440.

Σημειώσεις:- Στη περίπτωση των ανωτέρω μιγμάτων επιτρέπεται η χρήση των παρακάτω συνήθων στο εμπόριο ονομασιών για τη περιγραφή των υλών αυτών:

Ονομασία υπό στοιχείον 4<sup>ο</sup>(β)Ονομασία συνήθης στο εμπόριο

Μίγμα Α, μίγμα Α 0

βουτάνιον

Μίγμα Γ

προπάνιονΜίγματα υδρογονανθράκων των 3<sup>ο</sup>(β) και 5<sup>ο</sup>(β) περιέχοντα μεθάνιον.

(β Τ) Εύφλεκτα, τοξικά

2201

(Συνεχίζε-  
ται)

Μίγματα δύο ή περισσότερων των παρακάτω αερίων:-  
μεθυλσιλανίου, διμεθυλσιλανίου, τριμεθυλσιλανίου,  
μεθυλοχλωριδίου και μεθυλενοχλωριδίου σε μίγματα  
έχοντα πίεση ατμού άνω των  $3\text{KG}/\text{CM}^2$  εις  $50^{\circ}\text{C}$ .

μίγματα μεθυλοχλωριδίου και χλωροπικρίνης και μίγ-  
ματα μεθυλοβρωμιδίου και αιθυλενιοβρωμιδίου έχοντα  
σε εκατέρα περίπτωση πίεση ατμού άνω των  $3\text{KG}/\text{CM}^2$   
εις  $50^{\circ}\text{C}$ .

(γ) Χημικώς ασταθή

Μίγματα μεθυλακετυλίνης και προπαδιένης (PROPADIENE)  
με υδρογονάνθρακες της  $3^{\circ}$  (β), τα οποία ως:

μίγμα Ρ 1 περιέχουν όχι άνω του  $63^{\circ}/\text{o}$  μεθυλακετυλε-  
νίου και προπαδιένης κατ'όγκον και όχι άνω του  $24^{\circ}/\text{o}$   
προπανίου και προπυλενίου κατ'όγκον, του ποσοστού των  
 $\text{C}_4$ -κεκορεσμένων υδρογονανθράκων όντος όχι κάτω των  
 $14^{\circ}/\text{o}$  κατ'όγκον και ως

μίγμα Ρ 2 περιέχουν όχι άνω του  $48^{\circ}/\text{o}$  μεθυλακετυλε-  
νίου και προπαδιένης κατ'όγκον και όχι άνω του  $50^{\circ}/\text{o}$   
προπανίου και προπυλενίου κατ'όγκον, του ποσοστού των  
 $\text{C}_4$ -κεκορεσμένων υδρογονανθράκων όντος όχι κάτω του  
 $5^{\circ}/\text{o}$  κατ'όγκον.

(γ Τ) Χημικώς ασταθή, τοξικά

Αιθυλενοξειδίο περιέχον όχι άνω του  $10^{\circ}/\text{o}$  διοξειδίου  
του άνθρακος κατ'όγκον αιθυλενοξειδίο περιέχον όχι  
άνω του 50 τοις εκατόν μεθυλικού άλατος μυρμηκικού  
οξέος κατ'όγκον, με άζωτο μέχρι συνολική πίεση  $10\text{KG}/$   
 $\text{CM}^2$  εις  $50^{\circ}\text{C}$  διχλωροδιφθοριομεθάνιο περιέχον  $12^{\circ}/\text{o}$

αιθυλενοξειδίο κατά βάρος.

220I

(β) Υγροποιημένα αέρια έχοντα κριτικήν θερμοκρασίαν  $-10^{\circ}\text{C}$  ως άνω, αλλά κάτω των  $70^{\circ}\text{C}$ : (Συνεχίζεται)

5° Καθαρά αέρια και τεχνικώς-καθαρά αέρια

(α) Άφλεκτα

Βρωμοτριφθοριομεθάνιο (R 13 B I)· διοξειδίο του άνθρακος· χλωροτριφθοριομεθάνιο (R 13)· εξαφθοροαιθάνιο (R 116)· νιτρώδες οξύ  $\text{N}_2\text{O}$ · εξαφθοριούχο θείον· τριφθοριομεθάνιο (R 23)· ξένον.

Αναφορικά με το διοξειδίο του άνθρακος, βλέπε επίσης περιθώριο 220Iα υπό στοιχείον (γ).

Σημειώσεις: - 1.- Το νιτρώδες οξύ θα γίνεται δεκτό για μεταφορά μόνον εάν δεν είναι κάτω του 99% καθαρόν.

2.- Βλέπε Σημειώσεις υπό στοιχείον 3°.

(α T) Άφλεκτα, τοξικά

Υδροχλώριο (διαβρωτικόν).

(β) Εύφλεκτα

Αιθάνιο· αιθυλένιο· σιλάνιο.

(β T) Εύφλεκτα, τοξικά

Γερμανομεθάνιο· φωσφίνη.

(γ) Χημικώς ασταθή

I, I-διφθοροαιθυλένιο· φθοριούχο βινύλιο.

(γ T) Χημικώς ασταθή, τοξικά

Διβοράνιο.

6° Μίγματα αερίων

(α) Άφλεκτα

Διοξειδίο του άνθρακος περιέχον όχι κάτω του 1% και

και όχι άνω του 10<sup>ο</sup>/ο άζωτον, οξυγόνον, αέρα ή 220I  
 σπάνια αέρια κατά βάρος· το αζεοτροπικόν μίγμα (Συνεχίζεται)  
 του χλωροτριφθοριομεθανίου (R 13) και τριφθοριο-  
 μεθανίου (R 23), γνωστόν ως R 503.

Σημειώσεις:- Διοξείδιο του άνθρακος περιέχον όχι κάτω του  
 1<sup>ο</sup>/ο άζωτον, οξυγόνον, αέρα ή σπάνια αέρια κατά βάρος είναι  
 ύλη της 5<sup>ο</sup> (α).

(γ) Χημικώς ασταθή

Διοξείδιο του άνθρακος περιέχον όχι άνω του 35<sup>ο</sup>/ο  
 αιθυλενοξειδίου κατά βάρος.

(γ II) Χημικώς ασταθή, τοξικά

Αιθυλενοξείδιο περιέχον άνω του 10<sup>ο</sup>/ο αλλά όχι άνω  
 του 50<sup>ο</sup>/ο διοξείδιο του άνθρακος κατά βάρος.

Γ.- Βαθειά-κατεψυγμένα (DEEPLY-REFRIGERATED) υγροποιημένα αέρια

7<sup>ο</sup> Καθαρά αέρια και τεχνικώς-καθαρά αέρια

(α) Αφλεκτα

Αργόν· διοξείδιο του άνθρακος· ήλιον· κρυπτόν· νέον·  
άζωτον· νιτρώδες οξύ N<sub>2</sub>O· οξυγόνον· ξένον.

(β) Εύφλεκτα

αιθάνιο· αιθυλένιο· υδρογόνο· μεθάνιο.

8<sup>ο</sup> Μίγματα αερίων

(α) Αφλεκτα

Αήρ· μίγματα υλών της 7<sup>ο</sup> (α)

(β) Εύφλεκτα

Μίγματα υλών της 7<sup>ο</sup> (β)· φυσικόν αέριον.

Δ.- Αέρια διαλυόμενα υπό πίεση

Καθαρά αέρια και τεχνικώς-καθαρά αέρια

220I

(α Τ) Αφλεκτα, τοξικά(Συνεχίζε-  
ται)Αμμωνία διαλυομένη στο νερό με άνω του 35<sup>ο</sup>/οαλλά όχι άνω του 40<sup>ο</sup>/ο αμμωνία κατά βάρος·αμμωνία διαλυομένη στο νερό με άνω του 40<sup>ο</sup>/οαλλά όχι άνω του 50<sup>ο</sup>/ο αμμωνία κατά βάρος.

Σημείωσις:- Διάλυμα αμμωνίας με περιεχόμενο σε αμμωνία μη υπερβαίνον το 35<sup>ο</sup>/ο κατά βάρος δεν υπόκειται στους όρους της ADR.

(γ) Χημικώς ασταθήΑκετυλένιο διαλυόμενο σε διαλύτη (π.χ. ακετόνη)

απορροφούμενο από πορώδεις ύλες.

Ε.- Διανεμητές αεροζόλ και μη-ξαναγεμιζόμενα δοχεία (CONTAINERS) αερίου υπό πίεση (βλέπε επίσης περιθώριο 220Iα υπό στοιχείο (δ)):

Σημείωσις:- 1.- Οι διανεμητές αεροζόλ είναι δοχεία που μπορούν να χρησιμοποιηθούν μία μόνο φορά, είναι εφοδιασμένα με βαλβίδα αφέσεως ή μηχανισμόν διασποράς, και περιέχουν, υπό πίεση, αέριον ή μίγμα αερίων του περιθωρίου 2208(2) ή περιέχουν ενεργόν ύλην (εντομοκτόνον, κοσμητικήν (καλλυντικήν) κλπ.) μαζί με αέριο ή μίγμα αερίων σάν προωθητική γόμωση.

2.- Μη-ξαναγεμιζόμενα δοχεία (CONTAINERS) αερίων υπό πίεση είναι δοχεία που μπορούν να χρησιμοποιηθούν μόνο μία φορά και περιέχουν αέριο ή μίγμα αερίων του περιθωρίου 2208(2) και (3) (π.χ. βουτάνιο για μαγειρεία-καταυλισμών, ψυκτικά αέρια κλπ.), αλλά δεν είναι εφοδιασμένα με βαλβίδα αφέσεως.



3.- Ο όρος "εύφλεκτες ύλες" σημαίνει: 220I

- (I) αέρια (προωθητική γόμωση διανεμητών αεροζόλ· (Συνεχίζεται)  
περιεχόμενο μη-ξαναγεμιζόμενων δοχείων (CONTAINERS) αερίου υπό πίεση)) των οποίων τα μίγματα με άβρα μπορούν να αναφλεγούν και έχουν κατώτερο και ανώτερο όριο εκρήξεως·
- (II) υγρά (ενεργείς ύλες διανεμητών αεροζόλ) της Κλάσης 3.

4.- Ο όρος "χημικώς ασταθής" εφαρμόζεται σε περιεχόμενο το οποίο ελλείπει ειδικών προφυλάξεων υφίσταται επικίνδυνον αποσύνθεση ή αυτο-πολυμερισμόν εις θερμοκρασίαν όχι άνω των 70°C.

#### 10<sup>ο</sup> Διανεμητές Αεροζόλ

##### (α) Άφλεκτοι

Με όχι εύφλεκτον περιεχόμενο.

##### (α Τ) Άφλεκτοι, τοξικοί

Με άφλεκτο τοξικό περιεχόμενο.

##### (β) Εύφλεκτοι

1.- Με όχι άνω του 45<sup>ο</sup>/ο εύφλεκτο περιεχόμενο κατά βάρος.

2.- Με άνω του 45<sup>ο</sup>/ο εύφλεκτο περιεχόμενο κατά βάρος.

##### (β Τ) Εύφλεκτες, τοξικές

1.- Με τοξικό περιεχόμενο και όχι άνω του 45<sup>ο</sup>/ο εύφλεκτο περιεχόμενο κατά βάρος.

2.- Με τοξικό περιεχόμενο και άνω του 45<sup>ο</sup>/ο εύφλεκτο περιεχόμενο κατά βάρος.

(γ) Χημικώς ασταθείς

Με χημικώς-ασταθείς περιεχόμενο.

220I

(Συνεχίζεται)

(γ Τ) Χημικώς ασταθείς, τοξικοί

Με χημικώς-ασταθείς τοξικό περιεχόμενο.

II<sup>ο</sup> Μη-ξαναγεμιζόμενα δοχεία (CONTAINERS) αερίου υπό πίεση

(α) Άφλεκτα

Με άφλεκτο περιεχόμενο.

(β) Εύφλεκτα

Με εύφλεκτο πηκτικά περιεχόμενο.

(β Τ) Εύφλεκτα, τοξικά

Με εύφλεκτο τοξικό περιεχόμενο.

(γ) Χημικώς ασταθή

Με χημικώς-ασταθείς περιεχόμενο.

(γ Τ) Χημικώς ασταθή, τοξικά

Με χημικώς-ασταθείς τοξικό περιεχόμενο.

ΣΤ.- Αέρια υποκειμένα σε ειδικούς όρους

I2<sup>ο</sup> Διάφορα μίγματα αερίων

Μίγματα περιέχοντα αέρια αναφερόμενα σε άλλους αριθμούς είδους της παρούσης Κλάσεως, και μίγματα ενός ή περισσότερων αερίων αναφερομένων υπό άλλους αριθμούς είδους της παρούσης Κλάσεως με έναν ή περισσότερους ατμούς υλών δεν εξαιρούνται της μεταφοράς συμφώνως προς της ADR, υπό τον όρον ότι κατά την μεταφορά:

- I.- το μίγμα παραμένει εξ ολοκλήρου αεριώδες και
- 2.- αποκλείεται κάθε δυνατότης επικινδύνου αντιδράσεως.

I3<sup>ο</sup> Αέρια Δοκιμών

Αέρια και μίγματα αερίων μη αναφερόμενα υπό άλλους αριθ-

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(Συνεχίζε-  
ται)

μούς της παρούσης Κλάσεως και χρησιμοποιούμενα  
μόνον για εργαστηριακές δοκιμές, υπό τον όρον ότι  
κατά τη μεταφορά:-

(α) το αέριο ή μίγμα αερίων παραμένει εξ ολοκλήρου  
αεριώδες και

(β) αποκλείεται κάθε δυνατότης επικινδύνου αντιφράσεως.

#### Z.- Άδεια δοχεία και άδειες δεξαμενές

I4<sup>ο</sup> Κενά δοχεία και κενές δεξαμενές, ακαθάριστα, που περι-  
είχαν τετραφθοριομεθάνιο της I<sup>ο</sup>(α), ύλες της I<sup>ο</sup>, (A T)  
- (γ T)<sup>ο</sup> 2<sup>ο</sup>, (β) - (γ T)<sup>ο</sup> 3<sup>ο</sup> - 6<sup>ο</sup> διοξειδίο του άν-  
θρακος και νιτρώδες οξύ της 7<sup>ο</sup>(α)<sup>ο</sup> ή ύλες των 7<sup>ο</sup>(β),  
8<sup>ο</sup>(β), 9<sup>ο</sup>, I2<sup>ο</sup> ή I3<sup>ο</sup>.

Σημειώσεις:- I.- Δοχεία και δεξαμενές που μετά το άδειασμα  
των υλών της I4<sup>ο</sup> εξακολουθούν να περιέχουν μικρά κατά-  
λοιπα θεωρούνται ως κενά ακαθάριστα δοχεία ή δεξαμενές.

2.- Ακαθάριστα κενά δοχεία ή κενές δεξαμε-  
νές που περιείχαν αέρια της I<sup>ο</sup>(α) πλην του τετραφθοριο-  
μεθανίου (R I4), ή αέρια της 2<sup>ο</sup>(α), 7<sup>ο</sup>(α) πλην του διο-  
ξειδίου του άνθρακος και νιτρώδους οξέος, ή της 8<sup>ο</sup>(α),  
δεν υπόκεινται στους όρους της ADR.

Αέρια και είδη παραδιδόμενα για μεταφορά σύμφωνα προς 220Iα  
τις παρακάτω διατάξεις δεν υπόκεινται στους όρους ή τις  
διατάξεις τις σχετικές με τη παρούσα Κλάση που διαλαμβάνον-  
ται αλλού στο παρόν Παράρτημα ή το Παράρτημα B:

(α) πεπιεσμένα αέρια τα οποία δεν είναι ούτε εύφλεκτα ούτε  
τοξικά ούτε διαβρωτικά και η πίεση των οποίων στο δο-  
χείο, αναφερομένη σε θερμοκρασία 15<sup>ο</sup>C, δεν υπερβαίνει

- τα  $2 \text{ KG/CM}^2$ . ο αυτός κανόνας ισχύει για μίγματα αερίων περιέχοντα όχι άνω του 2% εύφλεκτα συστατικά μέρη. 2201α (Συνεχίζεται)
- (β) υγροποιημένα αέρια περιεχόμενα σε ποσότητες μη υπερβαίνουσες τα 60 L, ή σε ποσότητες μικρότερες των 5 L με όχι άνω των 25 γραμμαρίων υδρογόνου, μέσα σε φυκτικές συσκευές (φυγεία, μηχανές πάγου, κλπ.) και απαραίτητα για τη λειτουργία τους.
- (γ) διοξείδιο άνθρακος ( $5^{\circ}(\alpha)$ ) σε μεταλλικά καψύλλια (SODORS, SPARKLETS) εάν το διοξείδιο του άνθρακος σε αεριώδη κατάσταση δεν περιέχει άνω του 0.5% αέρα και τα καψύλλια περιέχουν όχι άνω των 25 γραμμαρίων διοξειδίου του άνθρακος και όχι άνω των 0.75 γραμμαρίων ανά  $\text{CM}^3$  χωρητικότητας.
- (δ) είδη των  $\text{I}^{\circ}$  και  $\text{II}^{\circ}$  χωρητικότητας μη υπερβαίνουσες τα  $50 \text{ CM}^3$ . Κόλον με τέτοια είδη δεν θα ζυγίζει άνω των 10 KG.
- (ε) υγροποιημένα αέρια πετρελαίου περιεχόμενα σε δεξαμενές αυτοκινήτων σταθερά στερεωμένες στα οχήματα. η στρόφιγγα του καυσίμου μεταξύ της δεξαμενής και της μηχανής πρέπει να είναι κλειστή και η ηλεκτρική επαφή ανοικτή.

## 2.- Διατάξεις

### A.- Κόλα

#### I.- Γενικοί όροι συσκευασίας

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(I) Τα υλικά από τα οποία τα δοχεία και τα κλεισίματά τους κατασκευάζονται δεν πρέπει να κινδυνεύουν να προσ-

βληθούν από το περιεχόμενο ή να σχηματίζουν επιβλαβείς 2202  
ή επικινδύνους συνθέσεις (ενώσεις). (Συνεχίζε-  
ται)

Σημειώσεις:- Μέριμνα πρέπει να λαμβάνεται ώστε να μην επιτραπεί οποιαδήποτε υγρασία να εισέλθει στα δοχεία όταν γεμίζονται, και να ξηραίνονται τα δοχεία πλήρως μετά τις δοκιμές υδραυλικής πίεσεως (βλέπε περιθώριο 2216) τις διεξαγόμενες με νερό ή με υδατώδη διαλύματα.

(2) Οι συσκευασίες, συμπεριλαμβανομένων των κλεισιμάτων των, θα είναι επαρκώς άκαμπτες και γερές σε όλα τα μέρη τους ώστε να αποφεύγεται οποιαδήποτε χαλάρωση διαρκούς της μεταφοράς και να τηρούνται οι κανονικοί όροι της μεταφοράς. Όταν προβλέπονται εξωτερικές συσκευασίες, τα δοχεία θα στερεώνονται στερεά σ' αυτές. Εκτός εάν άλλως ορίζεται στο άρθρο το τιλοφορούμενο "Συσκευασία μίας ύλης ή εμπορευμάτων του αυτού είδους", οι εσωτερικές συσκευασίες μπορούν να εγκλείονται στις εξωτερικές συσκευασίες, είτε μιά-μιά είτε ομαδικά.

(3) Μεταλλικά δοχεία προοριζόμενα για τη μεταφορά αερίων των 1<sup>ο</sup> έως 6<sup>ο</sup> και 9<sup>ο</sup> θα περιέχουν μόνον το αέριο για το οποίο δοκιμάστηκαν και του οποίου η ονομασία έχει γραφεί πάνω στο δοχείο (βλέπε περιθώριο 2218(I)(α)).

Ανακλήσεις επιτρέπονται:-

(I) για μεταλλικά δοχεία δοκιμασθέντα για μιά των υλών των 3<sup>ο</sup>(α) ή 4<sup>ο</sup>(α) ή για βρωμοτριφθοριομεθάνιο, χλωροτρι- ή τριφθοριομεθάνιο της 5<sup>ο</sup>(α). Τα δοχεία αυτά μπορούν επίσης να γεμισθούν με κάποια άλλη ύλη των προαναφερθέντων

ειδών υπό τον όρον ότι η προβλεπομένη για την ύλη 2202 αυτή κατωτάτη πίεση δοκιμής δεν υπερβαίνει τη πίεση (Συνεχίζεται) δοκιμής του δοχείου και ότι η ονομασία της ύλης και το επιτρεπτόν ανώτατο βάρος γεμίσματος αναγράφονται επί του δοχείου·

- 2.- για μεταλλικά δοχεία δοκιμασθέντα για υδρογονάνθρακες των 3<sup>ο</sup> (β) ή 4<sup>ο</sup> (β). Τα δοχεία αυτά μπορούν επίσης να γεμισθούν με κάποιον άλλον υδρογονάνθρακα υπό τον όρον ότι η προβλεπομένη για την ύλη αυτή κατωτάτη πίεση δοκιμής δεν υπερβαίνει τη πίεση δοκιμής του δοχείου και ότι η ονομασία της ύλης και το επιτρεπτόν ανώτατο βάρος γεμίσματος αναγράφονται επί του δοχείου.

Για 1 και 2, βλέπε επίσης περιθώρια 2215, 2218 (1)(α) και 2220, (1) έως (3).

(4) Αλλαγή της ορισθείσας για ένα δοχείο χρήσεως επιτρέπεται κατ' αρχήν εάν δεν αντιβαίνει στους εθνικούς κανονισμούς· χρειάζεται όμως η έγκριση της αρμόδιας αρχής και η αντικατάσταση των αρχικών ενδείξεων (μαρκαρισμάτων) με τις ενδείξεις (μαρκαρίσματα) τις σχετικές με τη νέα χρήση.

- 2.- Συσκευασία μιάς ύλης ή εμπορευμάτων του αυτού είδους

Σημείωση:- Το διοξειδίο του άνθρακος και νιτρώδες οξύ (7<sup>ο</sup> (α)) και μίγματα των δύο αυτών αερίων (8<sup>ο</sup> (α)) δεν μπορούν να μεταφέρονται άλλως, παρά μόνο ειδικά-εξοπλισμένες δεξαμενές (βλέπε Παράρτημα Β, περιθώριο 21400).

- α.- Φύσις δοχείων

(1) Τα δοχεία τα προοριζόμενα για τη μεταφορά αε-

αερίων των I<sup>ο</sup> έως 6<sup>ο</sup>, 9<sup>ο</sup>, 12<sup>ο</sup> και 13<sup>ο</sup> θα είναι έτσι 2203 κλεισμένα και στεγανά ώστε να αποφεύγεται οποιαδήποτε διαρροή των αερίων. (Συνεχίζεται)

(2) Τα δοχεία αυτά θα είναι κατασκευασμένα από ανθρακούχο χάλυβα ή κράμα χάλυβος (ειδικοί χάλυβες).

Τα κατωτέρω μπορούν εν τούτοις να χρησιμοποιούνται:-

(α) χάλκινα δοχεία για:-

1.- πεπιεσμένα αέρια της I<sup>ο</sup>, (α), (β) και (β T), και 2<sup>ο</sup>, (α) και (β), των οποίων η πίεση πλήρωσεως (γεμίσματος) η αναφερομένη σε θερμοκρασία 15<sup>ο</sup>C δεν υπερβαίνει τα 20 KG/CM<sup>2</sup> και

2.- πεπιεσμένα αέρια της 3<sup>ο</sup> (α)• διοξειδίο του θείου της 3<sup>ο</sup> (α T)• διμεθυλαιθέρας, αιθυλοχλωρίδιο και μεθυλενοχλωρίδιο της 3<sup>ο</sup> (β T)• βινυλχλωρίδιο της 3<sup>ο</sup> (γ)• βινυβρωμίδιο της 3<sup>ο</sup> (γ T)• μίγματα F 1, F 2 και F 3 της 4<sup>ο</sup> (α)• και αιθυλενοξειδίο περιέχον όχι άνω του 10<sup>ο</sup>/ο διοξειδίο του άνθρακος κατά βάρος, της 4<sup>ο</sup> (γ T)•

(β) δοχεία από κράμα-αλουμινίου (βλέπε Προσθήκη Α.2) για:-

1.- πεπιεσμένα αέρια της I<sup>ο</sup>, (α), (β) και (β T)• νιτρώδες οξύ (μονοξειδίο αζώτου) NO της I<sup>ο</sup> (γ T)• και πεπιεσμένα αέρια της 2<sup>ο</sup>, (α), (β) και (β T)•

2.- υγροποιημένα αέρια της 3<sup>ο</sup> (α)• διοξειδίο του θείου της 3<sup>ο</sup> (α T)• υγροποιημένα αέρια της 3<sup>ο</sup> (β) πλην μεθυσιλανίου• διμεθυλαιθέρας, σεληνούχο υδρογόνο, και μεθυλική μερκαπτάνη της 3<sup>ο</sup> (β T)•

αιθυλενοξειδίο της 3<sup>ο</sup> (γ Τ)<sup>\*</sup> υγροποιημένα 2203  
 αέρια της 4<sup>ο</sup>, (α) και (β)<sup>\*</sup> αιθυλενοξειδίο (Συνεχί-  
 ζεται)  
 περιέχον όχι άνω του 10<sup>ο</sup>/ο διοξειδίου του  
 άνθρακος κατά βάρος, της 4<sup>ο</sup> (γ Τ)<sup>\*</sup> και υγρο-  
 ποιημένα αέρια της 5<sup>ο</sup>, (α) και (β), και 6<sup>ο</sup>,  
 (α) και (γ). Διοξειδίο του θείου της 3<sup>ο</sup> (α Τ)  
 και ύλες της 3<sup>ο</sup> (α) και 4<sup>ο</sup> (α) θα είναι ξηρές  
 και

3.- διαλυόμενο ακετυλένιο της 9<sup>ο</sup> (γ).

Όλα τα αέρια τα οποία πρόκειται να μεταφερθούν μέσα  
 σε δοχεία από κράμα αλουμινίου θα είναι απαλλαγμένα  
 από αλκαλικές ακαθαρσίες.

(I) Τα δοχεία για διαλυόμενο ακετυλένιο (9<sup>ο</sup> (γ)) θα 2204  
 πληρούνται εξ ολοκλήρου με πορώδες υλικό, ομοιομορφα κατανε-  
 μημένο, τύπου εγκεκριμένου από την αρμόδια αρχή και το οποίο  
 (α) δεν προσβάλλει τα δοχεία ή σχηματίζει επιβλαβείς ή επικίν-  
 δυνες ενώσεις είτε με το ακετυλένιο είτε με τον διαλύτη.  
 (β) δεν εκτινάσσεται, ακόμη και μετά από παρατεταμένη χρήση  
 ή από τράνταγμα, σε θερμοκρασίες μέχρι 60<sup>ο</sup> C.  
 (γ) είναι ικανό να εμποδίσει την εξάπλωση της αποσυνθέσεως  
 του ακετυλενίου στη μάζα.

(2) Το διαλυτικό δεν πρέπει να προσβάλλει τα δοχεία.

(I) Τα παρακάτω υγροποιημένα αέρια μπορούν, επι- 2205  
 προσθέτως, να μεταφέρονται μέσα σε γυιάλινους σωλήνες με  
 χονδρά τοιχώματα υπό τον όρον ότι η ποσότης της ύλης σε κάθε  
 σωλήνα και ο βαθμός πληρώσεως των σωλήνων δεν υπερβαίνουν  
 τους παρακάτω σημειούμενους αριθμούς:



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(Συνεχίζεται)

<u>Όνομασία Αερίων</u>	<u>Ποσότης</u> <u>Ύλης</u>	<u>Βαθμός πληρώσεως</u> <u>του σωλήνος</u>
Διοξειδίο του άνθρακος, υποξειδίο του αζώτου N <sub>2</sub> O (5 <sup>ο</sup> (α)), αιθάνιο, αιθυλέ- νιο (5 <sup>ο</sup> (β))	3 Γραμμ.	ήμισυ της χωρητικό- τητας
Αμμωνία, χλώριο, μεθυλο- βρωμίδιο (3 <sup>ο</sup> (α Τ)), κυκλοπροπάνιο (3 <sup>ο</sup> (β)), αιθυλενοχλωρίδιο (3 <sup>ο</sup> (β Τ))	20 Γραμμ.	δύο-τρίτα της χωρητι- κότητας
Φωσγένιο, διοξειδίο του θειού (3 <sup>ο</sup> (α Τ))	100 Γραμμ.	τρία-τέταρτα της χω- ρητικότητας

(2) Οι γυάλινοι σωλήνες στεγανοί κατά της φλόγας και ασφαλισμένοι χωριστά με γη-διατόμων σε κλειστά καψύλλια από έλασμα τα οποία θα τοποθετούνται σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία κατάλληλης αντοχής (βλέπε επίσης περιθώριο 2222).

(3) Για διοξειδίο του θείου της 3<sup>ο</sup> (α Τ) γερά γυάλινα σιφόνια περιέχοντα όχι άνω των 1.5 KG ύλης και γεμάτα όχι άνω του 88% εκατόν της χωρητικότητός των επιτρέπονται επίσης. Τα σιφόνια θα ασφαρίζονται με γη-διατόμων, πριονίδιο ή κονιοποιημένο ανθρακικό ασβέστιο, ή με μίγμα από τα δύο τελευταία, μέσα σε ξύλινα κιβώτια ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Το κέλον δεν θα ζυγίζει άνω των 100 KG. Εάν ζυγίζει άνω των 30 KG θα είναι εφοδιασμένο με χειρολαβές.

(I) Αέρια της 3<sup>ο</sup> (α)· 3<sup>ο</sup> (β) πλην μεθυλοδιετανίου·

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3<sup>ο</sup> (β Τ) πλήν αρσίνης, διχλωροσιλανίου, διμεθυλοσιλανίου, σεληνούχου υδρογόνου και τριμεθυλοσιλανίου· 2206  
(Συνεχίζεται)

3<sup>ο</sup> (γ)· 3<sup>ο</sup> (γ Τ) πλήν χλωροκυανιδίου· και μίγματα της 4<sup>ο</sup> (α) και 4<sup>ο</sup> (β), μπορούν επίσης, υπό τον όρον ότι το βάρος του περιεχομένου ανά λίτραν υγρού δεν υπερβαίνει είτε το ανώτατο βάρος του περιεχομένου του οριζομένου στο περιθώριο 2220 είτε 150 γραμμ. ανά σωλήνα, να περιληφθούν σε γυάλινους σωλήνες με χονδρό τοίχωμα, ή σε μεταλλικούς σωλήνες με χονδρό τοίχωμα κατασκευασμένους από μέταλλο επιτρεπόμενο υπό του περιθωρίου 2203(2). Οι σωλήνες θα είναι απαλλαγμένοι από βλάβες δυνάμενες να εξασθενήσουν την αντοχήν τους· ειδικώτερα, οι εσωτερικές τάσεις των γυάλινων σωλήνων θα έχουν καταλλήλως ελαττωθεί και το πάχος των τοιχωμάτων του σωλήνος δεν θα είναι μικρότερο των 2 MM (χιλ.). Η στεγανότητα του συστήματος κλεισίματος θα εξασφαλίζεται με πρόσθετο μηχανισμό (κάλυμμα, κορώνα, σφραγίδα, δέσιμο, κλπ.) ικανόν να εμποδίζει οποιαδήποτε χαλάρωση του συστήματος κλεισίματος διαρκούσης της μεταφοράς. Οι σωλήνες θα ασφαρίζονται με αποσβεστικό υλικό σε μικρά κυττία κατασκευασμένα από ξύλο ή ινώδη σανίδα, του αριθμού των σωλήνων ανά κυττίον όντος τούτου ώστε το βάρος του υγρού του περιεχομένου στο κυττίο να μην υπερβαίνει τα 600 γραμμάρια. Τα μικρά αυτά κυττία θα τοποθετούνται σε ξύλινα κιβώτια ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής· εάν το εις υγρόν περιεχόμενον του κιβωτίου ζυγίζει περισσότερον των 5 KG το κιβώτιο θα επενδύεται με έλασμα μαλακής συγκολλησεως.

(2) Το κέλον δεν θα ζυγίζει άνω των 75 KG.

(I) Τα άέρια της 7<sup>ο</sup>(α) πλήν του διοξειδίου του 2207 άνθρακος και του υποξειδίου του αζώτου, και της 8<sup>ο</sup>(α) πλήν των μιγμάτων των περιεχόντων διοξείδιο του άνθρακος και υποξειδίου του αζώτου, θα εγκλείονται σε κλειστά, μεταλλικά με διπλό ποίχωμα δοχεία που είναι έτσι μονωμένα ώστε να μη μπορούν να επικαλυφθούν από δρόσον ή παγετόν και τα οποία είναι εφοδιασμένα με βαλβίδες ασφαλείας.

(2) Τα άέρια της 7<sup>ο</sup>(α) πλήν του διοξειδίου του άνθρακος και του υποξειδίου του αζώτου, και της 8<sup>ο</sup>(α) πλην των μιγμάτων των περιεχόντων διοξείδιο του άνθρακος και υποξειδίου του αζώτου, μπορούν επίσης να εγκλείονται σε δοχεία τα οποία είναι ερμητικώς κλεισμένα και τα οποία:

(α) είναι γυάλινα δοχεία διπλού τοιχώματος περιβεβλημένα δια κενού (VACUUM-JACKETED) ως και δια μίας απορροφητικής μονωτικής ύλης· τα δοχεία αυτά θα προστατεύονται με συμμάτινοφς κάλαθους και θα τοποθετούνται σε μεταλλικά κιβώτια· ή

(β) είναι μεταλλικά δοχεία προστατευόμενα κατά της μεταδόσεως της θερμότητας κατά τέτοιο τρόπο ώστε να μη μπορούν να επικαλυφθούν με δρόσον ή παγετόν· η χωρητικότητα των δοχείων αυτών δεν θα υπερβαίνει τα 100 λίτρα.

(3) Τα μεταλλικά κιβώτια τα αναφερόμενα στο εδάφιο (2)(α) και τα δοχεία τα αναφερόμενα στο εδάφιο (2)(β) ανωτέρω θα είναι εφοδιασμένα με χειρολαβές. Τα ανοίγματα των δοχείων των αναφερομένων στα εδάφια (2)(α) και (β) θα

είναι εφοδιασμένα με μηχανισμούς επιτρέποντας τα αέρια 2207  
να διαφεύγουν, εμποδίζοντας πιτσίλισμα του υγρού, και (Συνεχίζεται)  
έτσι στερεωμένους ώστε να μη πέσουν. Στη περίπτωση του  
οξυγόνου 7<sup>ο</sup>(α), και μιγμάτων περιεχόντων οξυγόνο της  
8<sup>ο</sup>(α), οι ανωτέρω αναφερόμενοι μηχανισμοί και η απορρο-  
φητική μονωτική ύλη η περιβάλλουσα τα δοχεία η αναφερομέ-  
νη στο εδάφιο (2)(α) θα είναι από άκαυστο υλικό.

(I) Οι διανεμητές αεροζόλ (I<sup>ο</sup>) και τα μη-ξανα- 2208  
γεμιζόμενα δοχεία (CONTAINERS) για αέριο υπό πίεση (II<sup>ο</sup>)  
θα πληρούν τους παρακάτω όρους:-

(α) οι διανεμητές αεροζόλ που περιέχουν μόνον αέριον ή  
μίγμα αερίων, και τα μη-ξαναγεμιζόμενα δοχεία (CONTAIN-  
ERS) για αέριο υπό πίεση, θα είναι από μέταλλο. Ο όρος  
αυτός δεν θα ισχύει για μη-ξαναγεμιζόμενα δοχεία  
(CONTAINERS) για αέριο υπό πίεση με ανώτατη χωρητι-  
κότητα 100 ML για βουτάνιο. Άλλοι διανεμητές αεροζόλ  
θα είναι κατασκευασμένοι από μέταλλο, πλαστική ύλη ή  
αέριο. Δοχεία κατασκευασμένα από μέταλλο και έχοντα  
εξωτερική διάμετρο όχι μικρότερη των 40 MM (χιλ.) θα  
έχουν κοίλο πυθμένα°

(β) δοχεία κατασκευασμένα από υλικά υποκειμένα σε θρυμμα-  
τισμό, όπως το γυαλί ή ωρισμένες πλαστικές ύλες, θα  
εγκλείονται σε συσκευή (στενά-πλεγμένο συρμάτινο δίκτυ,  
εύκαμπτο κάλυμμα κατασκευασμένο από πλαστική ύλη, κλπ.)  
παρέχουσα προστασίαν για θραύσματα και διασποράν αυτών.  
Δοχεία των οποίων η χωρητικότητα δεν υπερβαίνει τα  
150 CM<sup>3</sup> και των οποίων η εσωτερική πίεση στους 20<sup>ο</sup>C

είναι κάτω των  $1.5 \text{ KG/CM}^2$  εξαιρούνται από τον όρον 2208 αυτόν.

- (γ) η χωρητικότητα των δοχείων των κατασκευασμένων από μέταλλο δεν θα υπερβαίνει τα  $1.000 \text{ CM}^3$ . των δοχείων των κατασκευασμένων από πλαστική ύλη ή ύαλο δεν θα υπερβαίνει τα  $500 \text{ CM}^3$ .
- (δ) κάθε μοντέλο δοχείου, προτού τεθεί σε υπηρεσία, θα ικανοποιεί δοκιμήν υδραυλικής πίεσεως διεξαγομένην συμφώνως προς την Προσθήκην Α.2, περιθώριο 329I. Η εσωτερική πίεση που πρόκειται να εφαρμοσθεί (πίεση δοκιμής) θα είναι 1.5 φορά την εσωτερική πίεση στους  $50^\circ$ , με κατωτάτη πίεση  $10 \text{ KG/CM}^2$ .
- (ε) οι βαλβίδες αφέσεως των διανεμητών αεροζόλ, και οι μηχανισμοί διασποράς (διανομής) αυτών, θα εξασφαλίζουν οι διανεμητές να είναι έτσι κλεισμένοι ώστε να είναι στεγανοί και θα προστατεύονται από τυχαίο άνοιγμα. Οι βαλβίδες και οι μηχανισμοί διασποράς (διανομής) που κλείνουν μόνον δι' εσωτερικής πίεσεως δεν θα γίνονται δεκτοί.

(2) Τα παρακάτω αέρια θα γίνονται δεκτά ως προωθητά, ή ως αέρια πληρώσεως, για διανεμητές αεροζόλ:-  
 αέρια της  $1^\circ$ , (α) και (β)·  $2^\circ$ , (α) και (β)·  $3^\circ$ , (α) και (β) πλην μεθυλοσιλανίου· αιθυλοχλωρίδιο και διμεθυλαιθέρας της  $3^\circ$  (β Τ)· 1,3-βουταδιένιο της  $3^\circ$  (γ)· τριφθοριοχλωροαιθυλένιο της  $3^\circ$  (γ Τ)· αέρια της  $4^\circ$ , (α) και (β)· αέρια της  $5^\circ$ , (α) και (β) πλην του σιλανίου· αέρια της  $5^\circ$  (γ) και  $6^\circ$  (α) και (γ).

(3) Όλα τα αέρια της (2) και, επιπροσθέτως, 2208  
 τα παρακάτω αέρια θα γίνονται δεκτά ως αέρια πληρώσεως (Συνεχίζε-  
 (γεμίσματος) για μη-ξαναγεμιζόμενα δοχεία (CONTAINERS) ται)  
 για αέριο υπό πίεση: μεθυλοβρωμίδιο της 3<sup>ο</sup> (α Τ)· διμε-  
 θυλαμίνη, αιθυλαμίνη, μεθυλαμίνη, μεθυλική μερκαπτάνη  
 και τριμεθυλαμίνη της 3<sup>ο</sup> (β Τ)· αιθυλενοξειδίο, μεθυλο-  
 βινυλαιθέρας και βινυβρωμίδιο της 3<sup>ο</sup> (γ Τ)· αιθυλενοξει-  
 δίο περιέχον όχι άνω του 10<sup>ο</sup>/ο διοξειδίο του άνθρακος  
 κατά βάρος, της 4<sup>ο</sup> (γ Τ).

(I) Η εσωτερική πίεση στους 50<sup>ο</sup> C των διανεμητών 2209  
 αεροζόλ και των μη-ξαναγεμιζομένων δοχείων αερίου υπό  
 πίεση/θα <sup>δεν</sup> υπερβαίνει ούτε τα δύο-τρίτα της πίεσεως δοκι-  
 μής του δοχείου ούτε τα 12 KG/CM<sup>2</sup>.

(2) Οι διανεμητές αερίου και τα μη-ξαναγεμιζόμενα  
 δοχεία (CONTAINERS) αερίου υπό πίεση θα είναι έτσι γεμι-  
 σμένα ώστε στους 50<sup>ο</sup> C η φάση του υγρού να μην υπερβαίνει  
 το 95<sup>ο</sup>/ο της χωρητικότητάς των. Η χωρητικότητα των διανε-  
 μητών αεροζόλ είναι ο διαθέσιμος όγκος σε κλειστό διανε-  
 μητή εφοδιασμένο με το υποστήριγμα της βαλβίδας, την βαλ-  
 βίδα και τον σωλήνα εμβυθίσεως.

(3) Όλοι οι διανεμητές αεροζόλ και τα μη-ξαναγε-  
 μιζόμενα δοχεία (CONTAINERS) για αέριο υπό πίεση θα ικα-  
 νοποιούν δοκιμήν στεγανότητας σύμφωνα με τη Προσθήκη Α.2,  
 περιθώριο 3292.

(I) Οι διανεμητές αεροζόλ και τα μη-ξαναγεμιζόμενα  
 δοχεία (CONTAINERS) αερίου υπό πίεση θα τοποθετούνται σε  
 ξύλινα κιβώτια ή γερά από ινώδη σανίδα ή μέταλλο κυττα:

οι διανεμητές αεροζόλ οι κατασκευασμένοι από γυαλί ή πλαστική ύλη και υποκείμενοι σε θρυμματισμό θα διαχωρίζονται ο ένας από τον άλλον δι' ενδιάμεσου τοποθετήσεως φύλλων από ινώδη σανίδα ή άλλη κατάλληλη ύλη.

2210  
(Συνεχίζεται)

(2) Το κέλυφος δεν θα ζυγίζει άνω των 50 KG εάν χρησιμοποιούνται κυτία από ινώδη σανίδα ή άνω των 75 KG εάν χρησιμοποιούνται άλλα μέσα συσκευασίας.

(3) Όσον η μεταφορά είναι μεταφορά πλήρους φορτίου, εκάστου φορτίου περιλαμβάνοντος μόνον διανεμητές αεροζόλ κατασκευασμένους από μέταλλο, οι διανεμητές μπορούν να ομαδοποιηθούν και στερεωθούν σε δίσκους με τη βοήθεια κατάλληλης πλαστικής ύλης, μέσω μεθόδου συρρικνώσεως και θερμο-στεγανότητας, υπό τον όρον ότι ότι οι ομάδες των διανεμητών θα στοιβαχθούν και καταλλήλως ασφαλισθούν πάνω σε παλλέτες.

#### β.- Όροι διέποντες τα μεταλλικά δοχεία

(Οι όροι αυτοί δεν έχουν εφαρμογή για μεταλλικούς σωλήνες αναφερόμενους στο περιθώριο 2206, για δοχεία αναφερόμενα στο περιθώριο 2207(2)(β), ή για διανεμητές αεροζόλ ή μη-ξαναγεμιζόμενα μεταλλικά δοχεία (CONTAINERS) για αέριο υπό πίεση, αναφερόμενα στο περιθώριο 2208).

#### Γ.- Κατασκευή και εφαρμογές (βλέπε επίσης περιθώριο 2238).

(I) Στη πίεση δοκιμής, η τάση του μετάλλου στο σημείο της μεγαλύτερης τάσεως του δοχείου (περιθώρια 2215, 2219 και 2220), δεν πρέπει να υπερβαίνει τα τριάντε τέταρτα της εγγυημένης κατωτάτης τάσεως αποδόσεως (Re). Με τον όρο "τάσις αποδόσεως" νοείται η τάση που παρήχθη

η μόνιμη επιμήκυνση εκ 2<sup>ο</sup>/100 (τ.έ. 0.2 τοις εκατόν) ή, 22II  
για χάλυβες μετά ωστενίτου, 1<sup>ο</sup>/100 του μήκους του πιεζο- (Συνεχίζεται)  
μέτρου επί του τεμαχίου-δοκιμής.

Σημειώσεις:- Στη περίπτωση φύλλου-μετάλλου (ελάσματος) ο άξων του τεμαχίου-δοκιμής αντοχής εις εφελκυσμόν θα είναι σε ορθές γωνίες προς τη κατεύθυνση της ελάσεως. Η μόνιμη επιμήκυνση του θραύσματος ( $L = 5 \delta$ ) θα μετράται επί τεμαχίου-δοκιμής κυκλικής διατομής ένθα το μήκος του πιεζομέτρου  $L$  ισούται προς πέντε φορές τη διάμετρο  $\delta$ . Εάν τεμάχια-δοκιμής ορθογωνίου διατομής χρησιμοποιηθούν, το μήκος του πιεζομέτρου θα υπολογίζεται με τον τύπο  $L = 5.65 \sqrt{F_0}$ , όπου  $F_0$  δεικνύει την αρχική περιοχή (εμβαδόν) διατομής του δοχείου-δοκιμής.

(2) (α) Χαλύβδινα δοχεία των οποίων η πίεση δοκιμής υπερβαίνει τα 60 KG/CM<sup>2</sup> πρέπει να είναι κατασκευής άνευ ραφών ή συγκολλημένα. Για συγκολλημένα δοχεία, χάλυβες (ανθρακούχοι ή κράματα) πλήρως ικανοποιητικής ικανότητας συγκολλήσεως πρέπει να χρησιμοποιούνται.

(β) Δοχεία των οποίων η πίεση-δοκιμής δεν υπερβαίνει τα 60 KG/CM<sup>2</sup> είτε θα είναι σύμφωνα προς τις διατάξεις του ανωτέρω εδαφίου (α), είτε θα είναι πριτσινωμένα είτε θα υποστούν σκληρή συγκόλληση υπό τον όρον ότι ο κατασκευαστής εγγυάται την εργασία του πριτσινώματος και της σκληρής συγκολλήσεως και ότι οι αρμόδιες αρχές της χώρας προελεύσεως έχουν δώσει την έγκρισή τους.

(3) Τα εκ κράματος αργυλλίου (αλουμινίου) δοχεία πρέπει να είναι χωρίς ραφές ή συγκολλημένα.



(4) Συγκολλημένα δοχεία γίνονται δεκτά μόνον υπό τον όρον ότι ο κατασκευαστής εγγυάται την ποιότητα της εργασίας της συγκολλήσεως και ότι οι αρμόδιες αρχές της χώρας προελεύσεως έχουν δώσει την έγκρισή τους. 22Π1  
(Συνεχίζεται)

(I) Διάκριση γίνεται μεταξύ των παρακάτω τύπων δοχείων:- 22I2

- (α) κύλινδροι με χωρητικότητα μη υπερβαίνουσα τις 150 λίτρες·
- (β) δοχεία με χωρητικότητα όχι μικρότερη των 100 λιτρών (εξαιρέσει κυλίνδρων συμμορφουμένων προς το εδάφιο (α)) και όχι μεγαλύτερη των 1.000 λιτρών (π.χ. κυλινδρικά δοχεία εφοδιασμένα με τσέρκια (στεφάνες) σπειροειδείς, και δοχεία επί πελμάτων (SKIDS)·
- (γ) δεξαμενές (βλέπε Παράρτημα Β)·
- (δ) συγκροτήματα, γνωστά ως "πλαίσια", κυλίνδρων, συμμορφούμενα προς προς το εδάφιο (I)(α), των κυλίνδρων συνδεομένων μεταξύ των δια σωληνώσεως και συγκρατούμενων σταθερά μεταξύ των δια μεταλλικού εξαρτήματος·

(2) (α) Εάν, συμφώνως προς τους κανονισμούς της χώρας αναχωρήσεως, οι κύλινδροι οι αναφερόμενοι στο εδάφιο (I)(α) υποχρεούνται να είναι εφοδιασμένοι με μηχανισμό προλήψεως του κυλίσματος, ο μηχανισμός αυτός δεν θα πρέπει να είναι τμήμα του πώματος της βαλβίδας (περιθώριο 22I3 (2)).

(β) Δοχεία συμφώνως προς το εδάφιο (I)(β) τα οποία είναι ικανά να κυλιθούν πρέπει να είναι εφοδιασμένα με κυλιόμενες στεφάνες (ROLLING HOOPS) ή άλλως να

προστατεύονται από ζημιές οφειλόμενες στο κύλισμα (π.χ. 22I2 δια μετάλλου ανθεκτικού στη διάβρωση φεκασμένου επί της εξωτερικής επιφανείας του δοχείου). (Συνεχίζεται)

Δοχεία συμφώνως προς το εδάφιο (I)(β) και (I)(γ) που είναι ικανά να κυλιθούν πρέπει να είναι εφοδιασμένα με μηχανισμούς (πέλματα, δακτύλιοι, ταινίες) που να εξασφαλίζουν ότι μπορούν ασφαλώς να χειρισθούν δια μηχανικού μέσου και να είναι έτσι διευθετημένοι ώστε να μην εξασθενείται η αντοχή και να μη προκαλούνται αδικαιολόγητοι τάσεις στο τοίχωμα του δοχείου.

(γ) Πλαίσια κυλίνδρων, συμφώνως προς το εδάφιο (I) (δ) πρέπει να είναι εφοδιασμένα με μηχανισμούς εξασφαλίζοντας ότι μπορούν να χειρισθούν ασφαλώς. Η σωλήνωσις και ο κύριος κρουνός πρέπει να ευρίσκονται εντός του πλαισίου και να είναι έτσι στερεωμένα ώστε να προστατεύονται κατά οποιασδήποτε ζημίας.

(3) (α) Εξαιρέσει των αερίων των 7<sup>ο</sup> και 8<sup>ο</sup>, τα αέρια της Κλάσεως 2 μπορούν να μεταφέρονται σε κυλίνδρους συμφώνως προς το εδάφιο (I)(α).

Σημείωσις:- Για πιθανούς περιορισμούς αναφορικά με τη χωρητικότητα κυλίνδρων για ωρισμένα αέρια, βλέπε περιθώριο 22I9.

(β) Εξαιρέσει των φθορίου και τετραφθοριούχου πυριτίου (I<sup>ο</sup>(α T))<sup>\*</sup> μονοξειδίου του αζώτου (NO) (I<sup>ο</sup>(γ T))<sup>\*</sup> μιγμάτων υδρογόνου με όχι άνω του 10<sup>ο</sup>/ο σεληνούχου υδρογόνου ή/σιλανίου ή γερμανομεθανίου κατ'όγκον ή με όχι άνω του 15<sup>ο</sup>/ο αρσίνης κατ'όγκον<sup>\*</sup> μιγμάτων αζώτου ή σπανίων αε-

ρίων (περιεχόντων όχι άνω του 10<sup>ο</sup>/ο Ξένον κατ'όγκον) 2212  
 με όχι άνω του 10<sup>ο</sup>/ο σεληνούχο υδρογόνο ή φωσφίνη (Συνεχίζε-  
 ή σιλάνιο ή γερμανομεθάνιο κατ'όγκον ή με όχι άνω  
 του 15<sup>ο</sup>/ο αρσίνην κατ'όγκον (2<sup>ο</sup>(β T))· μιγμάτων υδρο-  
 γόνου με όχι άνω του 10<sup>ο</sup>/ο διβοράνιο κατ'όγκον· μιγ-  
 μάτων αζώτου ή σπανίων αερίων (περιεχόντων όχι άνω  
 του 10<sup>ο</sup>/ο Ξένον κατ'όγκον) με όχι άνω του 10<sup>ο</sup>/ο διβο-  
 ράνιο κατ'όγκον (2<sup>ο</sup>(γ T))· χλωριούχου βορίου, τριφθο-  
 ριούχου χλωρίου, χλωριούχου νιτριζύλ (NITROSYL), φθο-  
 ριούχου SULPHURYL και εξαφθοριούχου βολφραμίου (3<sup>ο</sup>  
 (α T))· μεθυλοσιλανίου (3<sup>ο</sup>(β)), αρσίνης, διχλωροσιλα-  
 νίου, διμεθυλοσιλανίου, σεληνούχου υδρογόνου και τρι-  
 μεθυλοσιλανίου (3<sup>ο</sup>(β T))· χλωροκυανιδίου, κυανογόνου  
 και αιθυλενοξειδίου (3<sup>ο</sup>(γ T))· μιγμάτων μεθυλοσιλανίων  
 (4<sup>ο</sup>(β T))· υλών της 4<sup>ο</sup>(γ) και 4<sup>ο</sup>(γ T) πλην διχλωροδι-  
 φθοριομεθανίου περιέχοντος 12<sup>ο</sup>/ο αιθυλενοξειδίου κατ'  
 όγκον· υποξειδίου του αζώτου (5<sup>ο</sup>(α))· σιλανίου (5<sup>ο</sup>(β))·  
 και υλών της 5<sup>ο</sup>(β T), 5<sup>ο</sup>(γ T), 7<sup>ο</sup>, 8<sup>ο</sup>, 12<sup>ο</sup> και 13<sup>ο</sup>,  
 άέρια της Κλάσεως 2 μπορούν να μεταφέρονται σε δο-  
 χεία συμφώνως προς το εδάφιο (I) (β).

(γ) Εξαίρεσει των τετραφθοριούχου πυριτίου  
 (1<sup>ο</sup>(α T))· μονοξειδίου του αζώτου (1<sup>ο</sup>(γ T))· μιγμάτων  
 υδρογόνου με όχι άνω του 10<sup>ο</sup>/ο σεληνούχο υδρογόνο ή  
 φωσφίνη ή σιλάνιο ή γερμανομεθάνιο κατ'όγκον ή με όχι  
 άνω του 15<sup>ο</sup>/ο αρσίνη κατ'όγκον· μιγμάτων αζώτου ή σπα-  
 νίων αερίων (περιεχόντων όχι άνω του 10<sup>ο</sup>/ο Ξένον κατ'  
 όγκον) με όχι άνω του 10<sup>ο</sup>/ο σεληνούχο υδρογόνο ή φωσφίνη

ή σιλάνιο ή γερμανομεθάνιο κατ'όγκον ή με όχι άνω του 22I2  
 I5<sup>ο</sup>/ο αρσίνη κατ'όγκον (2<sup>ο</sup>(β T))· μιγμάτων υδρογόνου (Συνεχίζε-  
 με όχι άνω του I0<sup>ο</sup>/ο διβοράνιο κατ'όγκον· μιγμάτων α-  
 ζώτου ή σπανίων αερίων (περιεχόντων όχι άνω του I0<sup>ο</sup>/ο  
 Ξένον κατ'όγκον) με όχι άνω του I0<sup>ο</sup>/ο διβοράνιο κατ'  
 όγκον (2<sup>ο</sup>(γ T))· χλωριούχου βορίου, τριφθοριούχου χλω-  
 ρίου, χλωριούχου NITROSYL, φθοριούχου SULPHURYL και  
 εξαφθοριούχου βολφραμίου (3<sup>ο</sup>(α T))· μεθυλοσιλανίου, σελην-  
 νούχου υδρογόνου και τριμεθυλοσιλανίου (3<sup>ο</sup>(β T))· χλω-  
 φοκυανιδίου, κυανογόνου και αιθυλενοξειδίου (3<sup>ο</sup>(γ T))·  
 μιγμάτων μεθυλοσιλανίων (4<sup>ο</sup>(β T))· υλών της 4<sup>ο</sup>(γ) και  
 4<sup>ο</sup>(γ T)) πλην διχλωροδιφθοριομεθανίου περιέχοντος I2<sup>ο</sup>/ο  
 αιθυλενοξείδιο κατ'όγκον· υποξειδίου του αζώτου (5<sup>ο</sup>(α))·  
 σιλανίου (5<sup>ο</sup>(β))· και υλών της 5<sup>ο</sup>(β T), 5<sup>ο</sup>(γ T), 7<sup>ο</sup>,  
 8<sup>ο</sup>, I2<sup>ο</sup> και I3<sup>ο</sup>; αέρια της Κλάσεως 2 μπορούν να μεταφέ-  
 ρονται σε πλαίσια κυλίνδρων συμφώνως προς το εδάφιο  
 (I)(δ). Ο καθένας των κυλίνδρων σε πλαίσιο κυλίνδρων θα  
 περιέχει μόνο ένα και το αυτό πεπιεσμένο αέριο, υγροποιη-  
 μένο αέριο ή αέριο διαλυμένο υπό πίεση. Κάθε κύλινδρος  
 σε πλαίσιο κυλίνδρων για φθόριο (I<sup>ο</sup>(α T)) ή διαλυμένο  
 ακετυλένιο (9<sup>ο</sup>(γ)) θα είναι εν τούτοις εφοδιασμένος με  
 κρουινόν. Οι κύλινδροι σε πλαίσιο κυλίνδρων για ακετυλέ-  
 νιο πρέπει όλοι να περιέχουν το αυτό πορώδες υλικό (πε-  
 ριθώριο 2204).

(I). Τα ανοίγματα για γέμισμα και άδειασμα δο- 22I3  
 χείων θα είναι εφοδιασμένα με βαλβίδες τύπου θυρίδας  
 ή βελονειδείς βαλβίδες. Βαλβίδες άλλων τύπων μπορούν

να γίνουν, όπως , δεκτές εάν παρέχουν ίδιες εγγυήσεις 2213 ασφαλείας και έχουν την έγκριση της χώρας προελεύσεως. Παρ'όλο τούτο, οποιοσδήποτε τύπος βαλβίδος υιοθετηθεί, το σύστημα προσαρτήτεώς της πρέπει να είναι γερό και τέτοιο ώστε η ικανοποιητική της κατάσταση να επαληθεύεται εύκολα προτού από κάθε γέμισμα.

Εκτός από ανθρωποθυρίδα, η οποία εάν παρέχεται θα είναι κλειστή με αποτελεσματικό κλείσιμο (κάλυμμα), και από τις απαραίτητες οπές για την αφαίρεση των ιζημάτων, τα δοχεία και οι δεξαμενές συμφώνως προς το περιθώριο 2212 (I)(β) και (γ) θα είναι εφοδιασμένα με άνω των δύο ανοιγμάτων, για γέμισμα και άνοιγμα αντιστοίχως. Εν τούτοις, χωρητικότητας όχι μικρότερας των 100 L προοριζόμενα για τη μεταφορά διαλυμένου ακετυλενίου (9<sup>ο</sup>(γ)) μπορούν να έχουν άνω των δύο ανοιγμάτων (οπών) για γέμισμα και άδειασμα.

Ομοίως, δοχεία και δεξαμενές συμφώνως προς περιθώριον 2212 (I), (β) και (γ), προοριζόμενα για τη μεταφορά των υλών της 3<sup>ο</sup>(β) και 4<sup>ο</sup>(β) μπορούν να διαθέτουν και άλλα ανοίγματα (οπές, στόμια) προοριζόμενα ειδικότερα για την επαλήθευση της στάθμης του υγρού και της πίεσεως του πιεζομέτρου.

(2) Οι βαλβίδες (κρουνοί) θα προστατεύονται αποτελεσματικά με πώματα ή μόνιμες φλάντζες. Τα πώματα θα διαθέτουν οπές αερισμού καταλλήλου διατομής για να εκκενώνουν τα αέρια εάν προκύψει διαρροή στις βαλβίδες. Τα πώματα ή οι φλάντζες θα προστατεύουν καταλλήλως την βαλβίδα εάν ο κύλινδρος πέσει και διαρκούσης της μεταφοράς και

στοιβάσας. Βαλβίδες τοποθετημένες εσωτερικά του λαιμού των δοχείων και προστατευόμενες από κοχλιωτό πώμα, και δοχεία που μεταφέρονται συσκευασμένα σε προστατευτικά κιβώτια, δεν θα χρειάζονται πώμα. Ομοίως, προστατευτικό πώμα δεν θα χρειασθεί για βαλβίδες (κρουνούς) επί πλαστών κυλίνδρων. 22I3  
(Συνεχίζεται)

(3) Δοχεία περιέχοντα φθόριο ( $I^{\circ}(\alpha \text{ F})$ ), τριφθοριούχο χλώριο ( $3^{\circ}(\alpha \text{ F})$ ) ή χλωροκυανίδιο ( $3^{\circ}(\gamma \text{ F})$ ), ανεξαρτήτως εάν μεταφέρονται ή όχι συσκευασμένα σε προστατευτικά κιβώτια, θα είναι εφοδιασμένα με πώματα από χάλυβα. Τα πώματα αυτά δεν θα έχουν ανοίγματα και, καθ' όλη τη μεταφορά, θα είναι εφοδιασμένα με παρέμβυσμα εξασφαλίζον αεριο-στεγανότητα και κατασκευασμένο από υλικό που δεν κινδυνεύει να προσβληθεί από το περιεχόμενο του δοχείου.

(I) Προκειμένου περί δοχείων περιεχόντων τριφθοριούχο βόριο ή φθόριο ( $I^{\circ}(\alpha \text{ F})$ ), τριφθοριούχο χλώριο ή υγροποιημένη αμμωνία ( $3^{\circ}(\alpha \text{ F})$ ), αμμωνία διαλυμένη στο νερό ( $9^{\circ}(\alpha \text{ F})$ ), χλωριούχο NITROSYL ( $3^{\circ}(\alpha \text{ F})$ ) ή διμεθυλαμίνη, αιθυλαμίνη, μεθυλαμίνη ή τριμεθυλαμίνη ( $3^{\circ}(\beta \text{ F})$ ), βαλβίδες κατασκευασμένες από χαλκό ή οποιοδήποτε άλλο μέταλλο κινδυνεύον να προσβληθεί από τα αέρια αυτά δεν θα γίνονται δεκτές. 22I4

(2) Η χρήση υλικών περιεχόντων λίπος ή έλαιον (ραφών) προς εξασφάλιση της στεγανότητας των ενώσεων/ή προς συντήρηση των μηχανισμών κλεισίματος των δοχείων των χρησιμοποιημένων για οξυγόνο ( $I^{\circ}(\alpha)$ ), φθόριο ( $I^{\circ}(\alpha \text{ F})$ ), μίγματα με οξυγόνο ( $2^{\circ}(\alpha)$ ), διοξειδίο του αζώτου, τριφθοριούχο

χλώριο ( $3^{\circ}$  (α Τ))· υποξειδίο του αζώτου ( $5^{\circ}$  (α))· ή μίγμα- 2214  
τα της  $12^{\circ}$  περιέχοντα άνω του  $10^{\circ}/ο$  οξυγόνον κατ'όγκον (Ευνεχίζε-  
ται)  
απαγορεύεται.

(3) Οι παρακάτω όροι θα ισχύουν για τη κατασκευή των δοχείων των αναφερομένων στο περιθώριο 2207 (I):-

- (α) Τα υλικά και η κατασκευή των δοχείων θα είναι σύμφωνα προς τους όρους της Προσθήκης Α.2, Β, περιθώρια 3250 έως 3254. Όλα τα μηχανικά και τεχνολογικά χαρακτηριστικά του χρησιμοποιηθέντος υλικού θα καθιερώνονται για κάθε δοχείο κατά τη πρώτη δοκιμή· αναφορικά με την αντοχήν εις κρούσιν και τον συντελεστήν κάμψως, βλέπε Προσθήκη Α.2, Β, περιθώρια 3265 έως 3285.
- (β) Τα δοχεία θα είναι εφοδιασμένα με βαλβίδα ασφαλείας η ποία θα είναι ικανή να ανοίγει στη καθωρισμένη πίεση που εικονίζεται στο δοχείο. Οι βαλβίδες θα είναι έτσι κατασκευασμένες, ώστε να λειτουργούν άριστα ακόμη και στη πολύ χαμηλή πίεση λειτουργίας. Το ασφαλές της λειτουργίας των στη θερμοκρασία αυτή θα καθιερούται και ελέγχεται με δοκιμή κάθε βαλβίδας ή δείγματας βαλβίδων του αυτού τύπου κατασκευής.
- (γ) Οι οπές αερισμού και βαλβίδες ασφαλείας των δοχείων θα έχουν έτσι σχεδιασθεί, ώστε να εμποδίζουν το πιτσάλισμα του υγρού.
- (δ) Οι μηχανισμοί κλεισίματος θα είναι έτσι ρυθμισμένοι, ώστε να μη μπορούν να ανοίγουν από αναρμόδια πρόσωπα.
- (ε) Δοχεία των οποίων το γέμισμα μετράται κατ'όγκον θα διαθέτουν δείκτην στάθμης.

(στ) Τα δοχεία θα είναι θερμικώς μονωμένα. Η θερμική μό- 2214  
 νωση θα προστατεύεται κατά της κρούσεως δια συνε- (Συνεχίζεται)  
 χούς μεταλλικής επενδύσεως. Εάν ο χώρος μεταξύ του  
 δοχείου και της μεταλλικής επενδύσεως είναι χωρίς  
 αέρα (μόνωση δια κενού), η προστατευτική επένδυση  
 θα σχεδιάζεται να αντέχει χωρίς παραμόρφωση σε εξωτε-  
 ρική πίεση τουλάχιστον  $1 \text{ KG/CM}^2$ . Εάν η επένδυση έχει  
 έτσι κλεισθεί ώστε να είναι αεριο-στεγής (π.χ. στη  
 περίπτωση της μονώσεως δια κενού), θα διατίθεται μη-  
 χανισμός εμποδίζων οποιαδήποτε επικίνδυνη πίεση να  
 αναπτυχθεί στο μονωτικό στρώμα στη περίπτωση ακατα-  
 λήλου αεριο-στεγανότητας του δοχείου ή των εξαρτημά-  
 των του. Ο μηχανισμός θα εμποδίζει την υγρασία να  
 εισχωρήσει στη μόνωση.

(4) Στη περίπτωση δοχείων περιεχόντων μίγματα της  
 $4^{\circ}(\gamma)$  ή διαλυμένο ακετυλένιο ( $9^{\circ}(\gamma)$ ), τα μεταλλικά τμήμα-  
 τα των μηχανισμών κλεισίματος τα ερχόμενα σε επαφή με το  
 περιεχόμενο δεν πρέπει να περιέχουν χαλκόν άνω του 70 εκατο-  
 εκατόν. Δοχεία για διαλυμένο ακετυλένιο ( $9^{\circ}(\gamma)$ ) μπορούν  
 επίσης να διαθέτουν ατμοφράκτες.

(5) Δοχεία περιέχοντα οξυγόνο της  $1^{\circ}(\alpha)$  έως  $7^{\circ}(\alpha)$   
 και εφαρμοσμένα σε ιχθυοθεξαμενές γίνονται ομοίως δεκτά  
 εάν διαθέτουν συσκευές παρέχουσες τη δυνατότητα στο οξυ-  
 γόνο να διαφεύγει βαθμιαία.

2.- Επίσημος έλεγχος δοχείων (για δοχεία από κράμα α-  
 λουμινίου, βλέπε επίσης Προσθήκη Α.2)

(I) Τα μεταλλικά δοχεία πρέπει να υποβάλλονται σε



αρχικούς και περιοδικούς ελέγχους υπό την επίβλεψη εμπειρογνώμονα αναγνωρισμένου υπό της αρμοδίας αρχής. Η φύση των ελέγχων αυτών καθορίζεται στα περιθώρια 22I6 και 22I7.

(2) Για να εξασφαλισθεί ότι τηρούνται οι διατάξεις των περιθωρίων 2204 και 222I (2), οι έλεγχοι των δοχείων των προοριζομένων να περιλάβουν διαλυμένο ακετυλένιο (9<sup>ο</sup> (γ)) θα περιλαμβάνουν, επιπροσθέτως, έλεγχο της φύσεως του πορώδους υλικού και της ποσότητας του διαλυτικού μέσου.

(I) Ο αρχικός έλεγχος καινούργιών ή μη-μεταχειρισμένων δοχείων θα περιλαμβάνει:- 22I6

A.- Επί καταλλήλου δείγματος δοχείων:-

- (α) έλεγχο του υλικού κατασκευής για τουλάχιστον την τάση αποδόσεως, την αντοχήν εις εφελκυσμόν, και την μόνιμη επιμήκυνση του θραύσματος· οι εκ των ελέγχων αυτών προκύπτουσες τιμές πρέπει να συμφωνούν με τους εθνικούς κανονισμούς·
- (β) μέτρηση του πάχους στο λεπτότερο σημείο του τοιχώματος και υπολογισμός της τάσεως·
- (γ) έλεγχο της ομοιογένειας του υλικού για κάθε παρτίδα κατασκευής, και επιθεώρηση της εξωτερικής και εσωτερικής καταστάσεως των δοχείων·

B.- Για όλα τα δοχεία:-

- (δ) έλεγχο υδραυλικής πιέσεως συμφώνως προς τις διατάξεις των περιθωρίων 22I9 έως 222I·
- (ε) επιθεώρηση των ενδείξεων επί των δοχείων (βλέπε περιθώριο 22I8).

Γ.- Επιπροσθέτως, για δοχεία προοριζόμενα για τη μετα- 2216  
 μορά διαλυμένου ακετυλενίου (9<sup>ο</sup>(γ)):- (Συνεχίζε-  
 (στ) επιθεώρηση όπως απαιτείται εκ των εθνικών κα-  
 ται)  
 νονισμών.

(2) Τα δοχεία πρέπει να αντέχουν στη πίεση του ελέγ-  
 χου χωρίς να υφίστανται μόνιμο παραμόρφωση ή να παρουσιάζ-  
 ζουν ρωγμές.

(3) Στις περιοδικές επιθεωρήσεις θα επαναλαμβάνον-  
 ται τα παρακάτω:-

ο έλεγχος υδραυλικής πίεσεως\* έλεγχος της εξωτερικής και  
 εσωτερικής καταστάσεως του δοχείου (π.χ., δια ζυγίσεως ,  
 εσωτερικής επιθεωρήσεως, ελέγχων του πάχους του τοιχώμα-  
 τος)\* επαλήθευση του εξοπλισμού και των ενδείξεων και,  
 εάν χρειασθεί, επαλήθευση των χαρακτηριστικών του υλικού  
 δια καταλλήλων ελέγχων.

Οι περιοδικές επιθεωρήσεις θα διεξάγονται:-

- (α) κάθε 2 χρόνια προκειμένου περί δοχείων προορι-  
 ζομένων για τη μεταφορά των αερίων της 1<sup>ο</sup>(α Τ)  
 και 1<sup>ο</sup>(γ Τ)\* αερίου πόλεως (δήμου) της 2<sup>ο</sup>(β Τ)\*  
 αερίων της 3<sup>ο</sup>(α Τ) πλην της αμμωνίας, εξαφθο-  
 ριοπροπυλενίου και μεθυλοβρωμιδίου\* χλωροκυα-  
 νιδίου της 3<sup>ο</sup>(γ Τ)\* και υλών της 5<sup>ο</sup>(α Τ)\*
- (β) κάθε 5 χρόνια προκειμένου περί δοχείων προοριζο-  
 μένων για τη μεταφορά άλλων πεπιεσμένων και υδρο-  
 ποιημένων αερίων (υπό την επιφύλαξη των διατά-  
 ξων του παρακάτω εδαφίου (γ)) και δοχείων για  
 τη μεταφορά αμμωνίας διαλυμένης υπό πίεση (9<sup>ο</sup>(α Τ)).

(γ) κάθε 10 χρόνια προκειμένου περί δοχείων προο- 2216  
ριζομένων για τη μεταφορά αερίων της 1<sup>ο</sup>(α) (Συνεχίζε-  
πλην του οξυγόνου\* μιγμάτων αζώτου με σπάνια ται)  
αέρια, της 2<sup>ο</sup>(α)\* αερίων της 3<sup>ο</sup>(α) και 3<sup>ο</sup>(β)  
πλην I,I-διφθοριομεθανίου, I-χώρο-I,I-διφθο-  
ριομεθανίου, μεθυλοσιλανίου και I,I,I-τριφθο-  
ριομεθανίου, και μιγμάτων αερίων της 4<sup>ο</sup>(α) και  
4<sup>ο</sup>(β), εάν τα δοχεία έχουν χωρητικότητα όχι  
άνω των 150 λιτρών και η χώρα προελεύσεως δεν  
βροβλέπει βραχύτερο χρονικό διάστημα.

(δ) προκειμένου περί δοχείων προοριζομένων για τη  
μεταφορά διαλυμένου ακετυλενίου (9<sup>ο</sup>(γ)),/περι-  
θώριο 2217(I) θα ισχύει, και προκειμένου περί  
των συμφώνως προς το περιθώριο 2207(I) δοχείων,  
το περιθώριο 2217(2) θα ισχύει.

(1) Η εξωτερική κατάσταση (διάβρωση, παραμόρφωση)  
και η κατάσταση (χαλάρωση, καθίζηση) του πορώδους υλι-  
κού σε δοχεία προοριζόμενα για τη μεταφορά διαλυμένου α-  
κετυλενίου (9<sup>ο</sup>(γ)) θα ελέγχονται κάθε 5 χρόνια. Η δειγμα-  
τοληψία θα εκτελείται δια της κοπής, εάν θεωρηθεί απαραλ-  
τητο, καταλλήλου αριθμού δοχείων και επιθεωρήσεως αυτών  
εσωτερικώς για διάβρωση και για οποιεσδήποτε αλλαγές που  
ενδέχεται να προέκυψαν στα συστατικά υλικά και το πορώδες  
υλικό.

(2) Τα συμφώνως προς το περιθώριο 2207(I) δοχεία  
θα υποβάλλονται κάθε 5 χρόνια σε εξωτερική επιθεώρηση και  
σε έλεγχο της στεγανότητας. Ο έλεγχος στεγανότητας θα διε-

ξάγεται με το αέριο περιλαμβανόμενο στο δοχείο ή με α- 22I7  
 δρανές αέριο σε πίεση 2 KG/CM<sup>2</sup>. Ο έλεγχος θα εκτελεστεί (Συνεχίζε-  
 δια πιεζομέτρου ή μετρήσεως δια κενού. Η θερμική μόνωση ται)  
 δεν θα αφαιρείται. Η πίεση δεν θα υποχωρεί διαρκούσης της  
 8-ώρου περιόδου ελέγχου. Αλλαγές απορρέουσες εκ της φύσεως  
 του αερίου δοκιμής (ελέγχου) ή εκ διακυμάνσεων της θερμοκρα-  
 σίας θα λαμβάνονται υπ' όψει.

(3) - Ενδείξεις επί των δοχείων

(I) Τα μεταλλικά δοχεία θα φέρουν τα παρακάτω 22I8  
 στοιχεία με γράμματα καθαρώς ευανάγνωστα και διαρκείας:-

- (α) μία των ονομασιών του αερίου ή του μίγματος αερίων,  
 πλήρη, όπως δίδεται στο περιθώριο 220I, I<sup>ο</sup> έως 9<sup>ο</sup>.  
 την επωνυμία ή το σήμα του κατασκευαστή ή ιδιοκτητή\*  
 και τον αριθμό του δοχείου (βλέπε επίσης περιθώριο  
 2202 (3)). Προκειμένου περί αλογόνων υδρογονανθράκων  
 των I<sup>ο</sup>(α), 3<sup>ο</sup>(α), 3<sup>ο</sup>(α T), 3<sup>ο</sup>(β), 3<sup>ο</sup>(γ T), 4<sup>ο</sup>(α), 5<sup>ο</sup>(α)  
 και 6<sup>ο</sup>(α), η χρήση του γράμματος R ακολουθουμένου υπό  
 του αριθμού αναγνωρίσεως της ύλης επιτρέπεται επίσης\*  
 (β) προκειμένου περί δοχείων προοριζομένων για υγροποιη-  
 μένα αέρια, το απόβαρον του δοχείου συμπεριλαμβανομέ-  
 νων των τοιούτων εξαρτημάτων και παρακολουθημάτων ως  
 βαλβίδων, κρουνών, μεταλλικών πωμάτων, κλπ., αλλά ε-  
 ξαιρουμένου του προστατευτικού καλύμματος\*  
 (γ) προκειμένου περί δοχείων προοριζομένων για πεπιεσμένα  
 αέρια, το απόβαρο του κανονικού δοχείου\*  
 (δ) τη πίεση δοκιμής (βλέπε περιθώρια 22I9 έως 222I) και  
 την ημερομηνία (μήνα, έτος) της γενομένης τελευταίας

- δοκιμής (ελέγχου) (βλέπε περιθώρια 2216 και 2217)\* 2218
- (ε) τη σφραγίδα του εμπειρογνώμονα που διεξήγαγε τους ελέγχους και επιθεωρήσεις και επιπροσθέτως: (Συνεχίζεται)
- (στ) προκειμένου περί πεπιεσμένων αερίων ή μιγμάτων πεπιεσμένων αερίων (1<sup>ο</sup>, 2<sup>ο</sup>, 12<sup>ο</sup> και 13<sup>ο</sup>): την ανωτάτη πίεση πληρώσεως στους 15<sup>ο</sup>C την επιτρεπομένη για το δοχείο (βλέπε περιθώριο 2219)\*
- (ζ) προκειμένου περί φθοριούχου βορίου (1<sup>ο</sup>(α Τ)), υγροποιημένων αερίων (3<sup>ο</sup> έως 6<sup>ο</sup>) και αμμωνίας διαλυμένης στο νερό (9<sup>ο</sup>(α Τ)): το επιτρεπόμενο ανώτατο γέμισμα, καθ' τη χωρητικότητα. Προκειμένου για βαθειάκατεψυγμένα αέρια ((DEEPLY-REFRIGERATED GASES) των 7<sup>ο</sup> και 8<sup>ο</sup>: τη χωρητικότητα\*
- (η) προκειμένου περί ακετυλενίου διαλυμένου σε διαλυτικό μέσο (9<sup>ο</sup>(γ)): την επιτρεπομένη πίεση πληρώσεως (βλέπε περιθώριο 2221(2)), και το βάρος του κενού δοχείου συμπεριλαμβανομένου του βάρους των εξαρτημάτων και παρακολουθημάτων, του πορώδους υλικού, και του διαλυτικού μέσου\*
- (θ) προκειμένου περί μιγμάτων αερίων της 12<sup>ο</sup> και αερίων δοκιμών(ελέγχων) της 13<sup>ο</sup>, οι λέξεις "μίγματα αερίων" ή "αέρια ελέγχων", αναλόγως της περιπτώσεως θα χαρασσονται στο δοχείο σαν γενική ένδειξη του περιεχομένου. Ακριβής περιγραφή του περιεχομένου θα εικονίζεται καθ' όλη τη μεταφορά\*
- (ι) προκειμένου περί μεταλλικών δοχείων τα οποία, συμφώνως προς το περιθώριο 2202(3), γίνονται δεκτά για τη μεταφορά ενός αριθμού διαφορετικών αερίων (δοχεία

(ανεξέτητος)  
 πολλαπλής χρήσεως), ακριβής, διαρκείας/περιγραφή 2218  
 του περιεχομένου θα εικονίζεται διαρκούσης της (Συνεχίζε-  
 μεταφοράς. ται)

(2) Οι ενδείξεις θα χαρασσονται είτε επί ενισχυ-  
 μένου τμήματος του δοχείου, είτε επί δακτυλίου, είτε επί  
 πλάκας αναγράφουσας στοιχεία, τοποθετημένης χωρίς να κι-  
 νείται στο δοχείο. Επιπροσθέτως, η ονομασία της ύλης μπο-  
 ρεί να σημειούται στο δοχείο δι' ορατής ευκρινούς επιγραφής  
 δια βαφής ή οιασδήποτε άλλης ισοδύναμου μεθόδου.

(γ) Πίεση δοκιμής, βαθμός πληρώσεως, και  
όριον χωρητικότητας, των δοχείων (βλέπε  
 επίσης περιθώρια 2238, 2II 180 και  
 2I2 180

(I) Προκειμένου περί δοχείων προοριζομένων για τη 2219  
 μεταφορά περιεσμένων αερίων των I<sup>ο</sup>, 2<sup>ο</sup> και I2<sup>ο</sup>, η εσωτε-  
 ρική πίεση (πίεση δοκιμής) η εφαρμοστέα για έλεγχο υδραυ-  
 λικής πίεσεως πρέπει να είναι τουλάχιστον μιά-μισυ φορά  
 η πίεση πληρώσεως στους 15<sup>ο</sup>C η σημειούμενη στο δοχείο, αλλά  
 όχι μικρότερη των 10 KG/CM<sup>2</sup>.

(2) Προκειμένου περί δοχείων προοριζομένων για τη  
 μεταφορά υλών της I<sup>ο</sup>(α) πλην του τετραφθοριομεθανίου· δευ-  
 τερίου και υδρογόνου της I<sup>ο</sup>(β)· ή αερίων της 2<sup>ο</sup>(α), η πίεση  
 πληρώσεως δεν θα υπερβαίνει τα 300 KG/CM<sup>2</sup> τα αναφερόμενα  
 για θερμοκρασία 15<sup>ο</sup>C. Στη περίπτωση των δεξαμενών, η πίεση  
 πληρώσεως δεν θα υπερβαίνει τα 250 KG/CM<sup>2</sup> τα αναφερόμενα  
 σε θερμοκρασία 15<sup>ο</sup>C.

Προκειμένου περί δοχείων και δεξαμενών προορι-

ζομένων για τη μεταφορά άλλων αερίων των 1<sup>ο</sup> και 2<sup>ο</sup> η πίεση πληρώσεως δεν θα υπερβαίνει τα 200 KG/CM<sup>2</sup> τα αναφερόμενα σε θερμοκρασία 15<sup>ο</sup>C. 2219  
(Συνεχίζεται)

(3) Προκειμένου περί δοχείων προοριζομένων για τη μεταφορά φθορίου (1<sup>ο</sup>(α F)) η εσωτερική πίεση (πίεση ελέγχου) η εφαρμοστέα για τον έλεγχο της υδραυλικής πίεσεως θα είναι 200 KG/CM<sup>2</sup> και η πίεση πληρώσεως δεν θα υπερβαίνει τα 28 KG/CM<sup>2</sup> σε θερμοκρασία 15<sup>ο</sup>C\* επιπροσθέτως, κανένα δοχείο δεν θα περιέχει περισσότερα των 5 KG φθορίου.

Προκειμένου περί δοχείων προοριζομένων για τη μεταφορά τριφθοριούχου βορίου (1<sup>ο</sup>(α F)) η υδραυλική πίεση η εφαρμοστέα στην πίεση δοκιμής (ελέγχου) θα είναι είτε 300 KG/CM<sup>2</sup>, οπότε το ανώτατο βάρος του περιεχομένου ανά λίτρο χωρητικότητας δεν θα υπερβαίνει τα 0.715 KG.

(4) Προκειμένου περί δοχείων προοριζομένων για τη μεταφορά μονοξειδίου του αζώτου NO (1<sup>ο</sup> (γ F)), η χωρητικότητα θα περιορίζεται στα 50 L\* η υδραυλική πίεση η εφαρμοστέα κατά την δοκιμή (πίεση δοκιμής) θα είναι 200 KG/CM<sup>2</sup> και η πίεση πληρώσεως δεν θα υπερβαίνει τα 50 KG/CM<sup>2</sup> σε θερμοκρασία 15<sup>ο</sup>C.

(5) Προκειμένου περί δοχείων προοριζομένων για τη μεταφορά μιγμάτων υδρογόνου με όχι άνω του 10 τοις εκατόν σεληνούχου υδρογόνου ή φωσφίνης ή σιλανίου ή γερμανομεθανίου κατ'όγκον ή με όχι άνω των 15 τοις εκατόν αρσίνης κατ'όγκον\* μιγμάτων αζώτου ή σπανίων αερίων (περιεχόντων όχι άνω του 10 τοις εκατόν Ξένο κατ'όγκον) με όχι

άνω του ΙΟ<sup>6</sup>τα εκατόν σεληνούχου υδρογόνου ή φωσφίνης 22Ι9 ή σιλανίου ή γερμανομεθανίου κατ'όγκον ή με όχι άνω (Συνεχίζεται) του Ι56τα εκατόν αρίνης κατ'όγκον (2<sup>0</sup>(β Τ))· μιγμάτων υδρογόνου με όχι άνω του ΙΟ<sup>6</sup>τα εκατόν διβορανίου κατ'όγκον· ή μιγμάτων αζώτου ή σπανίων αερίων (περιεχόντων όχι άνω του ΙΟ<sup>6</sup>τα εκατόν Ξένον κατ'όγκον) με όχι άνω του ΙΟ<sup>6</sup>τα εκατόν διβορανίου κατ'όγκον (2<sup>0</sup>(γ Τ)), η χωρητικότητα θα περιορίζεται σε 50 L· η υδραυλική πίεση η εφαρμοστέα στη δοκιμή (πίεση δοκιμής) δεν θα είναι μικρότερη των 200 KG/CM<sup>2</sup>· και η πίεση πλήρωσεως δεν θα υπερβαίνει τα 50 KG/CM<sup>2</sup> σε θερμοκρασία Ι5<sup>0</sup>С.

(6)- Δοχεία συμφώνως με το περιθώριο 2207(Ι), στη θερμοκρασία πλήρωσεως και σε πίεση Ι KG/CM<sup>2</sup>, δεν θα γεμίζονται πέραν του 98<sup>6</sup>τα εκατόν της χωρητικότητας των.

Όσάνκις μεταφέρεται όξυγόνον της 7<sup>0</sup>(α), θα λαμβάνονται μέτρα αποφυγής οιουδήποτε χυσίματος της υγρής φάσεως (LIQUID PHASE).

(7) Όσάνκις διαλυμένο ακετυλένιο (9<sup>0</sup>(γ)) μεταφέρεται σε δοχεία συμφώνως προς το περιθώριο 22Ι2(Ι) (β), η χωρητικότητας των δοχείων δεν θα υπερβαίνει τα Ι50 L.

(8) Η χωρητικότης των δοχείων των προοριζομένων για τη μεταφορά μιγμάτων αερίων της Ι2<sup>0</sup> δεν θα υπερβαίνει τα 50 L. Η πίεση του μίγματος δεν θα υπερβαίνει τα Ι50 KG/CM<sup>2</sup> σε θερμοκρασία Ι5<sup>0</sup>С.



(9) Η χωρητικότητα των δοχείων των προοριζο-  
μένων για τη μεταφορά αερίων δοκιμής (ελέγχου) της  
I3<sup>ο</sup> δεν θα υπερβαίνει τα 50 L. Η πίεση πληρώσεως σε  
θερμοκρασία 15<sup>ο</sup>C δεν θα υπερβαίνει το 76 τοις εκατόν  
της πίεσεως δοκιμής (ελέγχου) του δοχείου.

2219  
(Συνεχίζεται)

(10) Στη περίπτωση του εξαφθοριούχου βολφρα-  
μίου (3<sup>ο</sup>(α F)) η χωρητικότητα των δοχείων θα περιορί-  
ζεται στα 60 L.

Η χωρητικότητα δοχείων για τετραφθοριούχο  
πυρίτιο (I<sup>ο</sup>(α F))· χλωριούχο βόριο, χλωριούχο NITROSYL  
και φθοριούχο SULPHURYL (3<sup>ο</sup>(α F))· μεθυλοσιλανίου  
(3<sup>ο</sup>(β))· αρσίνης, διχλωροσιλανίου, διμεθυλοσιλανίου,  
σεληνούχου υδρογόνου και τριμεθυλοσιλανίου (3<sup>ο</sup>(β F))·  
χλωροκυανιδίου και κυανιδίου (3<sup>ο</sup>(γ F))· μιγμάτων μεθυ-  
λοσιλανίου (4<sup>ο</sup>(β F))· υλών της 4<sup>ο</sup>(γ F) πλην διχλωροδι-  
φθοριομεθανίου περιεχουσών 12 τοις εκατόν αιθυλενοξει-  
δίου κατά βάρος· σιλανίου (5<sup>ο</sup>(β))· και υλών της 5<sup>ο</sup>(β F))  
και (γ F), θα περιορίζεται στα 50.

(11) Προκειμένου περί δοχείων προοριζομένων  
για τριφθοριούχον χλώριον (3<sup>ο</sup>(α F)) η χωρητικότητά θα πε-  
ριορίζεται στα 40 L. Μετά το γέμισμα, δοχείον περιέχον  
τριφθοριούχον χλώριον (3<sup>ο</sup>(α F)), προτού παραδοθεί για  
μεταφορά, θα κρατείται επί όχι ολιγοτέρων των 7 ημερών  
προς επαλήθευσιν της στεγανότητάς του.

(I) Προκειμένου περί δοχείων προοριζομένων  
για τη μεταφορά υγροποιημένων αερίων των 3<sup>ο</sup> έως 6<sup>ο</sup>,  
και δοχείων προοριζομένων για τη μεταφορά αερίων δια-  
λυθέντων υπό πίεση της 9<sup>ο</sup>, η εφαρμοστέα υδραυλική πίεση

2220

κατά την δοκιμήν (πίεση δοκιμής) δεν θα είναι μικρότερα 2220 των 10 KG/CM<sup>2</sup>. (Συνεχίζεται)

(2) Προκειμένου περί υγροποιημένων αερίων των 3<sup>ο</sup> και 4<sup>ο</sup> θα τηρούνται οι κατωτέρω τιμαί για την υδραυλική πίεση την εφαρμοστέα κατά την δοκιμήν (πίεση δοκιμής) και για τον επιτρεπόμενον ανώτατον βαθμόν πληρώσεως: 1/2

Βλέπε στο τέλος του πίνακα της παραγράφου (2).

Περιγραφή Ύλης	Αριθμός Είδους	Κατωτάτη Πίεση Δοκιμής/ Ελέγχου. KG/CM <sup>2</sup>	Ανώτατο Βάρος Περιεχομένου ανά λίτρο χω- ρητικότητας KG
Βρωμοχλωροδιφθοριομεθάνιο (R 12 B I)	3 <sup>ο</sup> (α)	10	1.61
Χλωροδιφθοριομεθάνιο (R 22)	3 <sup>ο</sup> (α)	29	1.03
Χλωροπενταφθοριομεθάνιο (R 115)	3 <sup>ο</sup> (α)	25	1.06
Ι-χλωρο-2,2,2-τριφθοριομεθάνιο (R 133α)	3 <sup>ο</sup> (α)	10	1.18
Διχλωροδιφθοριομεθάνιο (R 12)	3 <sup>ο</sup> (α)	18	1.15
Διχλωροφθοριομεθάνιο (R 21)	3 <sup>ο</sup> (α)	10	1.23
1,2-Διχλωρο-1,1,2,2-τετραφθοριο- μεθάνιο (R 114)	3 <sup>ο</sup> (α)	10	1.30
Οκταφθοριοκυκλοβουτάνιο (R 318)	3 <sup>ο</sup> (α)	11	1.34
Αμμωνία	3 <sup>ο</sup> (α T)	33	0.53
Χλωριούχο Βόριο	3 <sup>ο</sup> (α T)	10	1.19
Χλώριο	3 <sup>ο</sup> (α T)	22	1.25
Τριφθοριούχο Χλώριο	3 <sup>ο</sup> (α T)	30	1.40

2220

(Συνεχίζεται)

Περιγραφή Ύλης	Αριθμός Είδους	Κατωτάτη Πίεση Δοκιμής/ Ελέγχου. KG/CM <sup>2</sup>	Ανώτατο Βάρος Περιεχομένου ανά λίτρο χω- ρητικότητας KG
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( Σ υ ν έ χ ε ι α )

Εξαφθοριοπροπυλένιο (R 216)	3 <sup>ο</sup> (α Τ)	22	1.11
Υδροβρώμιο	3 <sup>ο</sup> (α Τ)	60	1.20
Μεθυλοβρωμίδιο	3 <sup>ο</sup> (α Τ)	10	1.51
Διοξειδίο Αζώτου	3 <sup>ο</sup> (α Τ)	10	1.30
Χλωριούχο NITROSYL	3 <sup>ο</sup> (α Τ)	13	1.10
Φωσγένιο	3 <sup>ο</sup> (α Τ)	20	1.23
Διοξειδίο Θείου	3 <sup>ο</sup> (α Τ)	14	1.23
Φθοριούχο SULPHURYL	3 <sup>ο</sup> (α Τ)	50	1.10
Εξαφθοριούχο Βολφράμιο	3 <sup>ο</sup> (α Τ)	10	2.70
Βουτάνιο	3 <sup>ο</sup> (β)	10	0.51
I-Βουτένιο	3 <sup>ο</sup> (β)	10	0.53
I-Χλωρο-I, I-διφθοριομεθάνιο (R 142β)	3 <sup>ο</sup> (β)	10	0.99
CIS-2-βουτένιο	3 <sup>ο</sup> (β)	10	0.55
Κυκλοπροπάνιο	3 <sup>ο</sup> (β)	20	0.53
I, I-Διφθοριομεθάνιο (R 152α)	3 <sup>ο</sup> (β)	18	0.79
Ισοβοτάνιο	3 <sup>ο</sup> (β)	10	0.49
Ισοβουτένιο	3 <sup>ο</sup> (β)	10	0.52
Μεθυλοδιλάνιο	3 <sup>ο</sup> (β)	225	0.39
Προπάνιο	3 <sup>ο</sup> (β)	25	0.42
Προπυλένιο	3 <sup>ο</sup> (β)	30	0.43
TRANS-2-βουτένιο	3 <sup>ο</sup> (β)	10	0.54

Περιγραφή Ύλης	Αριθμός Είδους	Κατωτάτη Πίεση Δοκιμής/ Ελέγχου. KG/CM <sup>2</sup>	Ανώτατο Βάρος Περιεχομένου ανά λίτρο χω- ρητικότητας KG
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## ( Σ υ ν έ χ ε ι α )

I, I, I-Τριφθοριομεθάνιο	3 <sup>ο</sup> (β)	35	0.75
Αρσίνη	3 <sup>ο</sup> (β T)	42	1.10
Διχλωροσιλάνιο	3 <sup>ο</sup> (β T)	10	0.90
Διμεθυλαμίνη	3 <sup>ο</sup> (β T)	10	0.59
Διμεθυλαιθέρας	3 <sup>ο</sup> (β T)	18	0.58
Διμεθυλοσιλάνιο	3 <sup>ο</sup> (β T)	225	0.39
Αιθυλαμίνη	3 <sup>ο</sup> (β T)	10	0.61
Αιθυλοχλωρίδιο	3 <sup>ο</sup> (β T)	10	0.80
Σεληνούχο Υδρογόνο	3 <sup>ο</sup> (β T)	31	1.60
Υδροσουλφίδιο	3 <sup>ο</sup> (β T)	55	0.67
Μεθυλαμίνη	3 <sup>ο</sup> (β T)	13	0.58
Μεθυλοχλωρίδιο	3 <sup>ο</sup> (β T)	17	0.81
Μεθυλική Μερκαπτάνη	3 <sup>ο</sup> (β T)	10	0.78
Τριμεθυλαμίνη	3 <sup>ο</sup> (β T)	10	0.56
Τριμεθυλοσιλάνιο	3 <sup>ο</sup> (β T)	225	0.39
I, 3-Βουταδιένιο	3 <sup>ο</sup> (γ)	10	0.55
Βινυλχλωρίδιο	3 <sup>ο</sup> (γ)	12	0.81
Κυανογόνο	3 <sup>ο</sup> (γ T)	100	0.70
Χλωροκυανίδιο	3 <sup>ο</sup> (γ T)	20	1.03
Αιθυλενοξείδιο	3 <sup>ο</sup> (γ T)	10	0.78
Μεθυλοβινυλαιθέρας	3 <sup>ο</sup> (γ T)	10	0.67

2220

(Συνεχίζεται)

Περιγραφή Ύλης	Αριθμός Είδους	Κατωτάτη Πίεση Δοκιμής/ Ελέγχου. KG/CM <sup>2</sup>	Ανώτατο Περιεχομένου ανά λίτρο χω- ρητικότητας KG	Βάρος
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## ( Σ υ ν έ χ ε ι α )

Τριφθοριοχλωροαιθυλένιο (R III3)	3 <sup>ο</sup> (γ T)	19	I.13	
Βινυβρωμιδίο	3 <sup>ο</sup> (γ T)	10	I.37	
Μίγμα F 1	4 <sup>ο</sup> (α)	12	I.23	
Μίγμα F 2	4 <sup>ο</sup> (α)	18	I.15	
Μίγμα F 3	4 <sup>ο</sup> (α)	29	I.03	
Μίγμα αερίων R 500	4 <sup>ο</sup> (α)	22	I.01	
Μίγμα αερίων R 502	4 <sup>ο</sup> (α)	31	I.05	
Μίγμα I9 έως 216 τόνων εκατόν κατά βάρος διχλωροδιφθοριομεθανίου (R I2) και 79 έως 816 τόνων εκα- τόν κατά βάρος βρωμοχλωροδιφθο- ρομεθανίου (R I2 BI)	4 <sup>ο</sup> (α)	12	I.50	
Μίγματα μεθυλοβρωμιδίου και χλω- ροπικρίνης	4 <sup>ο</sup> (α T)	10	I.51	
Μίγμα A (εμπορική ονομασία: βου- τάνιο)	4 <sup>ο</sup> (β)	10	0.50	
Μίγμα A O (εμπορική ονομασία: βου- τάνιο)	4 <sup>ο</sup> (β)	15	0.47	
Μίγμα A I	4 <sup>ο</sup> (β)	20	0.46	
Μίγμα B	4 <sup>ο</sup> (β)	25	0.43	
Μίγμα Γ (εμπορική ονομασία: προπά- νιο)	4 <sup>ο</sup> (β)	30	0.42	
Μίγματα υδρογονανθράκων περιέχοντα μεθάνιο	4 <sup>ο</sup> (β)	225 300	0.187 0.244	

2220

(Συνεχίζεται)

Περιγραφή Ύλης	Αριθμός Είδους	Κατωτάτη Πίεση Δοκιμής/ Ελέγχου KG/CM <sup>2</sup>	Ανώτατο Βάρος περιεχομένου ανά λίτρο χω- ρητικότητας KG
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( Σ υ ν ε χ ί ζ ε τ α ι )

Μίγματα μεθυλοσιλανίων	4 <sup>ο</sup> (β Τ)	225	0.39
Μίγματα μεθυλοχλωριδίου και μεθυλενοχλωριδίου	4 <sup>ο</sup> (β Τ)	17	0.81
Μίγματα μεθυλοχλωριδίου και χλωροπικρίνης	4 <sup>ο</sup> (β Τ)	17	0.81
Μίγματα μεθυλοβρωμιδίου και αιθυ- λενοβρωμιδίου	4 <sup>ο</sup> (β Τ)	10	1.51
Μίγματα μεθυλακετυλενίου/προπα- διένης και υδρογονανθράκων			
Μίγμα Ρ 1	4 <sup>ο</sup> (γ)	30	0.49
Μίγμα Ρ 2	4 <sup>ο</sup> (γ)	24	0.47
Αιθυλενοξειδίο περιέχον όχι άνω του 10 τοις εκατόν διοξειδίου του άνθρακος κατά βάρος	4 <sup>ο</sup> (γ Τ)	28	0.73
Αιθυλενοξειδίο περιέχον όχι άνω του 50 τοις εκατόν μεθυλικού άλατος μυρμηκιοκού οξέος κατά βάρος με ά- ζωτο μέχρι ανωτάτης ολικής πίεσεως 10 KG/CM <sup>2</sup> στους 50 <sup>ο</sup> C.	4 <sup>ο</sup> (γ Τ)	25	0.80
Αιθυλενοξειδίο με άζωτο μέχρι ολι- κής πίεσεως 10 KG/CM <sup>2</sup> στους 50 <sup>ο</sup> C	4 <sup>ο</sup> (γ Τ)	15	0.78
Διχλωροδιφθοριομεθάνιο περιέχον 12 τοις εκατόν αιθυλενοξειδίο κατά βάρος	4 <sup>ο</sup> (γ Τ)	18	1.09

2226

(συνεχίζεται)

1.- Οι προβλεπόμενες πιέσεις δοκιμής/ελέγχου είναι τουλάχιστον ίσες προς τις πιέσεις ατμού των υγρών στους  $70^{\circ}\text{C}$ , μειωμένες κατά  $1 \text{ KG/CM}^2$ , της απαιτούμενης κατωτάτης πίεσεως δοκιμής/ελέγχου ούσης, εντούτοις,  $10 \text{ KG/CM}^2$ .

2.- Ενόψει του υψηλού βαθμού τοξικότητας του φωσγενίου (χλωριούχο καρβονύλιο) ( $3^{\circ}(\alpha \text{ T})$ ) και του χλωροκυανιδίου ( $3^{\circ}(\gamma \text{ T})$ ), η κατωτάτη πίεση δοκιμής/ελέγχου για τα αέρια αυτά έχει ορισθεί στα  $20 \text{ KG/CM}^2$ .

3.- Οι ανώτατες προβλεπόμενες τιμές για τον βαθμόν πληρώσεως σε  $\text{KG/LITRE}$  έχουν καθορισθεί ως κάτωτωθι:- ανώτατο βάρος περιεχομένου ανά λίτρο χωρητικότητας = 0.95 φορές τη πυκνότητα της υγρής φάσεως στους  $50^{\circ}\text{C}$ · επιπροσθέτως, η φάση ατμού δεν πρέπει να εξαφανίζεται κάτω των  $60^{\circ}\text{C}$ .

(3) Προκειμένου περί δοχείων προοριζομένων να περιέχουν υγροποιημένα αέρια των  $5^{\circ}$  και  $6^{\circ}$  ο βαθμός πληρώσεως θα είναι τέτοιος ώστε η εσωτερική πίεση στους  $65^{\circ}\text{C}$  μνη υπερβάλνει τη πίεση δοκιμής/ελέγχου των δοχείων.

θα τηρούνται οι παρακάτω τιμές (βλέπε επίσης παράγραφον

(4)):-

2220

(Συνεχίζεται)

Περιγραφή Ύλης	Αριθμός Είδους	Κατωτάτη Πίεση Δοκιμής/ Ελέγχου KG/CM <sup>2</sup>	Ανώτατο Περιεχομένου ανα λίτρο χωρητι- κότητας. KG
Βρωμοτριφθοριομεθάνιο (R 13 B 1)	5 <sup>ο</sup> (α)	42	1.13
		120	1.44
		250	1.60
Διοξείδιο Άνθρακος	5 <sup>ο</sup> (α)	190	0.66
		250	0.75
Χλωροτριφθοριομεθάνιο (R 13)	5 <sup>ο</sup> (α)	100	0.83
		120	0.90
		190	1.04
		250	1.10
Εξαφθοριοαιθάνιο (R 116)	5 <sup>ο</sup> (α)	200	1.10
Υποξείδιο του Αζώτου N <sub>2</sub> O	5 <sup>ο</sup> (α)	180	0.68
		225	0.74
		250	0.75
Εξαφθοριούχο Θείο	5 <sup>ο</sup> (α)	70	1.04
		140	1.37
Τριφθοριομεθάνιο (R 23)	5 <sup>ο</sup> (α)	190	0.87
		250	0.95
Εξόνον	5 <sup>ο</sup> (α)	130	1.24
Υδροχλωρίδιο	5 <sup>ο</sup> (α, T)	100	0.30
		120	0.56
		150	0.67
		200	0.74
Αιθάνιο	5 <sup>ο</sup> (β)	95	0.25
		120	0.29
		300	0.39
Σιλάνιο	5 <sup>ο</sup> (β)	225	0.32
		250	0.41
Αιθυλένιο	5 <sup>ο</sup> (β)	225	0.34
		300	0.37



2220

(Συνεχίζεται)

Περιγραφή Ύλης	Αριθμός Είδους	Κατωτάτη Πίεση Δοκιμής/ Ελέγχου KG/CM <sup>2</sup>	Ανώτατο Περιεχομένου ανά λίτρο χωρη- τικότητας KG	Βάρος
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( Σ υ ν ε χ ε ι α )

Γερμανομεθάνιο	5 <sup>ο</sup> (β Τ)	250	1.02	
Φωσφίνη	5 <sup>ο</sup> (β Τ)	225 250	0.30 0.51	
Ι.Ι-Διφθοριοαιθυλένιο	5 <sup>ο</sup> (γ)	250	0.77	
Φθοριούχο βινύλιο	5 <sup>ο</sup> (γ)	250	0.64	
Διβοράνιο	5 <sup>ο</sup> (γ Τ)	250	0.072	

Συστατικά

(βάρος τοις εκατόν)

Διοξειδίο του άνθρακος περιέχον Ι-ΙΟ τοις εκατόν άζωτον, οξυ- γόνον, αέρα ή σπάνια αέρια κατά βάρος	6 <sup>ο</sup> (α)	190	I	0.64
		190	I-IO	0.48
		250	I	0.73
		250	I-IO	0.59
Μίγμα αερίων R 503	6 <sup>ο</sup> (α)	31		0.11
		42		0.20
		100		0.66
Διοξειδίο του άνθρακος περιέχον όχι άνω του 35 τοις εκατόν αιθυλενοξειδίο κατά βάρος	6 <sup>ο</sup> (γ)	190		0.66
		250		0.75
Αιθυλενοξειδίο περιέχον άνω του 10 τοις εκατόν αλλά όχι άνω του 50 τοις εκατόν διοξειδίου του άνθρακος κατά βάρος	6 <sup>ο</sup> (γ Τ)	190		0.66
		250		0.75

(4) Για όλες της 5<sup>ο</sup> πλην υδροχλωριδίου(5<sup>ο</sup> (α Τ))• γερμανομεθανίου και φωσφίνης (5<sup>ο</sup> (β Τ))• και

διβορανίου ( $5^{\circ}$  (γ Τ)), και για ύλες της  $6^{\circ}$ , η χρήση ελεγ- 2220  
 χθέντων δοχείων σε κατώτερη πίεση της οριζομένης στη (Συνεχίζε-  
 παράγραφο (3) για την ~~επ~~ ύλη επιτρέπεται, αλλά <sup>ται</sup>)  
 η ποσότητάς της ανά δοχείο δεν θα υπερβαίνει εκείνη  
 η οποία στους  $65^{\circ}$  C θα παρήγαγε εσωτερικώς του δοχείου  
 πίεση ίση με τη πίεση δοκιμής/ελέγχου. Στη περίπτωση  
 αυτή το επιτρεπόμενο ανώτατο φορτίο θα καθορίζεται υπο  
 του εμπειρογνώμονα του αναγνωριζομένου υπό της αρμοδίας  
 αρχής.

(I) Προκειμένου περί αερίων διαλυομένων υπό 2221  
 πίεση, της  $9^{\circ}$ , οι παρακάτω τιμές θα τηρούνται για την  
 υδραυλική πίεση την εφαρμοστέα επί των δοχείων κατά την  
 δοκιμή/έλεγχο (πίεση δοκιμής/ελέγχου), και για τον  
 επιτρεπόμενον ανώτατον βαθμόν πληρώσεως:-

Περιγραφή Ύλης	Αριθμός Είδους	Κατωτάτη Πίεση Δοκιμής/ Ελέγχου KG/CM <sup>2</sup>	Ανώτατο Περιεχομένου ανά λίτρο χωρη- τικότητας KG	Βάρος
Αμμωνία διαλυμένη υπό πίεση στο νερό με άνω του $35^{\circ}$ /ο αλλά όχι άνω του $40^{\circ}$ /ο αμμωνία κατά βάρος	$9^{\circ}$ (α Τ)	10	0.80	
με άνω του $40^{\circ}$ /ο αλλά όχι άνω του $50^{\circ}$ /ο αμμωνία κατά βάρος	$9^{\circ}$ (α Τ)	12	0.77	
Διαλυμένο Ακετυλένιο	$9^{\circ}$ (γ)	60	βλέπε υπό στοι- χείον (2)	

(2) Προκειμένου περί διαλυμένου ακετυλενίου ( $9^{\circ}$  (γ)), άπαξ και η ισορροπία επετεύχθη στους  $15^{\circ}$  C

η πίεση πληρώσεως του κυλίνδρου δεν θα υπερβαίνει την 222I τιμήν την προβλεπομένην υπό της αρμοφίας αρχής για (Συνεχίζεται) τη πορώδη μάζα, η οποία τιμή θα είναι χαραγμένη στον κύλινδρο. Η ποσότης του διαλυτικού μέσου και η ποσότης του ακετυλενίου θα αντιστοιχούν κι' αυτές στους αριθμούς τους οριζομένους στην έγκριση.

### 3.- Μικτή Συσκευασία

Οι ύλες της Κλάσεως αυτής πλην των υλών των 2222 7<sup>ο</sup> και 8<sup>ο</sup> μπορούν να εγκλιεσθούν στο ίδιο κδλον μεταξύ των εάν περιέχονται:-

(α) σε μεταλλικής πίεσεως δοχεία δγκου μη υπερβαίνοντος τα 10 λίτρα •

(β) σε γυά-λινους σωλήνες χονδρού-τοιχώματος ή γυά-λινα σιφόνια συμφώνως προς τα περιθώρια 2205 και 2206, υπό τον όρον ότι τα εύθραυστα αυτά δοχεία (υποδοχεία) ασφαλιζονται (στερεώνονται) συμφώνως προς τας διατάξεις του περιθωρίου 200I(5). Το αποσβεστικό υλικό θα ταιριάζει στις ιδιότητες του περιεχομένου. Οι εσωτερικές συσκευασίες θα τοποθετούνται σε εξωτερική συσκευασία στην οποία θα θα τηρούνται αποτελεσματικά χωριστά η μία από την άλλη.

(2) Είδη των IO<sup>ο</sup> και II<sup>ο</sup> μπορούν να εγκλιούνται στο ίδιο κδλον η μία με την άλλη υπό τους όρους τους προβλεπομένους στο περιθώριο 2210.

(3) Επιπροσθέτως, ύλες συσκευασμένες συμφώνως προς τα περιθώρια 2205 και 2206 μπορούν να εγκλιούνται στο ίδιο κδλον η μία με την άλλη υπό τους παρακάτω ειδικούς όρους.

(4) Κόλον το οποίον θα πληροί τους όρους 2222 των (I) και (3) δεν θα ζυγίζεται πάνω από 100 KG, ή (Συνεχίζεται) πάνω από 75 KG εάν περιέχει εύθραυστα δοχεία. ται)

Ειδικοί Όροι:-

Αρ. ή Γράμμα Είδους	Περιγραφή Ύλης	Ανωτάτη Ποσότητα ανά δοχείο	Ειδικές Διατά- ξεις ανά κόλον
	<u>Αέρια συσκευασμένα συμφώνως προς το περιθώριο 2205</u>		Χλώριον (3 <sup>ο</sup> (α T)) δεν θα συσκευάζεται με διοξείδιο του θείου (3 <sup>ο</sup> (α T))
	Όλα τα αέρια τα αναγραφόμενα στο περιθώριο αυτό	στις ποσό- τητες τις προβλεπόμενες στο περιθώριο 2205	6KG
(α)	Άφλεκτα Αέρια		Δεν θα συσκευά- ζονται με ύλες των Κλάσεων Iα, Iβ, Iγ, 3, 4.2, 5.2 ή 7
(α T)	Άφλεκτα Τοξικά Αέρια		Δεν θα συσκευά- ζονται με ύλες των Κλάσεων Iα, Iβ, Iγ, 3, 4.I, 4.2, 4.3, 5.I, 5.2, 7 ή 8
(β)	Εύφλεκτα Αέρια		
	<u>Αέρια συσκευασμένα συμφώνως προς το πε- ριθώριο 2206</u>		
	Όλα τα αέρια τα ανα- γραφόμενα στο περι- θώριο πλην αμμωνίας και κυκλοπροπανίου		

2222

(Συνεχίζεται)

Αρ. ή Γράμμα Είδους	Περιγραφή Ύλης	Ανωτάτη Ποσότητα ανά δοχείο	Ειδικές Διατά- ξεις
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( Σ υ ν έ χ ε ι α )

(α)	Άφλεκτα Αέρια		Δεν θα συσκευάζονται με ύλες των Κλάσεων Ια, Ιβ, Ιγ, 3, 4.2, 5.2 ή 7
(α Τ)	Άφλεκτα Τοξικά Αέρια	150 G	6 KG
(β)	Εύφλεκτα Αέρια		Δεν θα συσκευάζονται με ύλες των Κλάσεων Ια, Ιβ, Ιγ, 3, 4.Ι, 4.2, 4.3, 5.Ι, 5.2 ή 7
(β Τ)	Εύφλεκτα Τοξικά Αέρια		
(γ)	Χημικώς Ασταθή Αέρια		
(γ Τ)	Χημικώς Ασταθή Τοξικά Αέρια		
3 <sup>ο</sup> (α Τ)	Αμμώνια	20 G	6 KG
3 <sup>ο</sup> (β)	Κυκλοπροπάνιο		

4.- Ένδειξεις και ετικέτες στα κόλα (βλέπε Προσθήκη Α.9)

(I) Κάθε κόλον περιέχον δοχεία με αέρια των 2223 I<sup>ο</sup> έως 9<sup>ο</sup>, I2<sup>ο</sup> ή I3<sup>ο</sup> ή μη-ξαναγεμιζόμενα δοχεία (CONTAINERS) αερίου υπό πίεση της II<sup>ο</sup> θα μαρκάρονται ευανάγνωστα και ανεξίτηλα με την ένδειξη του περιεχομένου, προσθέτοντας "Κλάση: 2". Το μαρκάρισμα αυτό θα είναι στην επίσημη γλώσσα της χώρας της αναχωρήσεως, και επί-

σης, εάν η γλώσσα αυτή δεν είναι η Αγγλική, ή Γαλλική, 2223  
 ή Γερμανική, στην Αγγλική, Γαλλική ή Γερμανική, (Συνβιβάζεται)  
 εκτός εάν, τυχόν, συμφωνίες συνήφθησαν μεταξύ των  
 ενδιαφερομένων χωρών προλέγουσας ως αναφορικώς με την  
 επιχείρηση της μεταφοράς.

Η παρούσα διάταξη δεν χρειάζεται να τηρηθεί εάν τα δοχεία και οι ενδείξεις τους είναι σαφώς ορατά.

(2) Κόλα περιέχοντα διανεμητές αεροζόλ της IO<sup>0</sup> θα μαρκάρονται με τη λέξη "ΑΕΡΟΖΟΛ" με γράμματα ευανάγνωστα και ανεξίτηλα.

(3) Οσάκις η αποστολή είναι αποστολή πλήρους φορτίου, οι ενδείξεις οι αναφερόμενες στην παράγραφο (I) δεν είναι υποχρεωτικές.

(I) Κόλα τα οποία περιέχουν δοχεία κατασκευασμένα από υλικά κινδυνεύοντα να θρυμματισθούν, όπως η ύαλος ή ωρισμένες πλαστικές ύλες, θα φέρουν ετικέτα συμφώνως προς το μοντέλο Νο.9. 2224

(2) Κάθε κόλον περιέχον αέρια της V<sup>0</sup>(α) ή 8<sup>0</sup>(α) θα φέρει, σε δύο αντίθετες πλευρές, ετικέτες συμφώνως προς το μοντέλο Νο.8, και εάν οι ύλες τις οποίες περιέχει εγκλείονται σε γυάλινα δοχεία (περιθώριο 2207(2)(α)), πρέπει, επιπροσθέτως, να φέρει ετικέτα συμφώνως προς το μοντέλο Νο.9.

Κάθε κόλον περιέχον διανεμητές αεροζόλ των IO<sup>0</sup>(β) 2., IO<sup>0</sup>(β T) 2., IO<sup>0</sup>(γ) ή IO<sup>0</sup>(γ T), ή μη-ξαναγεμιζόμενα δοχεία (CONTAINERS) αερίου υπό πίεση των 2225

II<sup>ο</sup> (β), II<sup>ο</sup> (β T), II<sup>ο</sup> (γ) ή II<sup>ο</sup> (γ T), θα φέρει επι- 2225  
 κέτα συμφώνως προς το μοντέλο Νο. 2Α. (Συνεχίζε-  
 ται)

B.- Λεπτομέρειες (στοιχεία) εγγράφου μεταφοράς

(I) Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφο- 2226  
 ράς πρέπει να υπάρχει:-

(α) στη περίπτωση των καθαρών και τεχνικώς-καθαρών  
 αερίων των I<sup>ο</sup>, 3<sup>ο</sup>, 5<sup>ο</sup>, 7<sup>ο</sup> ή 9<sup>ο</sup>, των διανεμητών  
 αεροζόλ της IO<sup>ο</sup>, των μη-ξαναγεμιζομένων δοχείων  
 (CONTAINERS) αερίου υπό πίεση της II<sup>ο</sup>, και να  
 είναι: μία των ονομασιών των υπογραμμιζομένων  
 στο περιθώριο 220I\*

((β) στη περίπτωση των μιγμάτων των αερίων των 2<sup>ο</sup>, 4<sup>ο</sup>,  
 6<sup>ο</sup>, 8<sup>ο</sup>, I2<sup>ο</sup> ή I3<sup>ο</sup>: "μίγμα αερίων". Η περιγραφή  
 αυτή πρέπει να συμπληρούται με την ένδειξη της  
 συνθέσεως του μίγματος αερίων κατ'όγκον ~~σε~~ εκα-  
 τόν ή βάρος ~~σε~~ εκατόν. Συστατικά μέρη κάτω του  
 ενός ~~σε~~ εκατόν δεν χρειάζεται να αναφέρονται.  
 Στην περίπτωση των μιγμάτων αερίων των 2<sup>ο</sup> (α), 2<sup>ο</sup> (β),  
 2<sup>ο</sup> (β T), 4<sup>ο</sup> (α), 4<sup>ο</sup> (β), 4<sup>ο</sup> (γ), 6<sup>ο</sup> (α), 8<sup>ο</sup> (α) ή 8<sup>ο</sup> (β)  
 οι περιγραφές ή οι ονομασίες οι συνήθειες στο εμπό-  
 ριο που υπογραμμίζονται στο περιθώριο 220I μπορούν  
 ομοίως να χρησιμοποιούνται, χωρίς τον καθορισμόν της  
 συνθέσεως.

Οι περιγραφές αυτές πρέπει να υπογραμμίζονται  
με κίτρινο και να ακολουθούνται από στοιχεία της Κλάσεως,  
τον αριθμό του είδους (μαζί με το, τυχόν, γράμμα), και  
τα αρχικά "ADR" ή "RID" (π.χ., 2, 5<sup>ο</sup> (α T), ADR).

(2) Προκειμένου περί αποστολών αερίων αναφερομέ- 2226  
νων μεταξύ των χημικώς ασταθών αερίων, ο αποστολέας (Συνεχίζε-  
οφείλει να πιστοποιεί τα κάτωθι στο έγγραφο μεταφοράς: ται.)

"Πάρθηκαν τα απαραίτητα μέτρα προς εκπλήρωση των όρων του περιθωρίου 2200(2) της ADR". Στη περίπτωση αποστολών μιγμάτων αερίων της I2<sup>ο</sup> ή αερίων δοκιμής/ελέγχου της I3<sup>ο</sup>, ο αποστολέας οφείλει να πιστοποιεί τα παρακάτω στο έγγραφο μεταφοράς: "Έχουν τηρηθεί οι όροι οι διαλαμβανόμενοι στα I2<sup>ο</sup> ή I3<sup>ο</sup> του περιθωρίου 2201 της ADR".

(3) Προκειμένου περί αποστολών τριφθοριούχου χλωρίου (3<sup>ο</sup>(α F)) ο αποστολέας οφείλει να πιστοποιεί τα κάτωθι στο έγγραφο μεταφοράς:- "Μετά το γέμισμα με τριφθοριούχο χλώριο, το δοχείο ετηρήθη υπό παρατήρηση επί χρονικό διάστημα όχι μικρότερο των επτά ημερών και η στεγανότητά του επαληθεύθηκε".

(4) Προκειμένου περί δεξαμενών περιεχουσών αέρια της 7<sup>ο</sup>(α) ή 8<sup>ο</sup>(α) πλην διοξειδίου του άνθρακος και υποξειδίου του αζώτου, στο έγγραφο μεταφοράς θα αναγράφεται: "Η δεξαμενή είναι σε μόνιμη επικοινωνία με την ατμοσφαίρα".

2227-

2236

#### Γ.- Κενά Είδη Συσκευασίας

(1) Τα δοχεία και οι δεξαμενές της I4<sup>ο</sup> θα κλεί- 2237  
νουν με τον ίδιο τρόπο σάν να επρόκειτο για πλήρη δο-  
χεία και δεξαμενές.

(2) Η περιγραφή στο έγγραφο μεταφοράς πρέπει να είναι:- "Κενό δοχείο ή ("Κενή δεξαμενή"), ακαθάριστο, 2, I4<sup>ο</sup>, ADR (ή Είδος I4, RID)". Το κείμενο αυτό πρέπει να



φέρει κδικινή υπογράμμιση.

2237

Δ.- Μεταβατικές διατάξεις.

(Συνεχίζε-  
ται)

Οι παρακάτω μεταβατικές διατάξεις θα εφαρμοσθούν σε δοχεία για πεπιεσμένα ή υγροποιημένα αέρια ή αέρια διαλυμένα υπό πίεση:-

- (α) δοχεία ήδη σε υπηρεσία, υπό την επιφύλαξη των παρακάτω εξαιρέσεων, θα γίνονται δεκτά για διεθνή μεταφορά εφ'όσον το επιτρέπουν οι διατάξεις της συμβαλλομένης χώρας στην οποία διεξήχθησαν οι έλεγχοι συμφώνως προς το περιθώριο 22I6 και εφ'όσον ετηρήθησαν ~~οι~~ προθεσμίες ~~οι~~ προβλεπόμενες υπό των περιθωρίων 22I6(3) και 22I7 για τις περιοδικές επιθεωρήσεις.
- (β) προκειμένου περί δοχείων κατασκευασθέντων συμφώνως προς το προηγούμενον σύστημα (επιτρεπτή τάσις δύο-τρίτα, αντί τριών-τετάρτων, της τάσεως αποδόσεως), δεν θα επιτρέπεται καμμία αύξηση είτε στη πίεση δοκιμής/ελέγχου είτε στη πίεση πληρώσεως (βλέπε περιθώριο 22II(I)).
- (γ) μεταβατικά μέτρα για δεξαμενές: βλέπε περιθώριο 2II I80.
- (δ) μεταβατικά μέτρα για δεξαμενές-δοχεία (TANK-CONTAINERS): βλέπε περιθώριο 2I2 I80.

## ΚΛΑΣΗ. 3.- ΕΥΦΛΕΚΤΑ ΥΓΡΑ

I.- Κατάλογος Υλών

(1) Μεταξύ των ευφλέκτων υγρών και μιγμάτων αυ- 2300  
τών, είτε σε υγρά κατάσταση είτε αέριη υπό μορφήν ζύ-  
μης σε θερμοκρασία μη υπερβαίνουσα τους 15°C, οι ύλες  
οι αναγραφόμενες στο περιθώριο 230I υπόκεινται στις δια-  
τάξεις του παρόντος Παραρτήματος και του Παραρτήματος Β.  
Οι ύλες αυτές οι γενόμενες δεκτές για μεταφορά υπό ωρι-  
σμένους όρους θα θεωρούνται ύλες της ADR.

(2) Ευφλεκτα υγρά των οποίων η πίεση ατμού σε  
θερμοκρασία 50°C δεν υπερβαίνει τα 3 KG/CM<sup>2</sup>, πλην των  
αναφερομένων στις λοιπές Κλάσεις, θεωρούνται ως εύφλεκτα  
υγρά εντός της εννοίας της ADR.

(3) Υγρά της Κλάσεως 3 τα οποία κινδυνεύουν ευ-  
κόλως να σχηματίσουν υπεροξειδία (όπως συμβαίνει με αι-  
θέρες ή με ωρισμένες ετεροκυκλικές οξυγονοποιημένες ύλες))  
περιεχόμενόν τους, γνωστόν ως υπεροξειδίο του υδρογόνου  
H<sub>2</sub>O<sub>2</sub>, δεν υπερβαίνει το 0.3 εταλ εκατόν.

(4) Το ανωτέρω αναφερόμενον περιεχόμενον εις  
υπεροξειδίο και το σημείον αναφλέξεως το αναφερόμενον  
παρακάτω θα καθορίζονται όπως εικονίζονται στη Προσθή-  
κη Α.3 (περιθώρια 3300 - 3303).

(5) Ύλες της Κλάσεως 3 που πολυμεροποιούνται  
εύκολα θα γίνονται δεκτές για μεταφορά μόνον εάν έχουν  
παρθεί οι απαραίτητες προφυλάξεις προς αποφυγήν του πολυ-  
μερισμού των κατά τη διάρκεια της μεταφοράς.

(6) Στερεές ύλες διαλυτές σε υγρά θα θεωρούνται

δτι περιλαμβάνουν ξηραντικά (DRIERS), σταθεροποιημέ- 2300  
να έλαια (βρασμένα ή καθαρμένα λινέλαια, κλπ.) ή (Συνεχίζε-  
παρεμφερείς ύλες (εξαιρουμένης της νιτροκυτταρίνης) ται.)  
των οποίων το σημείον αναφλέξεως είναι άνω των 100°C.

I<sup>ο</sup> (α) Υγρά μη επιδεικτικά αναμίξεως, ή μόνον εν μέ- 2301

ρει επιδεικτικά αναμίξεως, με νερό, τα οποία  
έχουν σημείον αναφλέξεως κάτω των 21°C, επίσης  
όταν δεν περιέχουν περισσότερο από 30 τοις εκα-  
τόν στερεά (εξαιρουμένης της νιτροκυτταρίνης)  
είτε διαλυμένα, είτε σε αιώρηση μέσα στα υγρά,  
ή αμφοτέρω, π.χ. ανάθαρτα πετρέλαια και άλλα  
αργά πετρέλαια· πηκτικά προϊόντα από τη διύ-  
λιση του πετρελαίου και άλλων αργών πετρελαίων  
ή από άνθρακα, λιγνίτη, σχιστόλιθο και πίσσες  
από ξύλο ή τύρφη, π.χ.: πετρελαϊκός αιθέρας,  
πεντάνια, βενζίνη, βενζόλιο και τολουόλη·  
προϊόντα συμπυκνώσεως φυσικού αερίου· οξιόν  
αιθύλιον (οξικός εστέρας), οξιόν βινύλιον,  
διαιθυλικός αιθέρας (θειϊκός αιθέρας), μεθυ-  
λικόν άλας μυρμηκικού οξέος και λοιποί αιθέρες  
και εστέρες· διθειούχος άνθραξ· αλδεΰδη του  
αλκοολικού πνεύματος (ακρολείνη)· ωρισμένοι  
χλωριωμένοι υδρογονάνθρακες (π.χ. 1,2-διχλωρο-  
αιθάνιο και χλωροπρένιο (χλωροβουταδιένιο))·

(β) μίγματα υγρών έχοντα σημείον αναφλέξεως κάτω  
των 21°C και περιέχοντα όχι άνω των 55 τοις  
εκατόν νιτροκυτταρίνην με περιεχόμενον αζώτου

μη υπερβαίνον το 12.66τσα εκατόν (κολλόδια, 230I  
ημι-κολλόδια και λοιπά διαλύματα νιτροκυτ- (Συνεχίζεται)  
ταρίνης).

Για (α), βλέπε επίσης περιθώριο 230Iα (α), (β) και (δ). για (β), βλέπε επίσης περιθώριο 230Iα (α).

Σημειώσεις:- Για μίγματα υγρών έχοντα σημείον αναφλέξεως κάτω των 21°C και

- περιέχοντα άνω του 55τσα εκατόν νιτροκυτταρίνην ανεξαρτήτως του είς άζωτον περιεχομένου των, ή
- περιέχοντα όχι περισσότερο του 55τσα εκατόν νιτροκυτταρίνην με περιεχόμενον εις άζωτον άνω του 12.66τσα εκατόν,

βλέπε Κλάση Ia, περιθώριο 210I, I° και Κλάση 4.I, περιθώριο 240I 7°(α).

2° Υγρά μη επιδεικτικά αναμίξεως, ή μόνον εν μέρει επιδεικτικά αναμίξεως, με νερό, τα οποία έχουν σημείον αναφλέξεως κάτω των 21°C και περιέχουν άνω του 30 τοις εκατόν στερεά (εξαιρουμένης της νιτροκυτταρίνης) είτε διαλυμένα, είτε ~~σε~~ αιώρησι στα υγρά, ή αμφοτέρα, π.χ.: ωρισμένα χρώματα για ροτοχαρακτική (φωτοτυπίες) και για δέρματα, ωρισμένα βερνίκια, ωρισμένα βερνικοχρώματα, και διαλύματα ελαστικού (καουτσούκ). Βλέπε επίσης περιθώριο 230Iα, (γ).

3° Υγρά μη επιδεικτικά αναμίξεως, ή εν μέρει επιδεικτικά αναμίξεως, με νερό, που έχουν σημείον αναφλέξεως μεταξύ 21°C και 55°C συμπεριλαμβανομένων, επίσης

δταν περιέχουν όχι άνω του 30 βτα εκατόν στερεά 230I είτε διαλυμένα, είτε εν αιωρήσει ατα υγρά, ή (Συνεχίζεται) αμφοτέρα, π.χ.: τερεβινθίνη (νέφτι)· ημι-βαρέα προϊόντα εκ της διύλισεως πετρελαίου ή άλλων αργών πετρελαίων, ή εξ άνθρακος, λιγνίτου, σχιστολίθου ή από πίσσες ξύλου και τύρφης, π.χ. λευκό πνεύμα (υποκατάστατο της τερεβινθίνης), βαρέα βενζόλια, πετρέλαια (για φωρισμό, θέρμανση ή μηχανές), ξυλένιο, στυρένιο (στυρόλη), κουμένιο (CUMENE), διαλύτης νάφθα· βουτανόλη· οξικό βουτύλιο· οξικό πεντύλιο (οξικόσ αμυλεστέρας)· νιτρομεθάνιο (μονο-νιτρομεθάνιο) και ωρισμένες μονονιτροπαραφίνες· ωρισμένοι χλωριωμένοι υδρογονάνθρακες (π.χ. χλωροβενζόλιο). Βλέπε επίσης περιθώριο 230Iα, υπό τα στοιχεία (γ) και (δ).

4<sup>ο</sup> Υγρά μη επιδεικτικά αναμίξεως, ή εν μέρει επιδεικτικά αναμίξεως, με νερό που έχουν σημείον αναφλέξεως άνω των 55<sup>ο</sup>C αλλά μη υπερβαίνον τους 100<sup>ο</sup>C, επίσης δταν περιέχουν όχι άνω του 30 βτα εκατόν στερεά είτε διαλυμένα, είτε ~~σε~~ αιωρήσει σε υγρά, ή αμφοτέρα, π.χ.: ωρισμένες πίσσες και τα προϊόντα διύλισεώς των: πετρέλαια θερμάνσεως, πετρέλαια ντήζελ, ωρισμένα αερίελαια· τετραυδροναφθαλίλιο (τετραλίνη)· νιτροβενζόλιο· ωρισμένοι χλωριωμένοι υδρογονάνθρακες (π.χ. I-χλωρο-2-αιθυλεξάνιο). Βλέπε επίσης περιθώριο 230Iα, υπό τα στοιχεία (γ) και (δ).

5<sup>ο</sup> Υγρά επιδεικτικά αναμίξεως σε όλες τις αναλογίες

με νερό που έχουν σημείον αναφλέξεως κάτω των  $21^{\circ}\text{C}$ , 230I  
 επίσης όταν περιέχουν άνω του 30 ~~το~~ εκατόν στερεά (Συνεχίζε-  
 είτε διαλυμένα, είτε ~~σε~~ αιώρησι στα υγρά, ή αμφότερα, <sup>ται</sup>)  
 π.χ.: μεθανόλη (μεθυλική αλκοόλη, ξυλόπνυμα), μετου-  
 σιωμένη ή όχι αιθανόλη (αιθυλική αλκοόλη, συνήθης  
αλκοόλη), μετουσιωμένη ή όχι οξική αλδεΐδη ακετόνη  
 και μίγματα ακετόνης πυριδίνη. Βλέπε επίσης περιθώριο  
 230Iα, υπό τα στοιχεία (α) και (γ).

6<sup>ο</sup> Κενά δοχεία, ακαθάριστα, και κενές δεξαμενές, ακαθάρι- 230Iα  
 στες, που περιείχαν εύφλεκτα υγρά της Κλάσεως 3.

Υλεις παραδοθείσες για μεταφορά συμφώνως προς  
 στις παρακάτω διατάξεις δεν υπόκεινται ούτε στις διατά-  
 ξεις της παρούσης Κλάσεως τις περιεχόμενες στο παρόν  
 Παράρτημα ούτε σε εκείνες που περιέχονται στο Παράρτημα Β:

(α) υγρά της I<sup>ο</sup> (εκτός των αναφερομένων υπό (β) κατωτέ-  
 ρω), και ακετόνη και μίγματα ακετόνης (5<sup>ο</sup>): σε πο-  
 σότητες μη υπερβαίνουσες τα 200 γραμμ. ανά δοχείο,  
 σε δοχεία κατασκευασμένα από φύλλο-μετάλλου, ύαλο,  
 πορσελάνη, είδη κεραμουργικά ή κατάλληλο πλαστική  
 ύλη, τα δοχεία αυτά, με ολικό περιεχόμενον μη υπερ-  
 βαίνον το 1 KG, τοποθετούμενα μαζί σε εξωτερικό εί-  
 δος συσκευασίας κατασκευασμένο από φύλλο-μετάλλου,  
 ξύλο ή ινώδη σανίδα και εύθραυστα δοχεία καταλλη-  
 λως ασφαλιζόμενα στο είδος της συσκευασίας προς απο-  
 φυγήν της θραύσεως των.

(β) διθειούχος άνθραξ, διαιθυλαιθέρας, πετρελαϊκός αιθέ-  
 ρας, πεντάνια, μεθυλικόν άλας μυρμηκικού οξέος  
 (METHYL FORMATE): 50 γραμμ. ανά δοχείο και 250 γραμμ.

ανά κόλον, οι ύλες αυτές συσκευασμένες κατά τον ίδιο 2301α  
τρόπο με τις ύλες της (α). (Συνεχίζεται)

- (δ) η καύσιμος ύλη η περιεχομένη στις δεξαμενές αυτοκινήτων ή σε κλειστές βοηθητικές δεξαμενές σταθερά στερεωμένες στα οχήματα. Εάν υπάρχει στρόφιγγα μεταξύ της δεξαμενής και του κινητήρα πρέπει να είναι κλεισμένη· το ηλεκτρικό ρεύμα πρέπει επίσης να αποσυνδεθεί. Μοτοσυκλέτες και μοτοποδήλατα των οποίων οι δεξαμενές περιέχουν καύσιμο-ύλη πρέπει να φορτώνονται απ' ευθείας επί των τροχών των, ασφαλιζόμενα (στερεούμενα) για να μη πέσουν.

## 2.- Διατάξεις

### A.- Κόλα

#### I.- Γενικοί Όροι Συσκευασίας

(1) Τα δοχεία θα είναι έτσι κλεισμένα και στεγανά ώστε να αποφεύγεται οποιαδήποτε απώλεια του περιεχομένου, και ειδικώτερα οποιαδήποτε εξάτμιση.

(2) Τα υλικά από τα οποία τα δοχεία και τα κλεισίματά των είναι κατασκευασμένα δεν θα πρέπει να κινδυνεύουν να προσβληθούν από το περιεχόμενο ούτε να σχηματίζουν επιβλαβείς ή επικινδύνους ενώσεις με αυτό.

(3) Τα είδη συσκευασίας, συμπεριλαμβανομένων των κλεισιμάτων των, πρέπει να είναι επαρκώς άκαμπτα και γερά σε όλα τα μέρη των για να αποφεύγεται οποιαδήποτε χαλάρωση διαρκούσης της μεταφοράς και να πληρούν τους συνήθεις όρους μεταφοράς. Ειδικότερα, τα δοχεία και τα κλεισίματά των πρέπει, εκτός εάν το άρθρο το τιτλοφορούμενο

"Συσκευασία μιας ύλης" προβλέπει άλλως, να μπορούν να 2302  
ανθίστανται σε οποιαδήποτε πίεση την οποίαν, λαμβανο- (Συνεχίζεται)  
μένης επίσης υπόψη της παρουσίας του αέρος, ενδέχεται  
εσωτερικώς να υποστούν τα δοχεία κατά τη συνήθη μεταφορά.  
Για τον σκοπόν αυτόν ελεύθερος χώρος πρέπει να αφήνεται,  
λαμβανομένης υπόψη της διαφοράς μεταξύ της θερμοκρασίας  
των υλών κατά τον χρόνον της πληρώσεως και της ανωτάτης  
μέσης θερμοκρασίας την οποίαν ενδέχεται να φθάσουν διαρ-  
κούσης της μεταφοράς. (βλέπε επίσης περιθώριο 2305). Οι εσω-  
τερικές συσκευασίες θα ασφαρίζονται σταθερά στις εξωτερι-  
κές συσκευασίες. Εκτός εάν άλλως ορίζεται στο άρθρο το  
τιτλοφορούμενο "Συσκευασία μιας ύλης", οι εσωτερικές  
συσκευασίες μπορούν να εγκλειστούν στις εξωτερικές συ-  
σκευασίες, είτε μία-μία είτε ομαδικά.

(4) Φιάλες και λοιπά γυάλινα δοχεία πρέπει να  
είναι απηλλαγμένα από βλάβες που κινδυνεύουν να εξασθενή-  
σουν την αντοχή των· ειδικώτερα, πρέπει να έχουν καταλ-  
λήλως αρθεί οι εσωτερικές τάσεις. Τα τοιχώματα δεν πρέ-  
πει να έχουν πάχος μικρότερο των 3 MM (χιλ.) προκειμένου  
περί δοχείων που ζυγίζουν, μαζί με το περιεχόμενό των,  
άνω των 35 KG, και όχι μικρότερο των 2 MM (χιλ.) προκει-  
μένου περί άλλων δοχείων.

Η στεγανότητα του συστήματος κλεισίματος πρέ-  
πει να εξασφαλίζεται από πρόσθετο μηχανισμό (πώμα, στέμ-  
μα (κορώνα), σφραγίδα, δέσιμο, κλπ.) ικανό να εμποδίσει  
οποιαδήποτε χαλάρωση του συστήματος κλεισίματος κατά την  
μεταφορά.



(5) Το αποσβεστικό υλικό θα είναι κατάλληλο 2302  
 προς τη φύση του περιεχομένου και, ειδικότερα, θα ελ- (Συνεχίζε-  
 ναι απορροφητικό. Κατάλληλα υλικά πρέπει να χρησι-  
 μοποιούνται προς στερέωση των δοχείων και ασφάλισή  
 των στο προστατευτικό είδος συσκευασίας· η εξασφάλιση  
 αυτή πρέπει να εκτελείται με φροντίδα και να ελέγχεται  
 περιοδικά (πιθανόν προ κάθε νέας πληρώσεως του δοχείου).

## 2.- Συσκευασία μιας ύλης

(1) Οι ύλες των I<sup>ο</sup> - 5<sup>ο</sup> πρέπει να συσκευάζονται 2303  
 σε κατάλληλα δοχεία κατασκευασμένα από μέταλλο ή γυαλί,  
 πορσελάνη, είδη κεραμεικής ή παρόμοια υλικά. Οι ύλες  
 της 4<sup>ο</sup> και τα διαβρωτικά υγρά των I<sup>ο</sup>(α), 3<sup>ο</sup> και 5<sup>ο</sup> μπο-  
 ρούν επίσης να συσκευάζονται σε δοχεία κατασκευασμένα  
 από κατάλληλη πλαστική ύλη. (Για τις ειδικές διατάξεις  
 τις σχετικές με το χλωροπρένιο και το νιτρομεθάνιο, βλέ-  
 πε κατωτέρω υπό τα στοιχεία (8) και (9), αντιστοίχως.)

(2) Εύθραυστα δοχεία (γυάλινα, από πορσελάνη,  
 είδη κεραμεικής ή παρεμφερή υλικά) μπορούν να μη περιέ-  
 χουν περισσότερες των παρακάτω ποσοτήτων υλών της I<sup>ο</sup>:-

διθειούχος άνθραξ .....	1 λίτρα
διαιθυλαιθέρας, πετρελαϊκής αθέρας, πεντάνια .....	2 λίτρες
άλλες ύλες της I <sup>ο</sup> .....	5 λίτρες.

(3) Δοχεία από πλάκες κασιτέρου χωρητικότητας  
 μη υπερβαίνουσας τις 10 λίτρες πρέπει να έχουν πάχος τοι-  
 χώματος όχι μικρότερο των 0.25 MM (χιλ.)· τα έχοντα χω-  
 ρητικότητα υπερβαίνουσα τις 60 λίτρες πρέπει να έχουν

πάχος τοιχώματος όχι μικρότερο των 0.3 MM (χιλ.) 2303  
 και οι ενώσεις τους να έχουν διπλο-ραφεί δια συγκολλ- (Συνεχίζε-  
 λήσεως, ή με μαλακή συγκόλληση, ή να έχουν παραχθεί ται)  
 με κατεργασίας εξασφαλίζουσας παρόμοιον βαθμόν αντο-  
 χής και στεγανότητας.

(4) Δοχεία κατασκευασμένα από φύλλο-χάλυβος  
 (για δοχεία από πλάκες κασιτέρου έχοντα χωρητικότητα  
 μη υπερβαίνουσα τις 60 λίτρες, βλέπε επίσης (3)) πρέ-  
 πει να συγκολλούνται ή υπόκεινται σε σκληρή συγκόλληση,  
 και οι ποσότητες των υλών των I<sup>ο</sup> - 5<sup>ο</sup> τας οποίας μπο-  
 ρούν να περιέχουν, συμφώνως προς το πάχος των τοιχωμά-  
 των των, έχουν ως κάτωθι:-

εάν το πάχος του τοιχώματος είναι μικρότερο των  
 0.5MM (χιλ.): όχι περισσότερες από 30 λίτρες,  
 εάν το πάχος του τοιχώματος δεν είναι μικρότερο  
 των 0.7 MM (χιλ.): όχι περισσότερες από 60 λίτρες,  
 εάν το πάχος του τοιχώματος δεν είναι μικρότερο  
 των 1.5 MM (χιλ.): περισσότερες από 60 λίτρες.

(5) Είδη συσκευασίας κατασκευασμένα από φύλλο-  
 μετάλλου πλην χάλυβος πρέπει να σχεδιάζονται και κατα-  
 σκευάζονται κατά τοιούτο τρόπο ώστε να διαθέτουν την  
 αυτήν αντοχήν όπως τα δοχεία εκ φύλλου-χάλυβος τα ανα-  
 φερθέντα εις (4).

(6) Υγρά των οποίων η πίεση ατμού στους 50<sup>ο</sup>C  
 δεν υπερβαίνει τα 1.5 KG/CM<sup>2</sup>, με εξαίρεση τον διθειούχο  
 άνθρακα, μπορούν επίσης να μεταφέρονται σε μεταλλικά  
 βαρέλια συμμορφούμενα προς τις παρακάτω διατάξεις:-

Οι ενώσεις του κορμού των βαρελιών πρέπει να 2303  
συγκολλούνται και τα άκρα των ενώσεων επίσης με δι- (Συνεχίζεται)  
πλή ραφή. Τα βαρέλια πρέπει να είναι εφοδιασμένα με  
κυλιόμενες στεφάνες (τσέρκια) ή ενισχυτικές δοκίδες.  
Κάθε βαρέλι πρέπει να έχει υποστεί τον έλεγχο διαρροής  
τον προβλεπόμενο στο περιθώριο 3502 της Προσθήκης Α.5.  
Τα βαρέλια πρέπει να είναι τύπου κατασκευής ο οποίος  
ικανοποίησε τους άλλους ελέγχους τους προβλεπομένους  
στη προρρηθείσα Προσθήκη Α.5 και πρέπει να φέρει τη  
σχετική ένδειξη κατά την έγκριση του τύπου.

(7) Για τη μεταφορά μέσα σε μή-επιστρεπτέα  
μεταλλικά είδη συσκευασίας προοριζόμενα να χρησιμοποιη-  
θούν μόνο μία φορά) ευφλέκτων προϊόντων των οποίων η πίεση  
ατμού δεν υπερβαίνει, στους 50°C, τα 1.1 KG/CM<sup>2</sup> δεν εί-  
ναι απαραίτητο, προκειμένου περί ύδρου του οποίου το  
βάρος μονάδος δεν υπερβαίνει τα 225 KG, όπως το άκρο του  
δοχείου συγκολληθεί στο κορμό και το πάχος του τοιχώματος  
να είναι μεγαλύτερο των 1.25 MM (χιλ.), αλλά το δοχείο  
πρέπει να είναι σε θέση να ανθέξει, άνευ διαρροής, υδραυ-  
λικήν πίεσιν 0.3 KG/CM<sup>2</sup> τουλάχιστον, και ο κορμός και τα  
άκρα του πρέπει να είναι εφοδιασμένα με μηχανισμούς (όπως  
δοκίδες ή κυλιόμενες στεφάνες (ROLLING HOOPS)) που μπο-  
ρούν ή δεν μπορούν να αποσυνδεθούν, εξασφαλίζοντας ακαμ-  
ψίαν.

(8) Το Χλωροπρένιο (I<sup>ο</sup>(α)) θα συσκευάζεται:-

(α) σε ερμητικώς-κλεισμένα μεταλλικά δοχεία, καταλλήλως  
επενδεδυμένα εάν χρειασθεί, έχοντα χωρητικότητα μη

υπερβαίνουσα τις 15 λίτρες. Τα δοχεία αυτά θα ασφα-2303  
λίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλι(Συνεχίζεται)  
νο κιβώτιο ή άλλη εξωτερική συσκευασία καταλλήλου  
αντοχής· ή

- (β) σε κάνιστρα από φύλλο-μετάλλου, συγκολλημένα ή  
σκληρά-συγκολλημένα, έχοντα χωρητικότητα μη υπερ-  
βαίνουσα τις 60 λίτρες, ερμητικώς κλεισμένα και εφο-  
διασμένα με χειρολαβήν.

(9) Το νιτρομεθάνιο (3<sup>ο</sup>) πρέπει να περιέχεται:-

- (α) σε εύθραυστα δοχεία περιέχοντα όχι περισσότερο της  
1 λίτρας· ή
- (β) σε δοχεία από φύλλο-μετάλλου συμφώνως προς την (4)  
ανωτέρω έχοντα χωρητικότητα μη υπερβαίνουσα τις 10  
λίτρες· ή
- (γ) σε μεταλλικά βαρέλια έχοντα το καθένα δύο ερμητι-  
κά κλεισίματα, το ένα από αυτά με σπείρωμα, και το  
καθένα βαρέλι εφοδιασμένο με κυλιόμενες στεφάνες  
(ROLLING HOOPS) και έχον χωρητικότητα μη υπερβαί-  
νουσαν τις 200 λίτρες.

(I) Εύθραυστα δοχεία περιέχοντα ύλες της I<sup>ο</sup>  
έως 5<sup>ο</sup>, δοχεία κατασκευασμένα από πλαστική ύλη και πε- 2304  
ριέχοντα διαβρωτικά υγρά των I<sup>ο</sup>(α), 3<sup>ο</sup> και 5<sup>ο</sup>, δοχεία  
από πλάκες κασιτέρου περιέχοντα ύλες της I<sup>ο</sup> και 5<sup>ο</sup>,  
δοχεία από πλάκες κασιτέρου έχοντα πάχος τοιχώματος  
μικρότερο των 0.5 MM (χιλ.) και περιέχοντα ύλες των 2<sup>ο</sup>  
έως 4<sup>ο</sup>, και δοχεία από φύλλο-μετάλλου περιέχοντα νιτρο-  
μεθάνιο συμφώνως προς το περιθώριο 2303(9)(β), θα ασφα-

λίζονται με αποσβεστικό υλικό σε προστατευτικές συσκευασίες. Εάν δοχεία κατασκευασμένα από πλαστική ύλη ασφαλίζονται χωριστά σε προστατευτικές συσκευασίες, το αποσβεστικό υλικό δεν είναι απαραίτητο.

230β.  
(Συνεχίζεται)

Προστατευτικές συσκευασίες εγχειούσες ευθραυστα δοχεία περιέχοντα ύλες των I<sup>ο</sup> και 5<sup>ο</sup> και προστατευτικές συσκευασίες εγχειούσες δοχεία περιέχοντα νιτρομεθάνιο (3<sup>ο</sup>) πρέπει να έχουν πλήρεις πλευρές και να είναι κατασκευασμένες από ξύλο, φύλλο-μετάλλου ή παρόμοιο υλικό.

Το κλείσιμο ευθραύστων δοχείων τοποθετημένων σε ανοικτές προστατευτικές συσκευασίες πρέπει να διαθέτει προστατευτικό κάλυμμα προφυλάσσοντας αυτά από ζημιά. Εάν τα κόλα φορτωθούν σε ανοικτό δχημα, το προστατευτικό κάλυμμα πρέπει να μην είναι ικανό να αναφλεγεί σε επαφή με φλόγα.

(2) Τα παρακάτω είναι δείκτα για μεταφορά χωρίς προστατευτική συσκευασία:-

- (α) δοχεία κατασκευασμένα από πλαστική ύλη συμφώνως προς το περιθώριο 2304(I), περιέχοντα ύλες της 4<sup>ο</sup>.
- (β) δοχεία κατασκευασμένα από πλάκες-κασσιτέρου, πάχους όχι μικροτέρου των 0.5 MM (χιλ.), περιέχοντα ύλες των 2<sup>ο</sup> - 4<sup>ο</sup>.
- (γ) δοχεία από φύλλο-μετάλλου συμφώνως προς το περιθώριο 2303 (4) έως (7).
- (δ) μεταλλικά κάνιστρα συμφώνως προς το περιθώριο 2303 (8)(β), περιέχοντα χλωροπρένιο (I<sup>ο</sup>(α)).

- (ε) μεταλλικά βαρέλια συμφώνως προς το περιθώριο 2303 2304  
(9)(γ), περιέχοντα νιτρομεθάνιο (3°). (Συνεχίζεται)
- (3) Τα παρακάτω κόλα δεν πρέπει να υπερβαίνουν τα κατωτέρω οριζόμενα ανώτατα βάρη:-
- (α) κόλα από εύθραυστα δοχεία περιέχοντα ύλες της  
I° ..... 30 KG,
- (β) κόλα από εύθραυστα δοχεία περιέχοντα ύλες των  
2° - 5° ..... 75 KG,
- (γ) κόλλα από δοχεία κατασκευασμένα από πλαστική  
ύλη και περιέχοντα ύλες της I° (α) και των 3°  
έως 5°, και δοχεία από πλάκες κασιτέρου περιέ-  
χοντα ύλες των I° - 5° ..... 75 KG,
- (δ) κόλα από δοχεία περιέχοντα χλωροπρένιον συμ-  
φώνως προς το περιθώριο 2308(8) ..... 75 KG,
- (ε) κόλα από δοχεία από φύλλο-μετάλλου περιέχοντα  
νιτρομεθάνιο συμφώνως προς το περιθώριο 2303  
(9)(β) ..... 75 KG,
- (στ) βαρέλια ελεγχθέντα συμφώνως προς το περιθώριο  
2303(6) ..... 250 KG,
- (ζ) δοχεία συμφώνως προς το περιθώριο 2303(7) ... 226 KG,
- (η) βαρέλια περιέχοντα νιτρομεθάνιο συμφώνως προς  
το περιθώριο 2303(9)(γ) ..... 275 KG.

(4) Κόλα πλην κιβωτίων και μεταλλικών βαρε-  
λίων, θα είναι εφοδιασμένα με χειρολαβήν.

Μεταλλικά δοχεία προοριζόμενα να περιέχουν 2305  
υγρά της I°, νιτρομεθάνιο (3°), ή οξική αλδεΐδη, ακετόνη  
ή μίγματα ακετόνης (5°), δεν θα πληρούνται πέραν του 93

~~60%~~ εκατόν της χωρητικότητός των. Εν τούτοις, δοχεία 2305  
περιέχοντα υδρογονάνθρακες πλην πετρελαϊκού αιθέρος, (Συνεχίζεται)  
πεντανίων, βενζολίου και τολουόλης μπορούν να πλη-  
ρούνται μέχρι του 95 ~~60%~~ εκατόν της χωρητικότητός των.

### 3.- Μικτή Συσκευασία

(1) Υλεις ομαδοποιημένες υπό τον αυτόν αριθμόν ειδδους μπορούν να συμπεριληφθούν στο ίδιο κδλον. Οι εσωτερικές συσκευασίες θα συμφωνούν με το τι προβλέπεται για κάθε ύλη, και η εξωτερική συσκευασία θα είναι η αναφερομένη για τις ύλεις του ~~επι~~ θέματος αριθμού ειδδους.

(2) Εάν μικρότερες ποσότητες δεν προβλέπονται στο άρθρο το τιτλοφορούμενο "Συσκευασία μιας ύλης", οι ύλεις της παρούσης Κλάσεως μπορούν να εγκλειστούν στο ίδιο κδλον είτε με επικινδύνους ύλεις άλλων Κλάσεων (εάν μικτή συσκευασία επιτρέπεται προκειμένου περί τούτων υλών) ή με άλλα εμπορεύματα, ως ορίζεται κατωτέρω.

Οι εσωτερικές συσκευασίες πρέπει να ικανοποιούν τους γενικούς και ειδικούς όρους συσκευασίας. Επιπροσθέτως, οι γενικές διατάξεις οι περιεχόμενες στα περιθώρια 2001(5) και 2002(6) και (7) πρέπει να τηρούνται.

Το κδλον δεν πρέπει να ζυγίζει περισσότερο από 150 KG, ή περισσότερο από 75 KG, εάν περιέχει εύθραυστα δοχεία.

2306  
(Συνεχίζεται.)

Αριθμός Είδους	Περιγραφή Υλών	Α ν ω τ ά τ η Π ο σ ό τ η ς			Ειδικαί Διατάξεις
		ανά εύθραυ- στο δο- χείο	ανά άλλο δοχείο	ανά κόλον	
I <sup>ο</sup> (α)	Διθειούχος Άνθρακας	0.3 λί- τρας	I λίτρα	I λίτρα	Υγρά της Κλά- σεως 3 δεν πρέ- πει να συσκευά- ζονται μαζί με ύλες της Κλάσε- ως 4.2, υπερο- ξείδιο του υδρο- γόνου ή υπερ- χλωρινό οξύ της Κλάσεως 5.1, ή ύλες της Κλά- σεως 8, 2 <sup>ο</sup> (α), 3 <sup>ο</sup> (α), 4 <sup>ο</sup> , 7 <sup>ο</sup> και 4I <sup>ο</sup> .
I <sup>ο</sup> (α) και I <sup>ο</sup> (β)	Όλες οι ύλες εκτός διθει- ούχου άνθρα- κος	I λίτρα	5 λίτρες	5 λίτρες	
2 <sup>ο</sup>	Όλες οι ύλες	I λίτρα	5 λίτρες	10 λίτρες	
3 <sup>ο</sup>	Όλες οι ύλες	3 λίτρες	5 λίτρες	10 λίτρες	
4 <sup>ο</sup>	Όλες οι ύλες	5 λίτρες	5 λίτρες	10 λίτρες	
5 <sup>ο</sup>	Υγρά έχοντα σημείο βρα- σμού / 50 <sup>ο</sup> C	I λίτρα	5 λίτρες	10 λίτρες	
	Άλλες ύλες	3 λίτρες	5 λίτρες	10 λίτρες	

4.- Ενδείξεις (Μαρμάρισμα) και επικέτες κινδύνου  
στα κόλλα (βλέπε Προσθήκη Α.9).

2307

(I) Κόλλα περιέχοντα υγρά της I<sup>ο</sup> έως 3<sup>ο</sup> και 5<sup>ο</sup>  
θα φέρουν ετικέτα σύμφωνα προς το μοντέλο Νο.2Α.

Εν τούτοις, εάν ύλες των 2<sup>ο</sup>, 3<sup>ο</sup> ή 5<sup>ο</sup> συ-  
σκευασθούν σε δοχεία κατασκευασμένα από ύαλο, πορσελάνη,



είδη κεραμεικής ή παρόμοιο υλικό, χωρητικότητας υπερ- 2307  
βαίνουσας τις 5 λίτρες, τα κόλα θα φέρουν δύο ετικέ- (Συνεχίζε-  
τες συμφώνως προς το μοντέλο Νο. 2Α. ται)

Κόλα περιέχοντα ακρολεΐνη (αλδεύδη του αλκο-  
ολικού πνεύματος) ή χώροπρένιο (χλωροβουταδιένιο) ( $I^{\circ}(\alpha)$ ),  
ή μεθανόλη (μεθυλική αλκοόλη) ( $5^{\circ}$ ), θα φέρουν ετικέτα συμ-  
φώνως προς το μοντέλο Νο.4.

(2) Κόλα περιέχοντα εύθραυστα δοχεία μη ορατά  
από έξω θα φέρουν ετικέτα συμφώνως προς το μοντέλο Νο.9.  
Εάν τα εύθραυστα δοχεία περιέχουν υγρά, τα κόλα οφείλουν  
επιπροσθέτως, πλην της περιπτώσεως των σφραγισμένων αμ-  
πουλών, να φέρουν ετικέτες συμφώνως προς το Μοντέλο Νο.8.  
Οι ετικέτες αυτές θα τοποθετούνται ψηλά στις δύο αντίθε-  
τες πλευρές των κιβωτίων ή κατά ισοδύναμον τρόπον όταν  
άλλα είδη συσκευασίας χρησιμοποιούνται.

(3) Προκειμένου περί αποστολών μεταφερομένων  
ως πλήρη φορτία, οι ετικέτες Νο. 2Α και 4, ως προβλέπον-  
ται υπό τα στοιχεία (1) και (2), δεν χρειάζονται να τε-  
θούν στα κόλα εάν το όχημα φέρει την ένδειξη την προ-  
βλεπομένην στο Παράρτημα Β, περιθώριο ΙΟ 500.

2308

Β.- Στοιχεία (Λεπτομέρειες) του εγγράφου μεταφοράς

(I) Η περιγραφή των εμπορευμάτων στο έγγραφο 2309  
μεταφοράς πρέπει να είναι σύμφωνη με μία των ονομασιών  
των υπογραμμισμένων στο περιθώριο 230Ι. Εάν το τελευταίο  
δεν περιέχει την ονομασία της ύλης, θα χρησιμοποιείται  
η εμπορική ονομασία. Η περιγραφή των εμπορευμάτων πρέπει

να υπογραμμίζεται με κόκκινο και να ακολουθείται από 2309  
 τα στοιχεία της κλάσεως, τον αριθμό του είδους (μαζί (Συνεχίζεται  
με το γράμμα, εάν υπάρχει), και τα αρχικά "ADR" ή  
"RID" (π.χ. 3, I<sup>ο</sup>(α), ADR).

(2) Προκειμένου περί όλων των αποστολών υλών οι οποίες χρησιμοποιούνται ευχερώς, τα παρακάτω πρέπει να βεβαιούνται στο έγγραφο μεταφοράς:- "Πάρθηκαν τα απαραίτητα μέτρα για την αποφυγή του πολυμερισμού διαρκούσης της μεταφοράς".

2310-

2315

#### Γ.- Κενά είδη συσκευασίας

(1) Τα δοχεία και οι δεξαμενές της 6<sup>ο</sup> πρέπει να κλείνουν κατά τον ίδιο τρόπο και πρέπει να είναι του αυτού βαθμού στεγανά ως εάν ήσαν πλήρη.

(2) Η περιγραφή στο έγγραφο μεταφοράς πρέπει να είναι: "Κενόν δοχείο (ή κενή δεξαμενή), 3μ 6<sup>ο</sup> ADR (ή RID)". Η περιγραφή αυτή πρέπει να υπογραμμίζεται με κόκκινο.

(3) Κενά δοχεία, ακαθάριστα, της 6<sup>ο</sup>, που περιείχαν ύλες των I<sup>ο</sup> έως 3<sup>ο</sup> και 5<sup>ο</sup> θα φέρουν ετικέτα σύμφωνα με το μοντέλο Νο. 2Α. Εκείνα που περιείχαν ακρολειΐνη ή χλωροπρένοα (χλωροβουταδιένιο (I<sup>ο</sup>)(α)) ή μεθανόλη (μεθυλικήν αλκοόλην) (5<sup>ο</sup>) θα φέρουν επιπρόσθετα ετικέτα σύμφωνα με το μοντέλο Νο.4.

## ΚΛΑΣΗ 4.Ι.- ΕΥΦΛΕΚΤΑ ΣΤΕΡΕΑ

## ΙΙ.- Κατάλογος υλών

Μεταξύ των υλών των καλυπτομένων υπό τον τί- 2400  
 τλον Κλάσιν 4.Ι, οι αναγραφόμενες στο περιθώριο 240Ι  
 υπόκεινται στις διατάξεις του παρόντος Παραρτήματος  
 και του Παραρτήματος Β. Οι ύλες που γίνονται δεκτές για  
 μεταφορά υπό ωρισμένους όρους θα θεωρούνται ως ύλες της  
 ADR.

Ι<sup>ο</sup> Ύλες οι οποίες μπορούν εύκολα να αναφλεγούν από 240Ι  
 σπινθήρες, όπως ξυλάλευρο, πριονίδι, ροκανίδια,  
ξηρή ίνα (στο ξύλο), ξυλάνθρακας, παληδόχαρτα και  
άχρηστα χαρτιά, ξυλοκυτταρίνη, χαρτο-ίνα, καλά-  
μια (εκτός σπάρτου), αγριοκάλαμο, σανός, άχυρο,  
 καθώς και όταν υγρές (συμπεριλαμβανομένων του  
καλαμποκιού, ρυζιού, και λιναριού), φυτικές υφάν-  
σιμες ύλες και υπολείμματα φυτικών υφανσίμων υλών,  
φελλός σε σχήμα κόνης ή κόκκων, εκταθείς ή όχι,  
 μετά ή άνευ προσμίξεως τύρφης (πίσσας) ή άλλων  
 υλών μη υποκειμένων σε στιγμιαία οξειδωση, και  
υπολείμματα φελλού σε μικρούς βώλους. Βλέπε επίσης  
 Κλάσιν 4.2, περιθώριον 243Ι, 8<sup>ο</sup> + 10<sup>ο</sup>, και περιθώ-  
 ριο 243Ια, υπό στοιχείον (β).

Σημείωσις: - Ι.- Οι ύλες αυτές συμπεριλαμβάνονται  
 στον κατάλογο μόνον για λόγους απαγορεύσεως μικτης  
 φορτώσεως. Για τον σκοπόν αυτόν οι διατάξεις του  
 περιθωρίου 24Ι6(Ι) ισχύουν. Κανένα άλλο άρθρο, είτε  
 του παρόντος Παραρτήματος είτε του Παραρτήματος Β,  
 έχει γι' αυτές εφαρμογή.

2.- Ο σανός ο οποίος εξακολουθεί να έχει βαθμόν 240I υγρασίας ο οποίος είναι ενδεχόμενο να οδηγήσει σε ζύμωση δεν γίνεται δεκτός για μεταφορά. (Συνεχίζεται)

3.- Περιτυλίγματα και πλάκες (φύλλα) εκπαθέντος φελλού, κατασκευασμένα υπό πίεση, μετά ή άνευ προσμίξεως τύρφης (πίσσας) ή άλλων υλών μη υποκειμένων εθς. στιγμιαίαν οξείδωση, σε ουδεμία των διατάξεων της ADR υπόκεινται.

4.- Φελλός εμπλουτισμένος με ύλες που εξακολουθούν να υπόκεινται σε στιγμιαία οξείδωση είναι ύλη της Κλάσεως 4.2 (βλέπε περιθώριο 243I, 9<sup>ο</sup>).

2<sup>ο</sup> (α) Θείον (συμπεριλαμβανομένων των ανθέων θείου).

(β) θείον σε τετηγμένη κατάσταση.

3<sup>ο</sup> Κελλοϋδίνη, παραγομένη από ατελή εξατμισμό της αλκοόλης της περιεχομένης σε κολλοδίον και αποτελούμενη κυρίως από κολλοδιοβάμβακα.

4<sup>ο</sup> Κυτταρινοΐδη (σσυλλουοΐδ) σε πλάκες, φύλλα, ράβδους ή σωλήνες, και υφάσματα επιχρισμένα με νιτροκυτταρίνη.

5<sup>ο</sup> Κυτταρινοΐδη Ταινιών, τ.έ. η πρώτη ύλη για ταινίες (φίλμ), χωρίς εμουλσίνη (γαλακτώδες μίγμα), σε ρόλλους, και εμφανισθέντα φίλμ εκ κυτταρινοΐδης.

6<sup>ο</sup> Υπολείμματα Κυτταρινοΐδης και υπολείμματα φίλμ κυτταρινοΐδης.

Σημείωσις:- Τα υπολείμματα νιτροκυτταρίνης, απηλλαγμένα από ζελατίνη, σε πηνία, φύλλα ή λωρίδες, είναι ύλη της Κλάσεως 4.2 (βλέπε περιθώριο 243I, 4<sup>ο</sup>).

- 7<sup>ο</sup> (α) Ασθενώς εμπλουτισμένη με άζωτο νιτροκυτταρίνη 240I  
(όπως ο κολλοδιοβάμβαξ), τ.έ. με περιεχόμενο (Συνεχίζεται)  
αζώτου μη υπερβαίνον το 12.6 τοις εκατόν, κα-  
λώς σταθεροποιημένη και περιέχουσα επιπροσθέ-  
τως όχι λιγώτερο του 25 τοις εκατόν νερό ή αλ-  
κοόλην (μεθυλική, αιθυλική, κανονική προπυλική  
ή ισοπροπυλική, βουτυλική ή αμυλική αλκοόλη, ή  
μίγματα αυτών), επίσης εάν μετουσιωμένη, διαλύ-  
της νάφθα, βενζόλιο, τολουόλη, ξυλένιο, μίγματα  
μετουσιωμένης αλκοόλης και ξυλενίου, μίγματα  
νερού και αλκοόλης, ή αλκοόλη περιέχουσα καμφο-  
φορά σε διάλυμα·

Σημειώσεις:- 1.- Η νιτροκυτταρίνη με περιεχόμενον  
εις άζωτον υπερβαίνον το 12.6 τοις εκατόν είναι ύλη  
της Κλάσεως Ia (βλέπε περιθώριο 2101, I<sup>ο</sup>).

2.- Όταν η νιτροκυτταρίνη υγροποιηθεί  
με μετουσιωμένην αλκοόλην, η μετουσιωτική ύλη δεν  
πρέπει να έχει επιβλαβή επίδραση επί της αταθερότη-  
τος της νιτροκυτταρίνης.

- (β) πλαστικοποιημένη νιτροκυτταρίνη, χωρίς χρωστικές  
ουσίες, περιέχουσα όχι λιγώτερο του 18 τοις εκα-  
τόν πλαστικοποιητικήν ουσίαν (φθαλικόν βουτύλιον  
ή πλαστικοποιητικήν ουσίαν τουλάχιστον ισοδύναμου  
αποτελέσματος) και στην οποία η νιτροκυτταρίνη  
έχει περιεχόμενον αζώτου μη υπερβαίνον το 12.6  
τοις εκατόν· η νιτροκυτταρίνη μπορεί να είναι  
υπό μορφήν ρινισμάτων (CHIPS)·

Σημειώσεις:- Πλαστικοποιημένη νιτροκυτταρίνη, χωρίς

χρωστικές ουσίες, περιέχουσα όχι λιγώτερο του 126 τ.ε. 240Ι εκατόν και λιγώτερο του 186 τ.ε. εκατόν φθαλικό βου- (Συνεχίζεται)  
 τύλιο ή πλαστικοποιητικήν ουσίαν τουλάχιστον ισοδυνάμου αποτελέσματος είναι ύλη της Κλάσεως Ια (βλέπε περιθώριο 210Ι, 4<sup>ο</sup>).

(γ) πλαστικοποιημένη νιτροκυτταρίνη, με χρωστικές ουσίες, περιέχουσα όχι λιγώτερο του 186 τ.ε. εκατόν πλαστικοποιητικήν ουσίαν (φθαλικό βουτύλιο ή πλαστικοποιητική ουσία τουλάχιστον ισοδυνάμου αποτελέσματος), στην οποία η νιτροκυτταρίνη έχει περιεχόμενο σε άζωτο μη υπερβαίνον το 12.6 τ.ε. εκατόν και η οποία περιέχει όχι λιγώτερο του 40 τ.ε. εκατόν νιτροκυτταρίνην· η νιτροκυτταρίνη μπορεί να είναι υπό μορφήν ριτινισμάτων.

Σημείωσις:- Πλαστικοποιημένη νιτροκυτταρίνη, με χρωστικές ουσίες, περιέχουσα λιγώτερο του 40 τ.ε. εκατόν νιτροκυτταρίνην δεν υπόκειται στις διατάξεις της ADR.

Για (α), (β) και (γ):- ασθενώς εμπλουτισμένη με νίτρο νιτροκυτταρίνη και πλαστικοποιημένη νιτροκυτταρίνη, με ή χωρίς χρωστικές ουσίες, δεν γίνονται δεκτές προς μεταφοράν εκτός εάν πληρούν τους όρους της Προσθήκης Α.Ι ή τους ανωτέρω διαλαμβανόμενους όρους αναφορικώς με τη φύση και τη ποσότητα των προσθέτων υλών.

Για (α), βλέπε επίσης Προσθήκη Α.Ι, περιθώριο 310Ι· για (β) και (γ), βλέπε επίσης Προσθήκη

Α.Ι, περιθώριο 3102, Ι.

240Ι

- 8<sup>ο</sup> Κόκκινος φωσφόρος (άμορφος), υποθειούχος φωσφό-  
ρος και πενταθειούχος φωσφόρος.

(Συνεχίζε-  
ται)

Σημείωσις:- Πενταθειούχος φωσφόρος όχι απηλλαγμέ-  
νος από λευκόν ή κίτρινον φωσφόρον δεν γίνεται δε-  
κτός για μεταφορά.

- 9<sup>ο</sup> Ελαστικόν (καουτσούκ) εδάφους, κόνις ελαστικού  
(καουτσούκ).

- 10<sup>ο</sup> Γαιάνθραξ εις κόνιν, λιγνίτης εις κόνιν, κώκ λιγνί-  
του εις κόνιν, οπτάνθραξ εις κόνιν και ποάνθραξ εις  
κόνιν παρασκευασθέντα τεχνητός (π.χ. δια κονιοποιή-  
σεως ή άλλης κατεργασίας), και κώκ εξ ανθρακοποιη-  
θέντος λιγνίτου καταστάν αδρανές (τ.έ. υποκείμενον  
εις στιγμαίαν ανάφλεξιν).

Σημείωσις:- 1.- Φυσικώς κόνεις ληφθείσας ως υπο-  
λείμματα κατά την παραγωγήν άνθρακος, κώκ, λι-  
γνίτου ή ποάνθρακος δεν υπόκεινται στις διατά-  
ξεις της ADR.

2.- Κώκ εξ ανθρακοποιηθέντος λιγνίτου  
μη καταστάν τελείως αδρανές δεν γίνεται δεκτόν  
για μεταφορά.

- II<sup>ο</sup> (α) Ακάθαρτος ναφθαλίνη με σημείο τήξεως κάτω των  
75<sup>ο</sup> C.

(β) Καθαρή ναφθαλίνη και ακάθαρτος ναφθαλίνη με ση-  
μείο τήξεως 75<sup>ο</sup> C και άνω

(γ) Ναφθαλίνη σε τετηγμένη κατάσταση.

για (α) και (β), βλέπε επίσης περιθώριο 240Iα.

Ναφθαλίνη δε μπάλλες ή νιφάδες (FLAKES) (II<sup>ο</sup> 240I  
 (α) και (β)) δεν υπόκεινται στις διατάξεις της Κλά- (Συνεχίζεται)  
 σεως αυτής που περιέχονται στο παρόν Παράρτημα ούτε  
 σ'αυτές που περιέχονται στο Παράρτημα Β εάν είναι συ-  
 σκευασμένη, όχι περισσότερο από 1 KG ανά κυτίο, σε στε-  
 γανά από ινώδη σανίδα ή ξύλινα κυτία και τα κυτία αυτά  
 είναι κλεισμένα, όχι περισσότερα από 10 ανά κιβώτιο,  
 σε ξύλινα κιβώτια.

## 2.- Διατάξεις

### A.- Κόλα

#### I.- Γενικοί όροι συσκευασίας

(1) Τα είδη συσκευασίας θα είναι έτσι κλεισμέ- 2402  
 να και διευθετημένα ώστε να αποφεύγεται οποιαδήποτε απώ-  
 λεια του περιεχομένου.

(2) Τα υλικά από τα οποία τα είδη συσκευασίας  
 και τα κλεισίματά των είναι κατασκευασμένα δεν θα πρέ-  
 πει να κινδυνεύουν να προσβληθούν από το περιεχόμενο  
 ή να σχηματίζουν με αυτό επιβλαβείς ή επικινδύνους ενώ-  
 σεις.

(3) Τα είδη συσκευασίας, συμπεριλαμβανομένων  
 των κλεισιμάτων των, πρέπει να είναι επαρκώς άναμπτα  
 και γερά εις όλα τα μέρη των για να αποφεύγεται οποια-  
 δήποτε χαλάρωση διαρκούσης της μεταφοράς και να πληρούν  
 τους κανονικούς όρους μεταφοράς. Στερεές ύλες θα ασφα-  
 λίζονται σταθερά στις συσκευασίες τους, και εσωτερικές  
 συσκευασίες θα ασφαλίζονται σταθερά στις εξωτερικές  
 συσκευασίες. Εκτός εάν άλλως ορίζεται στο άρθρο το τι-  
 τλοφορούμενο "Συσκευασία μιας θλης", οι εσωτερικές συ-



σκευασίες μπορούν να εγκλείονται στις εξωτερικές συσκευασίες, είτε μιά-μιά είτε ομαδικά. (Συνεχίζεται)

(4) Το αποσβεστικό υλικό θα ταιριάζει με τη φύση του περιεχομένου· ειδικότερα, πρέπει να είναι απορροφητικό όταν το περιεχόμενο είναι υγρόν ή είναι ενδεχόμενον να εξιδρώσει υγρό.

## 2.- Συσκευασία μιας ύλης

(I) Το θείον της 2<sup>ο</sup> (α) θα συσκευάζεται σε γερούς σάκκους (σακκούλες) από χαρτί ή στενά-υφασμένη γιούτη.

(2) Το θείον σε τετηγμένη κατάσταση, της 2<sup>ο</sup> (β), δεν θα μεταφέρεται κατ'άλλον τρόπον ειμή σε δεξαμενές.

Η κελλοϊδίνη (3<sup>ο</sup>) θα είναι έτσι συσκευασμένη ώστε να αποφεύγεται η ξήρανσή της.

(I) Η κυτταρινοΐδη (σελλουλόϊδ) σε πλάκες, φύλλα, ράβδους ή σωλήνες, και υφάσματα επιχρισμένα με νιτροκυτταρίνη, (4<sup>ο</sup>), θα εγκλείονται:-

(α) σε σταθερά-κλεισμένα ξύλινα είδη συσκευασίας, ή  
(β) σε γερά χάρτινα περιτυλίγματα τα οποία θα τοποθετούνται

1.- σε ξύλινους σκελετούς συσκευασίας, ή

2.- μεταξύ πλαισίων κατασκευασμένων από σανίδες, των άκρων των πλαισίων εκτεινομένων πέραν του χάρτινου περιτυλίγματος και των πλαισίων δεμένων ομού με σιδηροταινίες, ή

3.- σε περιτυλίγματα από στενά-υφασμένο ύφασμα.

(2) Το κέλον δεν πρέπει να ζυγίζεται άνω από:-

75 KG προκειμένου περί κυτταροϊδίνης (σελλουλόϊδ) σε 2405  
 πλάκες, φύλλα ή σωλήνες και υφάσματα επιχρισμέ<sup>(Συνεχίζεται)</sup>  
 να με νιτροκυτταρίνην, εάν το εξωτερικόν είδος  
 συσκευασίας είναι κατασκευασμένο από ύφασμα σύμ-  
 φωνα με την (I)(β)3°

I20 KG σε όλες τις άλλες περιπτώσεις.

Φίλμ κυτταροϊδίνης (σελλουλόϊδ) σε ρόλλους 2406  
 και εμφανισθέντα φίλμ κυτταροϊδίνης (5°) θα εγλιείονται  
 σε ξύλινα είδη συσκευασίας ή σε κυτία από ινώδη σανίδα.

(I) Υπολείμματα κυτταροϊδίνης (σελλουλόϊδ) 2407  
 και υπολείμματα φίλμ κυτταροϊδίνης (6°) θα εγλιείονται  
 σε ξύλινα είδη συσκευασίας ή σε δύο γερούς σάκκους κατα-  
 σκευασμένους από κανβά γιούτας στενώς υφασμένον, των  
 σάκκων δοντων φλογοστεγανών ώστε να μην αναφλέγονται  
 ακόμη και όταν έλθουν σε επαφή με φλόγα και εχόντων γερές  
 και συνεχείς ραφές. Οι σάκκοι αυτοί θα τοποθετούνται ο  
 ένας μέσα στον άλλον· μετά το γέμισμα τα ανοίγματά τους  
 θα διπλωθούν χωριστά και πολλές φορές και θα ραφούν στε-  
 νά ώστε να αποφεύγεται οποιαδήποτε διαφυγή του περιεχο-  
 μένου. Εν τούτοις, τα υπολείμματα κυτταροϊδίνης μπορούν  
 να συσκευάζονται σε ένα σάκκον εάν τα υπολείμματα κυττα-  
 ροϊδίνης συσκευασθούν αρχικώς σε γερό χαρτί συσκευασίας  
 ή σε κατάλληλη πλαστική ύλη και βεβαιούται στο έγγραφο  
 μεταφοράς ότι τα υπολείμματα κυτταροϊδίνης δεν περιέχουν  
 οιαδήποτε υπολείμματα υπό μορφήν κόνους.

(2) Κόλα έχοντα συσκευασίαν από ακατέργαστο  
 κανβά ή γιούτα δεν πρέπει να ζυγίζουν περισσότερο από

40 KG σε μονή συσκευασία ούτε περισσότερο από 80 KG σε διπλή συσκευασία. 2407  
(Συνεχίζεται)

(3) Για τα στοιχεία (λεπτομέρειες) του εγγράφου μεταφοράς, βλέπε περιθώριο 24I6(2).

(I) Οι ύλες της 7<sup>ο</sup>(α) θα συσκευάζονται:- 2408

- (α) σε ξύλινα δοχεία ή βαρέλια κατασκευασμένα από αδιαπέραστη ινώδη σανίδα· τα δοχεία αυτά και βαρέλια θα έχουν επένδυση αδιαπέραστη από τα υγρά που περιέχουν· τα κλεισίματά των πρέπει να είναι στεγανά· ή
- (β) σε σάκκους αδιαπέραστους από ατμούς από τα υγρά που περιέχουν (π.χ. σάκκοι κατασκευασμένοι από ελαστικό (καουτσούκι) ή από κατάλληλη πλαστική ύλη μη ευχερώς εύφλεκτη), τοποθετημένους σε ξύλινο κιβώτιο ή σε μεταλλικό δοχείο· ή
- (γ) σε επενδεδυμένα με ψευδάργυρο ή μόλυβδο σιδηρά βαρέλια, ή
- (δ) σε δοχεία κατασκευασμένα από πλάκες κασιτέρου, φύλλα ψευδαργύρου ή φύλλα αργυλλίου και ασφαλισμένα με αποσβεστικό υλικό σε ξύλινα κιβώτια.

(2) Η νιτροκυτταρίνη της 7<sup>ο</sup>(α), εάν υγροποιημένη αποκλειστικώς με νερό, μπορεί να συσκευασθεί σε βαρέλια από ινώδη σανίδα· η ινώδη σανίδα αυτή πρέπει να έχει υποστεί ειδική επεξεργασία ώστε να είναι εντελώς αδιαπέραστη· τα κλεισίματα των βαρελιών θα είναι υδατο-ατμο-στεγανά·

(3) Η νιτροκυτταρίνη της 7<sup>ο</sup>(α), με προστιθέμενο ξυλένιο, δεν μπορεί να συσκευασθεί άλλως ειμή σε μεταλλικά δοχεία.

(4) Οι ύλες της 7<sup>ο</sup> (β) και (γ) θα συσκευάζονται: 2408

- (α) σε ξύλινα είδη συσκευασίας επενδεδυμένα με γερό χαρτί ή φύλλο-ψευδαργύρου ή φύλλο αργυλλού· ή (Συνεχίζεται.)
- (β) σε γερά βαρέλια από ινώδη σανίδα ή, υπό τον όρον ότι οι ύλες είναι απηλλαγμένες από κόνιν και ότι τούτο βεβαιούται στο έγγραφο μεταφοράς, σε κιβώτια από ινώδη σανίδα τα οποία έχουν καταστεί αδιαπέραστα· ή
- (γ) σε είδη συσκευασίας από φύλλο-μετάλλου.

(5) Για ύλες της 7<sup>ο</sup>, τα μεταλλικά δοχεία πρέπει να είναι έτσι κατασκευασμένα ώστε, λόγω ρης μεθόδου συναρμολογήσεως των τοιχωμάτων των, του τρόπου του κλεισίματός των, ή της υπάρξεως μηχανισμού ασφαλείας, να αποδίδουν όταν η εσωτερική πίεση φθάσει τιμήν μεγαλύτεραν των 3 KG/CM<sup>2</sup>. η ύπαρξη των κλεισιμάτων αυτών ή μηχανισμών ασφαλείας δεν πρέπει να εξασθενεί την αντοχή του δοχείου ούτε την αντοχή του κλεισίματός του.

(6) Το κόνιν δεν πρέπει να ζυγίζει περισσότερο από 75 KG ή, εάν μπορεί να ρολλαρισθεί, όχι περισσότερο από 300 KG· εν τούτοις, βαρέλι από ινώδη σανίδα δεν πρέπει να ζυγίζει περισσότερο από 75 KG και κιβώτιο από ινώδη σανίδα όχι περισσότερο από 35 KG.

(7) Για τα στοιχεία του εγγράφου μεταφοράς, βλέπε περιθώριο 24I6(3).

(I) Ο κόνικινος φωσφόρος και ο πενταθειούχος φωσφόρος. (8<sup>ο</sup>) θα συσκευάζονται: 2409

- (α) σε δοχεία κατασκευασμένα από φύλλον σιδήρου ή πλάκα κασιτέρου, τα οποία θα τοποθετούνται σε γερό ξύλινο δοχείο· το κόνιν δεν πρέπει να ζυγίζει περισσό-

- πτερο από 100 KG· ή 2409  
(β) σε δοχεία κατασκευασμένα από γυαλί ή είδη κεραμει- (Συνεχίζεται)  
κής πάχους όχι μικρότερου των 3 MM (χιλ.), η από  
κατάλληλη πλαστική ύλη, το καθένα περιέχον όχι πε-  
ρισσότερο από 12.5 KG ύλης. Τα δοχεία αυτά θα ασφα-  
λίζονται με αποσβεστικό υλικό σε γερό ξύλινο κιβώ-  
τιο· το κδλον δεν πρέπει να ζυγίζει περισσότερο  
από 100 KG· ή  
(γ) σε μεταλλικά δοχεία τα οποία, εάν με το περιεχόμενό  
τους ζυγίζουν περισσότερο από 200 KG, θα είναι εφο-  
διασμένα με ενισχυτικές στεφάνες στα άκρα τους,  
και με κυλιόμενες στεφάνες (ROLLING HOOPS).

(2) Ο υποθειούχος φωσφόρος (8<sup>ο</sup>) θα συσκευάζε-  
ται σε στεγανά μεταλλικά δοχεία, τα οποία θα ασφαλίζον-  
ται με αποσβεστικό υλικό σε ξύλινα κιβώτια με πολύ εφαρ-  
μοστές πλευρές. Το κδλον δεν πρέπει να ζυγίζει περισσότερο  
από 75 KG.

Οι ύλες της 9<sup>ο</sup> θα συσκευάζονται σε σταθερά- 2410  
κλειδόμενα στεγανά δοχεία.

(I) Οι ύλες της 10<sup>ο</sup> θα συσκευάζονται σε μεταλλι- 2411  
κά ή ξύλινα δοχεία ή σε γερούς σάκκους.

(2) Τα ξύλινα δοχεία και σάκκοι, δεν θα γίνονται,  
εν τούτοις, δεκτοί για γαιάνθρακα εις κδνιν, λιγνίτην εις  
κδνιν ή ποάνθρακα εις κδνιν που παρασχευάσθησαν τεχνητώς  
εκτός εάν η κόνις έχει τελείως ψυχθεί μετά από ξήρανσιν  
δια θερμότητος.

(3) Για τα στοιχεία (λεπτομέρειες) του εγγράφου

μεταφοράς, βλέπε περιθώριο 24I6(4).

(1) Η ναφθαλίνη της II<sup>0</sup>(α) θα συσκευάζεται σε σταθερά-κλεισμένα ξύλινα ή μεταλλικά δοχεία.

24II  
(Συνεχίζεται)  
24I2

(2) Η ναφθαλίνη της II<sup>0</sup>(β) θα συσκευάζεται σε ξύλινα ή μεταλλικά δοχεία, ή σε γερά κιβώτια από ινώδη σανίδα, ή σε γερούς σάκκους κατασκευασμένους από ύφασμα ή τετράφυλλο χαρτί ή από κατάλληλη πλαστική ύλη.

Όσakis χρησιμοποιούνται κιβώτια από ινώδη σανίδα, το κδλον δεν πρέπει να ζυγίζει πάνω από 30 KG.

(3) Η ναφθαλίνη σε τετηγμένη κατάσταση (II<sup>0</sup>(γ)) δεν πρέπει να μεταφέρεται άλλως ειμή εντός δεξαμενών.

### 3.- Μικτή συσκευασία

(1) Ύλες ομαδοποιημένες υπό τον αυτόν αριθμόν 24I3 είδους μπορούν να συμπεριληφθούν στο αυτό κδλον. Οι εσωτερικές συσκευασίες θα συμφωνούν με ό,τι προβλέπεται για κάθε ύλην, και οι εξωτερικές συσκευασίες θα είναι οι καθορισθείσες για τις ύλες του εν θέματι αριθμού είδους. Κδλον περιέχον ράβδους και σωλήνες κυτταροϊδίνης (σελλουλοΐδ) ομού κατασκευασμένους σε περιτύλιγμα από ύφασμα δεν πρέπει να ζυγίζει πάνω από 75 KG.

(2) Εάν μικρότερες ποσότητες δεν προβλέπονται από το άρθρο το τιτλοφορούμενο "Συσκευασία μιας ύλης", οι ύλες της παρούσης Κλάσεως, σε ποσότητες μη υπερβαίνουσες τα 6 KG για όλες τις ύλες τις αναφερόμενες υπό

τον αυτόν αριθμόν είδους ή το αυτό γράμμα, μπορούν 24I3 να εγκλείονται στο αυτό κώλον είτε με ύλες άλλου α- (Συνεχίζεται)ριθμού είδους είτε άλλου γράμματος της αυτής Κλάσεως, ή με επικίνδυνες ύλες ανήκουσες σε άλλες Κλάσεις (εάν μικτή συσκευασία επιτρέπεται ομοίως προκειμένου περί τοιούτων υλών), ή με άλλα εμπορεύματα, υπό την επιφύλαξη των παρακάτω ειδικών όρων.

Οι εσωτερικές συσκευασίες πρέπει να πληρούν τους γενικούς και ειδικούς όρους συσκευασίας. Επιπροσθέτως, οι γενικές διατάξεις οι περιεχόμενες στα περιθώρια 200I(5) και 2002(6) και (7) πρέπει να τηρούνται.

Το κώλον δεν πρέπει να ζυγίζει περισσότερο από 150 KG, ή περισσότερο από 75 KG εάν περιέχει εθραυστα δοχεία.

#### Ειδικοί Όροι

Αριθμός Είδους	Περιγραφή Ύλης	Ανωτάτη Ποσότης		Ειδικές Διατάξεις
		ανά δοχείο	ανά κώλον	
2 <sup>ο</sup> (α)	Θείον	5 KG	5 KG	Δεν πρέπει να συσκευάζεται μαζί με χλωριά άλατα, υπερμαγγανικά, υπερχλωριά άλατα ή υπεροξειδία (πλην διαλυμάτων υπεροξειδίου του υδρογόνου)

2413

(Συνεχίζε-  
ται)

Αριθμός Είδους	Περιγραφή Υλης	Ανωτάτη Ποσότης ανά δοχείο	Ποσότης ανά κόλον	Ειδικές Διατάξεις
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( Σ υ ν έ χ ε ι α )

7 <sup>ο</sup> (α)	Ασθενώς εμπλουτισμένη με άζωτο νιτροκυτταρίνη (όπως κολλοδιοβάμβαξ). 100 Γραμμ. 1 KG			Δεν πρέπει να συσκευάζονται μαζί με ύλες των Κλάσεων 4.2 και 5.1
8 <sup>ο</sup>	Κόκκινος (άνυδρος) φωσφόρος	5 KG	5 KG	
8 <sup>ο</sup>	Υποθειούχος Φωσφόρος	Μικτή Συσκευασία		δεν επιτρέπεται

4.- Ενδείξεις και ετικέτες κινδύνου στα κόλα

2414

(βλέπε Προσθήκη Α.9)

(I) Κόλα περιέχοντα ύλες των 4<sup>ο</sup> έως 8<sup>ο</sup> θα φέρουν ετικέτα συμφώνως προς το μοντέλο Νο. 2B.

Εν τούτοις, εάν οι ύλες των 4<sup>ο</sup> έως 7<sup>ο</sup> είναι συσκευασμένες σε περιτυλίγματα κατασκευασμένα από στενά υφάνσιμο ύφασμα συμφώνως προς το περιθώριο 2405(I)(β)3, σε κυτία από ινώδη σανίδα ή κιβώτια συμφώνως προς τα περιθώρια 2406(I) και 2408(4)(β), σε σάκκους από λούπη συμφώνως προς το περιθώριο 2407(I) ή σε βαρέλια από ινώδη σανίδα συμφώνως προς το περιθώριο 2408(I) (α), (2) και 4 (β), τα κόλα θα φέρουν δύο ετικέτες συμφώνως προς το μοντέλο Νο. 2B.



(2) Κόλα περιέχοντα εύθραυστα δοχεία μη ορατά από έξω θα φέρουν ετικέτα σύμφωνα προς το μοντέλο Νο. 9. Εάν τα εύθραυστα δοχεία περιέχουν υγρά, τα κόλα επιπροσθέτως, εκτός προκειμένου περί σφραγισμένων αμπουλών, θα φέρουν ετικέτες συμφώνως προς το μοντέλο Νο. 8· οι ετικέτες αυτές θα τοποθετούνται ψηλά σε δύο απέναντι πλευρές των κιβωτίων ή κατ'ισοδύναμον τρόπον ~~ούτως~~ χρησιμοποιούνται άλλες συσκευασίες.

24I4

(Συνεχίζεται)

(3) Προκειμένου περί αποστολών μεταφερομένων ως πλήρη φορτία, η ετικέτα Νο. 2B δεν χρειάζεται να τοποθετείται στα κόλα.

24I5

#### B.- Στοιχεία του εγγράφου μεταφοράς

(I) Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς πρέπει να συμμορφούται προς μία των ονομασιών των υπογραμμισμένων στο περιθώριο 240Γ. Οσάκις η ονομασία της ύλης δεν ορίζεται στη περίπτωση της I<sup>ο</sup>, η εμπορική ονομασία θα χρησιμοποιείται. Η περιγραφή των εμπορευμάτων πρέπει να υπογραμμίζεται με κόκκινο και να ακολουθείται από τα στοιχεία της Κλάσεως, τον αριθμό του είδους (μαζί με το, τυχόν, γράμμα, και τα αρχικά "ADR" ή "RID" (π.χ. 4.I, 7<sup>ο</sup>(α), ADR).

24I6

(2) Προκειμένου περί υπολειμμάτων κυτταροϊδίνης (6<sup>ο</sup>) συσκευασμένων σε γερό χαρτί συσκευασίας ή σε κατάλληλη πλαστική ύλη και τοποθετημένων, έτσι κατασκευασμένων, σε σάκκους από στενά υφασμένο ανατέργαστο κανβά ή γιούτα, τα παρακάτω πρέπει να βεβαιούνται στο έγγραφο μεταφοράς: "Δεν περιέχει υπολείμματα υπό μορφήν κόνεως".

(3) Προκειμένου περί υλών της 7<sup>ο</sup> (β) και (γ) συσκευασμένων σε κιβώτια από ινώδη σανίδα, τα παρακάτω πρέπει να βεβαιούνται στο έγγραφο μεταφοράς:- 24I6  
(Συνεχίζεται)

"Υλεις απηλλαγμένες από κόνιν".

(4) Προκειμένου περί γαιάνθρακος εις κόνιν, λιγνίτου εις κόνιν ή ποάνθρακος εις κόνιν (ΙΟ<sup>ο</sup>) τεχνητώς παρασκευασθέντων και συσκευασθέντων σε ξύλινα δοχεία ή σάκκους (βλέπε περιθώριο 24II(2)), τα παρακάτω πρέπει να βεβαιούνται στο έγγραφο της μεταφοράς:- "Υλεις εντελώς φυγμένες μετά ξήρανση δια θερμότητας".

24I7-  
2423

Γ.- Κενά Είδη Συσκευασίας

Καμία διάταξη.

2424  
2425-  
2429

## ΚΛΑΣΗ 4.2 ΥΛΕΣ ΥΠΟΚΕΙΜΕΝΕΣ ΣΕ ΣΤΙΓΜΙΑΙΑ ΚΑΥΣΗ

I.- Κατάλογος υλών

Μεταξύ των υλών και ειδών των καλυπτομένων υπό 2430 τον τίτλον Κλάσης 4.2, μόνον τα αναφερόμενα στο περιθώριο 243I θα γίνονται δεκτά για μεταφορά, και τότε μόνον υπό την επιφύλαξη των διατάξεων του παρόντος Παραρτήματος και Παραρτήματος Β. Οι ύλες αυτές και είδη που γίνονται δεκτά για μεταφορά υπό ωρισμένους όρους θα θεωρούνται ως ύλες και είδη της ADR.

1<sup>ο</sup> Λευκός ή κίτρινος φωσφόρος 243I

2<sup>ο</sup> Ενώσεις φωσφόρου με αλκαλικά μέταλλα ή μέταλλα αλκαλικών γαιών, π.χ., φωσφίδιο νατρίου, φωσφίδιο ασβεστίου, φωσφίδιο στροντίου.

Σημείωσις:- Ενώσεις φωσφόρου με τα αποκαλούμενα βαρεια μέταλλα, όπως σίδηρος, χαλκός, κασσίτερος κλπ., αλλά με εξαίρεση τον ψευδάργυρο (φωσφίδιο του ψευδαργύρου είναι ύλη της Κλάσεως 6.I - βλέπε περιθώριο 260I 33<sup>ο</sup>), δεν υπόκεινται στις διατάξεις της ADR.

3<sup>ο</sup> Αλικύλια ψευδαργύρου, αλικύλια μαγνησίου, αλικύλια αργυρίου (αλουμινίου) και χλωριούχον αργυλο-διαιθύλιον.

Βλέπε επίσης περιθώριον 243Iα υπό στοιχείον (α).

4<sup>ο</sup> Υπολείμματα φιλμ-νιτροκυτταρίνης, απηλλαγμένα από ζελατίνη, σε πηνία, φύλλα ή λωρίδες.

Σημείωσις:- Υπολείμματα φιλμ-νιτροκυτταρίνης απηλλαγμένα από ζελατίνη δεν θα γίνονται δεκτά για μεταφορά εάν περιέχουν κόνιν.

- 5<sup>ο</sup> (α) Μεταχειρισμένα ράκη και υπολείματα· 243I  
 (β) Λιπαρά ή ελαιώδη υφάσματα, θρυαλλίδες, σχοινί (Συνεχίζεται)  
ή κλωστή (νήμα)·  
 (γ) Οι παρακάτω λιπαρές ή ελαιώδεις ύλες: - έριο  
(μαλλί), τρίχα (και αλογότριχα), τεχνητό έριο,  
αναμορφωμένο έριο (επίσης καλούμενο WOOL SHODDY),  
βαμβάκι, ξαναξασμένο βαμβάκι, τεχνητές ίνες  
(ραιγιόν, κλπ.), μετάξι, λίνον, κάνναβις και  
γιούτα, επίσης υπό μορφήν υπολειμμάτων κλωστής  
 ρίου ή υφαντουργείου.

Για (α), (β) και (γ), βλέπε επίσης περιθώριο 243Iα  
 υπό στοιχείον (β).

Σημείωση: - Υγροποιημένες ύλες της 5<sup>ο</sup> (β) και (γ) δεν  
 γίνονται δεκτές για μεταφορά.

- 6<sup>ο</sup> (α) Κόνις και πυρίτις αργυλίου ή ψευδαργύρου και μίγ-  
ματα κόνεως ή πυρίτιδας αργυλίου και ψευδαργύρου,  
 επίσης όταν λιπαρά ή ελαιώδη· πυρίτις ζιρκονίου  
και τιτανίου· κόνις από φίλτρα υψικαμίνου·  
 (β) Κόνις, πυρίτις και λεπτά θρύμματα μαγνησίου και  
κράματα μαγνησίου με περιεχόμενον εις μαγνήσιον  
 όχι περισσότερο του 80 τοις εκατόν, άπαντα απηλ-  
 λαγμένα από μόρια που ενδέχεται να προαγάγουν την  
 ανάφλεξη·  
 (γ) τα παρακάτω άλατα διθειονικού οξέος (υδροθειώδους)  
H<sub>2</sub>S<sub>2</sub>O<sub>4</sub>), υποθειώδη (υδροθειώδη) άλατα νατρίου,  
καλίου και ψευδαργύρου·  
 (δ) μέταλλα σε πυροφορική μορφή.

Για (α), βλέπε επίσης περιθώριο 243Iα υπό στοιχείο 243I (β) και (γ)\* για (β) και (γ) βλέπε επίσης περιθώριο 243Iα υπό στοιχείον (β). (Συνεχίζεται)

7<sup>ο</sup> Νωπή κεκαυμένη αιθάλη. Βλέπε επίσης περιθώριο 243Iα υπό στοιχείον (β).

8<sup>ο</sup> Φρεσκο-σβυσμένος ξυλάνθραξ, εις κόνιν, κδικούς ή σβώλους. Βλέπε επίσης περιθώριο 243Iα υπό στοιχείον (β) και Κλάσιν 4.Ι, περιθώριον 240I, I<sup>ο</sup>.

Σημείωση:- Με τον όρον "φρεσκο-σβυσμένος γαιάνθραξ" νοείται:-

προκειμένου περί γαιάνθρακος εις σβώλους, ο γαιάνθραξ ο οποίος έχει σβεσθεί προ ολιγώτερο των τεσσάρων ημερών\*

προκειμένου περί γαιάνθρακος εις κόνιν και γαιάνθρακος εις κδικούς, μεγέθους κδικού μικροτέρου των 8 MM (χιλ.), ο γαιάνθραξ ο οποίος έχει σβεσθεί προ ολιγώτερο των οκτώ ημερών και έχει αερο-φυχθεί σε λεπτά στρώματα ή δια κατεργασίας εξασφαλίζουσας ισοδύναμον βαθμόν φύξεως.

9<sup>ο</sup> Μίγματα καυσίμων υλών εις κδικούς ή μίγματα πορωδών καυσίμων υλών με συστατικά που εξακολουθούν να υπόκεινται σε στιγμιαία οξειδωση, όπως το λινέλαιο ή άλλα φυσικά ξηραινόμενα έλαια, βρασμένα ή με πρόσθετες ξηραντικές συνθέσεις, ρητίνη, ρητινέλαιον, κατάλοιπα πετρελαίου κλπ. (π.χ., η ύλη η γνωστή ως υπόλειμμα φελλού, λουπουλίνη) και ελαιώδη κατάλοιπα από λεύκασιν σογιελαίου.

Βλέπε επίσης περιθώριο 243Iα υπό στοιχείον (β) και Κλάσιν 4.Ι, περιθώριο 240I, I<sup>ο</sup>.

ΙΟ<sup>ο</sup> Χαρτί, κάρντμπορντ και προϊόντα κατασκευασμένα από 243Ι  
χαρτί ή κάρντμπορντ (π.χ. περιτυλίγματα κάρντ- (Συνεχίζεται)  
μπορντ και δακτύλιοι κάρντμπορντ), φύλλα από ίνα-  
ξύλου, δέσμες (κούκλες) νήματος, υφάσματα, σπάγγοι,  
κλωσταί (νήματα), υπολείμματα κλωστηρίου ή υφαντη-  
ρίου, όλα εμποτισμένα με έλαια, λίπη, φυσικά ξηραν-  
τικά έλαια, βρασμένα ή με πρόσθετες ξηραντικές συν-  
θέσεις ή άλλες εμποτιστικές ύλες υποκειμένες σε στιγ-  
μιαία οξείδωση. Βλέπε επίσης περιθώριο 243Ια υπό στοι-  
χείο (β) και Κλάσιν 4.Ι, περιθώριο 240Ι, Ι<sup>ο</sup>.

Σημείωση: - Οι ύλες της ΙΟ<sup>ο</sup> δεν γίνονται δεκτές για  
μεταφορά εάν η υγρασία τους υπερβαίνει την υγρασκοπι-  
κή υγρασία.

ΙΙ<sup>ο</sup> Η ύλη με βάση οξείδιο του σιδήρου χρησιμοποιηθείσα  
για καθαρισμόν του φωταερίου (δαπανηθέν οξείδιον του  
σιδήρου).

Σημείωση: - Εάν η ύλη που χρησιμοποιήθηκε για τον  
καθαρισμόν φωταερίου (δαπανηθέν οξείδιο του σιδήρου),  
μετά την αποθήκευσιν και τον εξαερισμόν, δεν είναι  
του λοιπού υποκειμένη σε στιγμιαία ανάφλεξη, και εάν  
τούτο βεβαιούται στο έγγραφο μεταφοράς δια της εγγρα-  
φής: - "Υλη μη υποκειμένη σε στιγμιαία ανάφλεξη",  
δεν υπόκειται στις διατάξεις της ADR.

Ι2<sup>ο</sup> Μεταχειρισμένοι σάνκοι προζυμιού (μαγιάς), ακαθάριστοι.  
Βλέπε επίσης περιθώριο 243Ια υπό στοιχείον (β).

Ι3<sup>ο</sup> Κενοί σάνκοι νιτρικού νατρίου κατασκευασμένοι από ύφασμα.  
Σημείωση: - Υφασματένιοι σάνκοι από τους οποίους έχει τε-

λείως αφαιρεθεί το εμποτίζον αυτούς αζωτούχο νιτρί- 243I  
 κό άλας δια πλύσεως δεν υπόκεινται στις διατάξεις (Συνεχίζε-  
 της ADR. ται)

I4<sup>ο</sup> Κενά σιδηρά βαρέλια, ακαθάριστα, που περιείχαν ύλες της 3<sup>ο</sup>.

Σημείωση: - Περὶ I4<sup>ο</sup> και I5<sup>ο</sup>: Κενά είδη συσκευασίας τα οποία περιείχαν άλλες ύλες της Κλάσεως 4.2 δεν υπόκεινται στις διατάξεις της ADR.

Επικίνδυνες ύλες παραδοθείσες για μεταφορά συμφώνως 243Iα  
 προς τις παρακάτω διατάξεις δεν υπόκεινται ούτε στις διατάξεις για τη παρούσα Κλάση τις περιεχόμενες στο παρόν Παράρτημα ούτε σ' εκείνες που περιέχονται στο Παράρτημα Β:-

(α) διαλύματα υλών της 3<sup>ο</sup> σε συμπύκνωση μη υπερβαίνουσα το 10 τοις εκατόν· σε διαλύτες σε δημείο βρασμού όχι χαμηλότερο των 95<sup>ο</sup>C, εάν η κατάσταση τους είναι τέτοια ώστε να αποκλείεται οποιοσδήποτε κίνδυνος στιγμιαίας αναφλέξεως και εάν τούτο βεβαιούται στο έγγραφο της μεταφοράς δια της εγγραφής:- "Υλη μη υποκειμένη σε στιγμιαία ανάφλεξη", βλέπε, εν τούτοις, Κλάσιν 3<sup>ο</sup>.

(β) ύλες των 5<sup>ο</sup> - 10<sup>ο</sup> και I2<sup>ο</sup> (εξαιρουμένων, εν τούτοις, των υλών της 6<sup>ο</sup>(δ)), εάν η κατάσταση των είναι τέτοια ώστε να αποκλείεται οποιοσδήποτε κίνδυνος στιγμιαίας αναφλέξεως και εάν τούτο βεβαιούται στο έγγραφο της μεταφοράς δια της εγγραφής:- "Υλη μη υποκειμένη σε στιγμιαία ανάφλεξη"· για τις ύλες της

της 8<sup>ο</sup> και ωρισμένες ύλες των 9<sup>ο</sup> και 10<sup>ο</sup>, εν τού-  
τοις, βλέπε Κλάσιγ 4.Ι περιθώριο 240Ι, Ι<sup>ο</sup>.

243Ια  
(Συνεχίζεται).

(γ) κόνις και πυρίτις αργυλίου (αλουμινίου) ή ψευδαργύρου (6<sup>ο</sup>(α)), π.χ. συσκευασμένα μαζι με βερνίκι προς χρήσιν για τη κατασκευή χρωμάτων, εάν συσκευασθούν με επιμέλεια σε ποσότητες μη υπερβαίνουσες το Ι ΚG.

## 2.- Διατάξεις

### A. Κόλα

#### I.- Γενικοί Όροι Συσκευασίας

2432

(I). Τα είδη συσκευασίας θα κλείονται και διευθετούνται κατά τρόπον ώστε να αποφεύγεται οποιαδήποτε απώλεια του περιεχομένου.

(2) Τα υλικά από τα οποία τα είδη συσκευασίας και τα κλεισίματά του είναι κατασκευασμένα πρέπει να μη κινδυνεύουν να προσβληθούν από το περιεχόμενο ούτε από επιβλαβείς ή επικινδύνους με αυτό ενώσεις .

(3) Τα είδη συσκευασίας, συμπεριλαμβανομένων των κλεισιμάτων των, πρέπει να είναι επαρκώς άκαμπτα και γερά σε όλα τα μέρη των ώστε να αποφεύγεται οποιαδήποτε χαλάρωση διαρκούσης της μεταφοράς και να πληρούν τους κανονικούς όρους μεταφοράς. Ειδικότερα, προκειμένου περί υλών σε υγρά κατάσταση ή βυθισμένων σε υγρό ή σε διάλυμα, τα δοχεία και τα κλεισίματά τους πρέπει, εκτός εάν το άρθρον το τιτλοφορούμενον "Συσκευασία μιας ύλης ή εμπορευμάτων του αυτού είδους" προβλέπει άλλως, να είναι ικανά να αντέχουν σε οποιαδήποτε πίεση η οποία, λαμβανομένης υπόψη επίσης της πιέσεως



του αέρα, μπορεί να εγερθεί εσωτερικώς των δοχείων 2432  
κατά την κανονικήν μεταφοράν. Προς τον σκοπόν αυτόν (Συνεχίζε-  
ελεύθερος χώρος πρέπει να αφήνεται, λαμβανομένης υπ' ται)  
όφει της διαφοράς μεταξύ της θερμοκρασίας των υλών  
κατά τον χρόνον της πληρώσεως (γεμίματος) και της  
ανωτάτης μέσης θερμοκρασίας την οποίαν ενδέχεται να  
φθάσουν κατά την μεταφορά. Στερεές ύλες θα εγκλειών-  
ται σταθερά στις συσκευασίες τους, και εσωτερικές συ-  
σκευασίες θα ασφαρίζονται σταθερά στις εξωτερικές συ-  
σκευασίες. Εκτός εάν άλλως ορίζεται στο άρθρο το τι-  
τλοφορούμενο "Συσκευασία μιας ύλης ή εμπορευμάτων  
του αυτού είδους", οι εσωτερικές συσκευασίες μπορούν  
να εγκλειούνται σε εξωτερικές συσκευασίες, είτε μία-  
μία είτε ομαδικά.

(4) Φιάλες και άλλα γυάλινα δοχεία πρέπει  
να αίρονται καταλλήλως οι εσωτερικές τάσεις. Το πάχος  
των τοιχωμάτων δεν πρέπει να είναι μικρότερο των 3 MM  
(χιλ.) προκειμένου περί δοχείων τα οποία, με το περιε-  
χόμενόν τους, ζυγίζουν άνω των 35 KG, και όχι κάτω  
των 2 MM (χιλ.) προκειμένου περί άλλων δοχείων.

Η στεγανότητα του συστήματος κλεισίματος  
πρέπει να εξασφαλίζεται με πρόσθετο μηχανισμόν (πώμα,  
κορώνα, σφραγίδα, δέσιμο, κλπ.), ικανόν να εμποδίσει  
οποιαδήποτε χαλάρωση του συστήματος κλεισίματος κατά  
τη μεταφορά.

(5) Οσάνις δοχεία από ύαλο, πορσελάνη, είδη  
κεραμεικής ή παρόμοια υλικά προβλέπονται ή επιτρέπονται,

πρέπει να ασφαρίζονται με αποσβεστικό υλικό σε προστατευτικά είδη συσκευασίας.

2432  
(Συνεχίζεται)

Το αποσβεστικό υλικό θα ταιριάζει με τη φύση του περιεχομένου· ειδικότερα πρέπει να είναι ξηρό και απορροφητικό όταν το περιεχόμενο είναι υγρό ή ενδέχεται να εξιδρώσει υγρό.

2.- Συσκευασία μιας ύλης ή εμπορευμάτων του αυτού είδους

(I). Ο φωσφόρος της I<sup>ο</sup> θα συσκευάζεται:- 2433

- (α) σε στεγανά από πλάκες κασιτέρου δοχεία κλεισμένα ερμητικά και τοποθετημένα σε ξύλινα κιβώτια· ή
- (β) σε βαρέλια από φύλλα σιδήρου (ελάσματα) κλείνοντα ερμητικά. Καλύμματα δια πίεσεως δεν θα επιτρέπονται. Το έλασμα το αποτελούν τον κορμόν, πυθμένα και κάλυμμα θα είναι πάχους όχι μικρότερου των 1.5 MM (χιλ.). Το κέλον δεν πρέπει να ζυγίζει άνω των 100 KG. Εάν ζυγίζει άνω των 100 KG, πρέπει να είναι εφοδιασμένο με κυλιόμενες στεφάνες (ROLLING HOOPS) ή ενισχυτικές δοκίδες, και θα συγκολλούνται· ή
- (γ) όχι περισσότερα των 250 γραμμ. ανά δοχείο, σε ερμητικά κλεισμένα γυάλινα δοχεία ασφαλιζόμενα με αποσβεστικό υλικό σε στεγανά δοχεία από πλάκες κασιτέρου κλεισμένα δια μαλακής συγκολλήσεως και ασφαλιζόμενα, ομοίως με αποσβεστικό υλικό, σε ξύλινα κιβώτια.

(2) Δοχεία και βαρέλια περιέχοντα φωσφόρον θα γεμίζονται με νερό.

(I) Ύλες της 2<sup>ο</sup> θα συσκευάζονται σε στεγανά

από πλάκες κασιτερού δοχεία ερμητικά κλεισμένα και 2434  
τοποθετημένα σε ξύλινα κιβώτια.

(2) Ύλες της 2<sup>ο</sup> μπορούν επίσης να συσκευάζονται  
όχι άνω των 2 KG ανά δοχείο, σε δοχεία κατασκευασ-  
μένα από γυαλί, πορσελάνη, είδη κεραμεικής ή παρόμοια  
υλικά, ασφαλισμένα με αποσβεστικό υλικό σε ξύλινα κιβώτια.

(1) Ύλες της 3<sup>ο</sup> θα συσκευάζονται σε δοχεία 2435  
κατασκευασμένα είτε από μέταλλο είτε από γυαλί, πορσε-  
λάνη, είδη κεραμεικής ή παρόμοια υλικά, ερμητικά κλει-  
σμένα. Τα δοχεία δεν πρέπει να γεμίζονται πέραν του 90  
6τοκ εκατόν της χωρητικότητος των.

(2) Τα μεταλλικά δοχεία θα ασφαρίζονται με απο-  
σβεστικό υλικό σε προστατευτικά είδη συσκευασίας τα ο-  
ποία, εάν δεν είναι κλεισμένα, θα καλύπτονται. Εάν το  
κάλυμμα αποτελείται από ευχερώς εύφλεκτες ύλες, θα κα-  
θίσταται επαρκώς ανθεκτικό στη φωτιά ώστε να αποφεύγεται  
να πάρει φωτιά σε επαφή με φλόγα. Εάν το προστατευτικό  
είδος συσκευασίας δεν κλεισθεί, το κιβώτιο θα πρέπει να  
διαθέτει χειρολαβήν και να μη ζυγίζει άνω των 75 KG.

(3) Δοχεία κατασκευασμένα από ύαλο, πορσελάνη,  
είδη κεραμεικής ή παρόμοια υλικά θα έχουν χωρητικότητα  
όχι μεγαλύτερα των 5 λιτρών και θα ασφαρίζονται με απο-  
σβεστικό υλικό σε στεγανά μεταλλικά δοχεία ερμητικά  
κλεισμένα.

(4) Οι ύλες της 3<sup>ο</sup> μπορούν επίσης να συσκευά-  
ζονται σε ερμητικά κλεισμένα βαρέλια κατασκευασμένα  
από ανθεκτικό στη διάβρωση χάλυβα και έχοντα χωρητι-  
κότητα όχι μεγαλύτερα των 300 λιτρών και πάχος τοιχώ-

ματος όχι μικρότερο των 3 MM (χιλ.). Τα βαρέλια πρέ- 2435  
 πει να αντέχουν σε πίεση ελέγχου/δοκιμής 10 KG/CM<sup>2</sup> (Συνεχίζε-  
 και να πληρούν τους όρους του περιθωρίου 22II(I) και ται)  
 (2) (β). Το κλείσιμο του μηχανισμού πληρώσεως και εκ-  
 κενώσεως θα ασφαλίζεται από προστατευτικό πάμα. Τα  
 δοχεία δεν πρέπει να γεμίζονται πέραν του 90 τοις εκα-  
 τών της χωρητικότητός των· εν τούτοις, με το υγρό σε  
 μέση θερμοκρασία 50<sup>0</sup>C, ελεύθερος χώρος εκ 5 τοις εκατόν  
 πρέπει να υπάρχει για λόγους ασφαλείας. Όταν παραδίδε-  
 ται για μεταφορά, το υγρό πρέπει να είναι σε στρώμα  
 αδρανούς αερίου σε πίεση μη υπερβαίνουσα τα 0.5 KG/CM<sup>2</sup>.  
 Τα δοχεία θα ελέγχονται συμφώνως προς τις διατάξεις  
 του περιθωρίου 22I6(2) και (3). Οι έλεγχοι θα επαναλαμ-  
 βάνονται κάθε 5 χρόνια. Τα δοχεία θα φέρουν τα παρα-  
 κάτω στοιχεία με γράμματα καθαρώς ευανάγνωστα και ανε-  
 ξίτηλα:-

- 1.- την ονομασίαν της ύλης πλήρη, την επωνυμία ή σήμα  
 του κατασκευαστή ή ιδιοκτήτη, και τον αριθμό του  
 δοχείου·
- 2.- το απόβαρο του δοχείου, συμπεριλαμβανομένων των εξαρ-  
 τημάτων·
- 3.- την πίεση ελέγχου, την ημερομηνίαν (μήνα, έτος) της  
 τελευταίας δοκιμής/ελέγχου την οποίαν υπέστη και  
 την σφραγίδα του εμπειρογνώμονος που διεξήγαγε τους  
 ελέγχους και τις επιθεωρήσεις·
- 4.- τη χωρητικότητα του δοχείου και το επιτρεπόμενο  
 ανώτατο γέμισμα·

5.- Τη φράση:- "Μη το ανοίξετε κατά τη μεταφορά" υπο- 2435  
 κείμενο σε στιγμιαία ανάφλεξη". (Συνεχίζε-

Το κόλον δεν πρέπει να ζυγίζει άνω από

400 KG.

(I) Οι ύλες της 4<sup>ο</sup> θα συσκευάζονται σε σάκκους 2436  
 τοποθετημένους σε βαρέλια κατασκευασμένα από αδιαπέρα-  
 στη ινώδη σανίδα ή σε δοχεία κατασκευασμένα από φύλλο  
 ψευδαργύρου ή φύλλο αργυλίου (αλουμινίου). Οι πλευρές  
 των μεταλλικών δοχείων θα επενδύονται με ινώδη σανίδα.  
 Οι πυθμένες και τα καλύμματα των βαρελιών από ινώδη σα-  
 νίδα και των μεταλλικών δοχείων θα επενδύονται με ξύλο.

(2) Τα μεταλλικά δοχεία θα είναι εφοδιασμένα με  
 κλεισίματα ή μηχανισμούς ασφαλείας οι οποίοι θα λει-  
 τουργούν όταν η εσωτερική πίεση φθάσει τιμήν όχι μεγα-  
 λυτέραν των 3 KG/CM<sup>2</sup>. η ύπαρξη αυτών των κλεισιμάτων  
 ή μηχανισμών ασφαλείας δεν πρέπει να εξασθενεί την αν-  
 τοχή του δοχείου ούτε να εξασθενεί το κλείσιμό του.

(3) Το κόλον δεν πρέπει να ζυγίζει περισσό-  
 τερο από 75 KG.

(I) Ύλες της 5<sup>ο</sup> (α) θα έχουν σφικτά συμπιε- 2437  
 σθεί και τοποθετηθεί σε στεγανά μεταλλικά δοχεία.

(2) Ύλες της 5<sup>ο</sup> (β) και (γ) θα έχουν σφικτά  
 συμπιεσθεί και συσκευασθεί είτε σε ξύλινα είτε από ινώ-  
 δη σανίδα κιβώτια είτε σε χάρτινα είτε υφασματένια περι-  
 τυλίγματα σταθερά ασφαλισμένα.

(I) Οι ύλες της 6<sup>ο</sup> (α) θα εγχεύονται σε σφι- 2438  
 κτά κλειδόμενα στεγανά δοχεία κατασκευασμένα από ξύλο ή

μέταλλο. Εν τούτοις, το ζιρκόνιο θα εγκλείεται μόνο 2438 σε μεταλλικά ή γυάλινα δοχεία, τα οποία θα ασφαρίζον(Συνεχίζε-  
ται) ται με αποσβεστικό υλικό σε γερά ξύλινα κιβώτια.

Εάν το αποσβεστικό υλικό είναι εύφλεκτο, θα είναι πυρασφαλές.

(2) Οι ύλες της 6<sup>ο</sup> (β) θα εγκλείονται σε σφικτά κλειδόμενα στεγανά σιδηρά βαρέλια ή σε ξύλινα κιβώτια με επένδυση φύλλου μετάλλου (έλασμα) στεγανήν (δια μαλακής συγκολλησίσεως, π.χ.) ή σε κυτία κατασκευασμένα από πλάκες κασσιτέρου ή λεπτό φύλλο αργυλίου και θα κλείουν κατά τρόπον ώστε να είναι στεγανά· τα βαρέλια αυτά, κιβώτια ή κυτία θα τοποθετούνται σε ξύλινα κιβώτια. Για ύλες της 6<sup>ο</sup> (β) παραδοθείσες ατομικώς για μεταφορά σε κυτία κατασκευασμένα από πλάκα κασσιτέρου ή φύλλο αργιλίου, περιτύλιγμα κυματοειδούς ινώδους σανίδος θα είναι αρκετό αντί ξυλίνου κιβωτίου· κόλον της φύσεως αυτής δεν πρέπει να ζυγίζει άνω των 12 KG.

(3) Οι ύλες της 6<sup>ο</sup> (γ) θα συσκευάζονται σε αεροστεγανά από φύλλο μετάλλου δοχεία ή αεροστεγανά σιδηρά βαρέλια. Προκειμένου περί δοχείων εκ φύλλου μετάλλου, το κόλον δεν πρέπει να ζυγίζει άνω των 50 KG.

(4) Οι ύλες της 6<sup>ο</sup> (δ) θα συσκευάζονται σε δοχεία κατασκευασμένα από μέταλλο, ύαλο ή κατάλληλη πλαστική ύλη και θα κλείνουν κατά τρόπον ώστε να είναι αεροστεγανά. Οι αναστολείς οι χρησιμοποιούμενοι για κλείσιμο θα κρατούνται στη θέση τους με πρόσθετο μηχανισμό (όπως πώμα, κορώνα, σφραγίδα ή δέσιμο) ικανόν να εμποδίσει

οποιαδήποτε χαλάρωση κατά τη μεταφορά. Οι ύλες θα αποστέλονται από προστατευτικό υγρό (όπως μεθανόλη) ή προστατευτικό αέριο. 2438 (Συνεχίζεται)

Τα μεταλλικά δοχεία θα τοποθετούνται σε ξύλινο κιβώτιο συσκευασίας. Το κέλον δεν πρέπει να ζυγίζεται άνω των 25 KG.

Οι ύλες των 7<sup>ο</sup> - 10<sup>ο</sup> και 12<sup>ο</sup> θα εγκλείονται σε σφικτά κλεισμένα είδη συσκευασίας. Ξύλινα είδη συσκευασίας χρησιμοποιούμενα για ύλες των 7<sup>ο</sup> και 8<sup>ο</sup> θα είναι εφοδιασμένα με στεγανήν επένδυσιν.

Η ύλη η χρησιμοποιηθείσα για καθαρισμό φωταερίου (δαπανηθέν οξειδίου του σιδήρου) (11<sup>ο</sup>) θα συσκευάζεται σε σφικτά κλεισμένα δοχεία από φύλλο μετάλλου.

Κενοί σάκκοι νιτρικού νατρίου (13<sup>ο</sup>) θα γίνονται σφικτά συσκευασμένες δέσμες δεμένες ασφαλώς με σπάγγο και θα τοποθετούνται είτε σε ξύλινο κιβώτιο είτε σε περιτύλιγμα αποτελούμενο από γερό χαρτί διαφόρου πάχους ή αδιάβροχο ύφασμα.

### 3.- Μικτή Συσκευασία

(1) Ύλες ομαδοποιημένες υπό τον αυτόν αριθμόν είδους μπορούν να συμπεριληφθούν στο ίδιο κέλον. Οι εσωτερικές συσκευασίες θα συμφωνούν με ό,τι προβλέπεται για κάθε ύλην, και οι εξωτερικές συσκευασίες θα είναι οι οριζόμενες για τις ύλες του εν θέματι αριθμού είδους. 2442

(2) Εάν μικρότερες ποσότητες δεν προβλέπονται από το άρθρο που φέρει τον τίτλο "Συσκευασία μιας ύλης ή εμπορευμάτων του αυτού είδους", οι ύλες της παρούσης

Κλάσεως, σε ποσότητες μη υπερβαίνουσες τα 6 KG προ- 2442  
 κειμένου περί στερεών ή 3 λίτρες προκειμένου περί (Συνεχίζεται)  
 υγρών για όλες τις ύλες τις αναγραφόμενες υπό τον  
 αυτόν αριθμόν είδους ή το αυτό γράμμα, μπορούν να εγ-  
 κλείονται στο αυτό κόλον είτε με ύλες άλλου αριθμού  
 είδους είτε άλλου γράμματος της αυτής Κλάσεως, είτε  
 με επικίνδυνες ύλες ανήκουσες σε άλλες Κλάσεις (εάν  
 μικτή συσκευασία επιτρέπεται προκειμένου περί τοιούτων  
 υλών), είτε με άλλα εμπορεύματα, υπό την επιφύλαξη των  
 παρακάτω ειδικών όρων.

Οι εσωτερικές συσκευασίες πρέπει να πληρούν  
 τους γενικούς και ειδικούς όρους συσκευασίας. Επιπρο-  
 σθέτως, οι γενικές διατάξεις των περιθωρίων 2001(5) και  
 2002(6) και (7) πρέπει να τηρούνται.

Το κόλον δεν πρέπει να ζυγίζει άνω των 150 KG,  
 ή άνω των 75 KG εάν περιέχει εύθραυστα δοχεία.

Ειδικό Όροι:-

Αριθμός Είδους	Περιγραφή Ύλης	Ανωτάτη ποσότητα		Ειδικές Διατάξεις
		ανά δοχείο	ανά κόλον	
1 <sup>ο</sup>	Λευκός ή κίτρινος Φωσφόρος			
2 <sup>ο</sup>	Φωσφίδια			
3 <sup>ο</sup>	Αλκύλια φευ- δαργύρου, κλπ.			Μικτή συσκευασία δεν επιτρέπεται



2442

(Συνεχίζεται)

Αριθμός Είδους	Περιγραφή Ύλης	Ανωτάτη Ποσότης ανά δοχείον	Ποσότης ανά κόλον	Ειδικές Διατάξεις
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( Σ υ ν έ χ ε ι α )

6° (α) (β)	Κόνις και πυρίτιδα			Δεν πρέπει να συσκευάζονται μαζί με ασθενώς εμπλουτισμένη με άζωτο νιτρο- κυτταρίνη και κόκκινο φωσφό- ρο της Κλάσεως 4.Ι, ούτε με α- λατα διυδροφθο- ρικού οξέος
και (δ)	αργιλίου (αλουμι- νίου) ή ψευδαργύ- ρου	3 KG	3 KG	
	Κόνις, πυρίτιδα και λεπτά ρινηματα μαγ- νησίου			
	Μέταλλα σε πυροφο- ρική μορφή			
4°, 5°, 6° (γ) 7°-12°	Όλες οι ύλες			

4.- Ενδείξεις και ετικέτες κινδύνου στα κόλα

(βλέπε Προσθήκη Α.9)

(Ι) Κόλα περιέχοντα ύλες των Ι° έως 4° ή 6° 2443

θα φέρουν ετικέτα συμφώνως προς το μοντέλο Νο. 2C.

Εν τούτοις, εάν οι ύλες της 4° συσκευα-  
σθούν σε βαρέλια κατασκευασμένα από αδιαπέραστη ινώδη  
σανίδα συμφώνως προς το περιθώριο 2436(I), τα κόλα θα  
φέρουν δύο ετικέτες συμφώνως προς το μοντέλο Νο. 2C.

(2) Βαρέλια περιέχοντα φωσφόρον της Ι° και  
έχοντα κοχλιωτό πώμα οφείλουν, εκτός εάν διαθέτουν μη-  
χανισμόν διατηρούντα αυτά όρθια, να φέρουν επιπροσθέτως,  
ψηλά σε δύο διαμετρικώς αντίθετα μέρη, δύο ετικέτες

συμφώνως προς το μοντέλο Νο.8.

2443

(Συνεχίζε-  
ται)

(3) Κόβλα που περιέχουν εύθραυστα δοχεία μη ορατά από έξω θα φέρουν ετικέτες σύμφωνες προς το μοντέλο Νο.9. Εάν τα εύθραυστα δοχεία περιέχουν υγρά, τα κόβλα επιπροσθέτως, πλην της περιπτώσεως σφραγισμένων αμπουλών, θα φέρουν ετικέτες σύμφωνα προς το μοντέλο Νο.8<sup>ο</sup>. οι ετικέτες αυτές θα τοποθετούνται ψηλά σε δύο αντίθετες πλευρές των κιβωτίων ή κατά τρόπο ισοδύναμο όταν χρησιμοποιούνται άλλα είδη συσκευασίας.

(4) Προκειμένου περί αποστολών διεξαγομένων ως πλήρη φορτία, η ετικέτα Νο. 20 η προβλεπομένη εκ της ανωτέρω παραγράφου (I), δεν χρειάζεται να τεθεί στα κόβλα εάν το δχημα φέρει την ένδειξιν την προβλεπομένην υπό του Παραρτήματος Β, περιθώριο ΙΟ 500.

2444

Β.- Στοιχεία (λεπτομέρειες) του εγγράφου μεταφοράς

2445

Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς πρέπει να είναι σύμφωνη με μία των ονομασιών των υπογραμμισμένων στο περιθώριο 243I. Όπου η ονομασία της ύλης δεν σημειούται προκειμένου περί των 2<sup>ο</sup>, 3<sup>ο</sup>, 9<sup>ο</sup> και 10<sup>ο</sup>, η εμπορική ονομασία πρέπει να χρησιμοποιείται. Η περιγραφή των εμπορευμάτων πρέπει να υπογραμμίζεται με κόκκινο και να ακολουθείται από τα στοιχεία της κλάσεως, του αριθμού του είδους (μαζί με το, τυχόν, γράμμα), και των αρχικών "ADR" ή "RID" (π.χ. 4.2, 5<sup>ο</sup>(α), ADR).

2446-

2452

Γ.- Κενά Είδη Συσκευασίας

2453

(1) Δοχεία και δεξαμενές της I4<sup>ο</sup> και δοχεία της I5<sup>ο</sup> πρέπει να κλείνουν κατά τον αυτόν τρόπον και να είναι του αυτού βαθμού στεγανά ως εάν επρόκειτο για πλήρη φορτία.

(2) Η περιγραφή στο έγγραφο της μεταφοράς πρέπει να είναι:- "Κενό δοχείο (ή κενή δεξαμενή), 4.2, I4<sup>ο</sup> (ή I5<sup>ο</sup>), ADR (ή RID)". Η περιγραφή αυτή πρέπει να υπογραμμίζεται με κόκκινο.

2454-

2469

ΚΛΑΣΗ 4.3 ΥΛΕΣ ΠΟΥ ΒΓΑΖΟΥΝ ΕΥΦΛΕΚΤΑ ΑΕΡΙΑ  
ΣΕ ΕΠΑΦΗ ΜΕ ΤΟ ΝΕΡΟ

I.- Κατάλογος υλών

Μεταξύ των υλών και ειδών των καλυπτομένων υπό 2470 τον τίτλον Κλάση 4.3 μόνον οι αναγραφόμενες στο περιθώριο 247I γίνονται δεκτές για μεταφορά, και τότε μόνον υπό την επιφύλαξη των διατάξεων του παρόντος Παραρτήματος και του Παραρτήματος Β. Οι ύλες αυτές και τα είδη που γίνονται δεκτά για μεταφορά υπό ωρισμένους όρους θα θεωρούνται ως ύλες και είδη της ADR.

I<sup>ο</sup> (α) <sup>-μέταλλα</sup> Άλκαλι και μέταλλα αλκαλικών γαιών, π.χ. νάτριο, 247I νάλιο, ασβέστιο καθώς και κράματα αλκαλιμετάλλων, μεταλλικά κράματα αλκαλικών γαιών και κράματα αλκαλίου (αλκαλιμετάλλων) και μετάλλων αλκαλικών γαιών.

(β) αμαλγάματα αλκαλιμετάλλων και αμαλγάματα μετάλλων αλκαλικών γαιών.

2<sup>ο</sup> (α) ανθρακούχο ασβέστιο και ανθρακούχο αργίλιο.

(β) υδρίδια αλκαλιμετάλλων και μετάλλων αλκαλικών γαιών

(π.χ. λίθιο, υδρίδιο, υδρίδιο ασβεστίου), μικτά 247I  
υδρίδια, και υδρίδια βορίου και υδρίδια αργυρί- (Συνεχίζεται)  
ου αλκαλιμετάλλων και μετάλλων αλκαλικών γαιών.

(γ) πυριτούχα αλκάλια (ALKALI SILICIDES).

(δ) πυριτούχο ασβέστιο, σε κόνιν, κόνικους ή σβώλους, περιέχον άνω του 50 τοις εκατόν πυρίτιο, πυριτιούχο μαγγανιούχο ασβέστιο (πυριτιομαγγανιούχον ασβέστιον).

(ε) κράματα μαγνησίου με μαγγάνιο.

3° αμίδια αλκαλιμετάλλων και μετάλλων αλκαλικών γαιών, π.χ. αμίδιο του νατρίου (SODAMIDE). Βλέπε επίσης περιθώριο 247Iα.

Σημείωση: - Το κυαναμίδιο ασβεστίου δεν υπόκειται στις διατάξεις της ADR.

4° Τριχλωρουδρο<sup>-γ</sup>νούχο πυρίτιο (πυριτιοχλωροφόρμιον)

5° Κενά δοχεία, ακαθάριστα, και κενές δεξαμενές, ακαθάριστες, που περιείχαν ύλες της Κλάσεως 4.3.

Το αμίδιο του νατρίου της 3° (SODAMIDE) σε ποσότητες μη υπερβαίνουσες τα 200 γραμμ. ανά κίβλον δεν υπόκειται στις διατάξεις της παρούσας Κλάσεως τις περιεχόμενες στο παρόν Παράρτημα ή στο Παράρτημα Β εάν είναι συσκευασμένο σε δοχεία τα οποία είναι έτσι κλεισμένα ώστε να είναι στεγανά καθ' τα οποία δεν μπορούν να προσβληθούν από το περιεχόμενο, και εάν τα δοχεία αυτά είναι συσκευασμένα με επιμέλεια σε γερά, στεγανά ξύλινα είδη συσκευασίας με στεγανόν κλεισίμον.

2.Θ ΔιατάξειςΑ.- ΚόλαΓ.- Γενικοί όροι συσκευασίας

(I) Τα είδη συσκευασίας θα είναι έτσι κλεισμένα 2472 και στεγανά ώστε να αποφεύγεται η είσοδος υγρασίας και οποιαδήποτε απώλεια του περιεχομένου.

(2) Τα υλικά από τα οποία τα δοχεία και τα κλεισίματα των κατασκευάζονται δεν πρέπει να κινδυνεύουν να προσβληθούν από το περιεχόμενο ή να σχηματίζουν με τούτο επιβλαβείς και επικινδύνους ενώσεις. Τα δοχεία εις όλες τις περιπτώσεις πρέπει να είναι απηλλαγμένες από υγρασία.

(3) Τα είδη συσκευασίας, συμπεριλαμβανομένων των κλεισιμάτων των, πρέπει να είναι επαρκώς άκαμπτα και γερά σε όλα τα μέρη των ώστε να αποφεύγεται οποιαδήποτε χαλάρωση διαρκούσης της μεταφοράς και να πληρούν τους κανονικούς όρους μεταφοράς. Ειδικώτερα, προκειμένου περί στερεών εμβαπτισμένων σε υγρό, τα δοχεία και τα κλεισίματά των πρέπει, εκτός εάν το άρθρο το τιτλοφορούμενο "Συσκευασία μιάς ύλης" προβλέπει άλλως, να είναι ικανά να αντέχουν σε οποιαδήποτε πίεση η οποία, λαμβανομένης υπόψη της υπάρξεως αέρα, ενδέχεται να εγερθεί εσωτερικώς των δοχείων στη συνήθη μεταφορά. Για τον σκοπόν αυτόν ελεύθερος χώρος πρέπει να αφήνεται, λαμβανομένης υπόψη της διαφοράς μεταξύ της θερμοκρασίας των υλών κατά τον χρόνον της πληρώσεως (γεμισματος) και της ανωτάτης μέσης θερμοκρασίας την οποίαν ενδέχεται να φθάσουν διαρκούσης της μεταφοράς. /Στερεές ύλες θα ασφαρίζονται σταθερά στις συσκευασίες τους,

και οι εσωτερικές συσκευασίες θα ασφαρίζονται σταθερά στις εξωτερικές συσκευασίες.

2472  
(Συνεχίζεται)

Εκτός εάν άλλώς ορίζεται στο άρθρο το τιτλοφορούμενο "Συσκευασία μιάς ύλης", οι εσωτερικές συσκευασίες μπορούν να εγκλιούνται σε εξωτερικές συσκευασίες είτε μία-μία είτε ομαδικά.

(4) Φιάλες και λοιπά γυάλινα δοχεία πρέπει να είναι απηλλαγμένα από βλάβες που κινδυνεύουν να εξασθενήσουν την αντοχήν τους· ειδικότερα, πρέπει να αβρονται καταλλήλως οι εσωτερικές τάσεις. Το πάχος των τοιχωμάτων ~~σε καμία περίπτωση~~ πρέπει να είναι μικρότερο των 2 MM.

Η στεγανότητα του συστήματος κλεισίματος πρέπει να εξασφαλίζεται από πρόσθετο μηχανισμό (πώμα, στέμμα (κορώνω), σφραγίδα, δέσιμο, κλπ.) ικανόν να εμποδίσει οποιαδήποτε χαλάρωση του συστήματος κλεισίματος διαρκούσης της μεταφοράς.

(5) Το αποσβεστικό υλικό θα ταιριάζει στη φύση του περιεχομένου.

## 2.- Συσκευασία μιάς ύλης

(I) Οι ύλες της I<sup>ο</sup> θα συσκευάζονται:-

(α) σε δοχεία κατασκευασμένα από φύλλο-σιδήρου (έλασμα), επενδεδυμένο με μόλυβδο φύλλο-σιδήρου ή πλάκα κασιτέρου. Για ύλες της I<sup>ο</sup>(β), εν τούτοις, δοχεία κατασκευασμένα από επενδεδυμένο με μόλυβδο φύλλο-σιδήρου ή πλάκα κασιτέρου δεν γίνονται δεκτά. Τα δοχεία αυτά, με εξαίρεση τα σιδηρά βαρέλια, πρέπει να τοποθετούνται σε ξύλινα κιβώτια συσκευασίας ή σε προστατευτικούς σιδηρούς καλάθους· ή

β) όχι περισσότερες από I KG ανά δοχείο, σε δοχεία 2473  
κατασκευασμένα από ύαλο ή είδη κεραμεικής. Όχι (Συνεχίζεται)  
περισσότερα των 5 από τα δοχεία αυτά θα συσκευάζονται σε ξύλινο κιβώτιο συσκευασίας έχον στεγανήν επένδυση από σύνηθες φύλλο-σιδήρου, επενδεδυμένο με μόλυβδο φύλλο-σιδήρου, ή πλάκα-κασσιτέρου συναρμολογημένην με μαλακή συγκόλληση. .  
Για γυάλινα δοχεία περιέχοντα ποσότητες μη υπερβαίνουσες τα 250 γραμμ., το επενδεδυμένο ξύλινο κιβώτιο μπορεί να αντικατασταθεί από ένα εξωτερικό δοχείο κατασκευασμένο από σύνηθες φύλλο-μετάλλου, επενδεδυμένο με μόλυβδο φύλλο-σιδήρου, ή πλάκα κασσιτέρου. Τα γυάλινα δοχεία θα ασφαρίζονται στις εξωτερικές συσκευασίες από άκαυστο αποσβεστικό υλικό.

- (2) Εάν ύλη της I<sup>ο</sup>(α) δεν συσκευασθεί εντός συγκολληθέντος μεταλλικού δοχείου με κάλυμμα ερμητικώς κλεισμένο με μαλακή συγκόλληση, τότε:-
- (α) πρέπει να καλύπτεται πλήρως από ορυκτέλαιο του οποίου το σημείο αναφλέξεως είναι άνω των 50<sup>ο</sup>C, ή να ραντισθεί επαρκώς για να εξασφαλισθεί ότι οι σβώλοι έχουν επιχρισθεί με το έλαιο αυτό· ή
  - (β) ο αέρας του δοχείου πρέπει να αντικαθίσταται εξ ολοκλήρου από προστατευτικό αέριο (π.χ. άζωτο) και το δοχείο να είναι έτσι κλεισμένο ώστε να είναι αεριοστεγανό, ή
  - (γ) η ύλη πρέπει να χυθεί στο δοχείο, το οποίο πρέπει



να πληρωθεί μέχρι το χείλος και να είναι κατά τρόπο τέτοιο κλεισμένο ώστε να είναι αεριο-στεγανό.

2473  
(Συνεχίζε-  
ται)

(3) Τα σιδηρά δοχεία πρέπει να έχουν πλευρές πάχους όχι μικρότερου των 1.25 MM (χιλ.). Εάν με το περιεχόμενό τους ζυγίζουν πάνω από 75 KG, πρέπει να συγκολληθούν με σκληρής-συγκόλλησης ή συγκόλλησης. Εάν ζυγίζουν πάνω από 125 KG, πρέπει επιπροσθέτως να είναι εφοδιασμένα με κυλιόμενες στεφάνες (ROLLING HOOPS) ή με κυλιόμενες φλάντζες.

(I) Οι ύλες της 2<sup>ο</sup> θα συσκευάζονται:-

2474

- (α) σε δοχεία κατασκευασμένα από φύλλο-σιδήρου, επενδεδυμένο με μόλυβδο φύλλο-σιδήρου ή πλάκα κασιτέρου. Για ύλες της 2<sup>ο</sup> (β) και (γ) το δοχείο δεν πρέπει να περιέχει περισσότερα από 10 KG. Τα δοχεία αυτά, με εξαίρεση τα σιδηρά βαρέλια, πρέπει να τοποθετούνται σε ξύλινα κιβώτια συσκευασίας ή σε προστατευτικά σιδηρά καλάθια (κοφίνια) ή
- (β) όχι περισσότερες από 1 KG ανά δοχείο, σε δοχεία κατασκευασμένα από ύαλο ή είδη κεραμεικής ή από κατάλληλη πλαστική ύλη. Όχι περισσότερα των 5 από τα δοχεία αυτά θα συσκευάζονται σε ξύλινο κιβώτιο συσκευασίας με στεγανήν επένδυσιν από σύνηθες φύλλο-σιδήρου, επενδεδυμένο με μόλυβδο φύλλο-σιδήρου ή πλάκα κασιτέρου, συναρμολογούμενην με μαλακής συγκόλλησης. Για γυάλινα δοχεία περιέχοντα ποσότητες μη υπερβαίνουσες τα

250 γραμμ., το επενδεδυμένο ξύλινο κιβώτιο μπορεί να αντικαθίσταται από εξωτερικό δοχείο κατασκευασμένο από σύνθετες φύλλο-σιδήρου, επενδεδυμένο με μδλυβδο φύλλο-σιδήρου ή πλάκα κασσιτέρου. Τα γυάλινα δοχεία θα ασφαρίζονται στα κιβώτια συσκευασίας με άκαυστο αποσβεστικό υλικό.

2474.  
(Συνεχίζεται)

(2) Το κέλον δεν πρέπει να ζυγίζει πάνω από 75 KG εάν περιέχει ύλη της 2<sup>ο</sup> (β) ή (γ) και όχι πάνω από 125 KG εάν περιέχει ύλη της 2<sup>ο</sup> (δ) ή (ε).

Τα αμύδια (3<sup>ο</sup>) θα συσκευάζονται, όχι περισσότερα των 10 KG ανά κτύλο ή βαρέλι, σε ερμητικώς κλεισμένα μεταλλικά κτύλα ή βαρέλια, τα οποία θα τοποθετούνται σε ξύλινα κιβώτια. Το κέλον δεν πρέπει να ζυγίζει πάνω από 75 KG.

2475

(I) Το τριχλωροδρογονούχο πυρίτιο (TRICHLORO-SILANE), (4<sup>ο</sup>) πρέπει να συσκευάζεται σε δοχεία κατασκευασμένα από ανθεκτικό στη διάβρωση χάλυβα και να έχουν χωρητικότητα μη υπερβαίνουσα τις 500 λίτρες. Τα δοχεία πρέπει να είναι ερμητικώς κλεισμένα· ο μηχανισμός κλεισίματος πρέπει να προστατεύεται ειδικώς με πώμα. Τα δοχεία πρέπει να είναι κατασκευασμένα ως σκεύη πίεσης για πίεση λειτουργίας 4 KG/CM<sup>2</sup> και να ελέγχονται σύμφωνα με τις ~~εβχυσίες~~ στην χώρα της αναχώσεως διατάξεις τις διέπουσες τα σκεύη (αγγεία) πίεσης. Δοχεία με χωρητικότητα μη υπερβαίνουσα τις 250 λίτρες πρέπει να έχουν πάχος τοιχώματος όχι μικρότερο των 2.5 MM (χιλ.), και δοχεία με ψηλότερη χωρητικότητα πάχος τοιχώματος όχι μικρότερο των 3 MM (χιλ.)

2476

((2)) Εάν το γέμισμα βασίζεται σε βάρος, ο βαθμός γεμίματος δεν πρέπει να υπερβαίνει τα 1.14KG/L. (Συνεχίζεται)  
Εάν διεξάγεται με οπτικό έλεγχο, ο βαθμός γεμίματος δεν θα υπερβαίνει το 84.5 τοις εκατόν.

### 3.- Μικτή συσκευασία

((I)) Οι ύλες οι ομαδοποιημένες υπό τον αυτόν 2477 αριθμόν είδους μπορούν να συμπεριλαμβάνονται στο αυτό κώλον. Οι εσωτερικές συσκευασίες θα είναι σύμφωνα με ό,τι προβλέπεται για κάθε ύλη, και οι εξωτερικές συσκευασίες θα είναι όπως έχουν ορισθεί για τις ύλες του ~~αυτού~~ αριθμού είδους.

(2) Εάν μικρότερες ποσότητες δεν προβλέπονται από το άρθρο το τιτλοφορούμενο "Συσκευασία μιάς ύλης", οι ύλες της παρούσας Κλάσεως, σε ποσότητες μη υπερβαίνουσες τα 6 KG προκειμένου περί στερεών ή 3 λίτρες προκειμένου περί υγρών για όλες τις ύλες υπό τον αυτόν αριθμόν είδους ή το αυτό γράμμα, μπορούν να εγκλείονται στο αυτό κώλον είτε με ύλες άλλου αριθμού είδους ή άλλου γράμματος της αυτής Κλάσεως, ή με επικίνδυνες ύλες ανήκουσες σε άλλες Κλάσεις (εάν μικτή συσκευασία επιτρέπεται προκειμένου περί τοιούτων υλών), ή με άλλα εμπορεύματα, υπό την επιφύλαξη των παρακάτω ειδικών όρων.

Οι εσωτερικές συσκευασίες πρέπει να πληρούν τους γενικούς και ειδικούς όρους συσκευασίας. Επιπροσθέτως, οι γενικοί όροι οι περιεχόμενοι στα περιθώρια 2001(5) και 2002(6) και (7) πρέπει να τηρούνται.

Το κέλον δεν πρέπει να ζυγίζεται πάνω από 150KG, 2477  
 ή πάνω από 75 KG εάν περιέχει εύθραυστα δοχεία. (Συνεχίζεται)

Ειδικοί όροι:-

Αρ.Είδους	Περιγραφή Υλικού	Ανωτάτη ποσότητα		Ειδικές Διατάξεις
		ανά δοχείο	ανά κέλον	
1 <sup>ο</sup> (α)	Αλκαλιμέταλλα και μέταλλα αλκαλικών γαιών (π.χ. νάτριον, κάλιον, βάριον). - σε εύθραυστα δοχεία - σε άλλα δοχεία	500 γραμμ. I KG	500 γραμμ. I KG	Τα όρια των 500 γραμμ. ή I KG ισχύουν για αλκαλιμέταλλα και μέταλλα αλκαλικών γαιών της 1 <sup>ο</sup> (α), και για υδρίδια αλκαλιμετάλλων και υδρίδια μετάλλων αλκαλικών γαιών, σε σχέση με το ολικό βάρος των υλών αυτών. Τα αλκαλιμέταλλα και μέταλλα αλκαλικών γαιών, και ύλες της 2 <sup>ο</sup> (β), δεν μπορούν να συσκευάζονται μαζί με οξέα, ούτε με υγρά περιέχοντα ύδωρ
2 <sup>ο</sup> (α)	Ανθρακούχο ασβέστιο	Μικτή συσκευασία δεν επιτρέπεται		
2 <sup>ο</sup> (β)	Υδρίδια αλκαλιμετάλλων και μετάλλων αλκαλικών γαιών (π.χ., (λίθιο) υδρίδιο λιθίου, υδρίδιο ασβεστίου), μικτά υδρίδια, υδρίδια βορίου και υδρίδια αργυλίου - σε εύθραυστα δοχεία - σε άλλα δοχεία	500 γραμμ. I KG	500 γραμμ. I KG	

2477

## Σ υ ν έ χ ε ι α Π ί ν α κ α ς

(Συνεχίζεται)

4<sup>ο</sup> Τριχλωροδρογονούχο Μικτή συσκευασία  
 πυρίτιο δεν επιτρέπεται  
 (TRICHLOROSILANE)

4.- Ενδείξεις (μαρκάρισμα) και ετικέτες κινδύνου επί των κόλων (βλέπε Προσθήκη Α.9) 2478

(1) Κάθε κόλο περιέχον ύλες της Κλάσεως 4.3 θα φέρει ετικέτα του μοντέλου Νο. 2D και ετικέτα σύμφωνον προς το μοντέλο Νο. 7.

(2) Κάθε κόλον περιέχον Τριχλωροδρογονούχο πυρίτιο (TRICHLOROSILANE) της 4<sup>ο</sup> θα φέρει επιπροσθέτως ετικέτα σύμφωνον προς το μοντέλο Νο. 2Α.

(3) Κόλα περιέχοντα εύθραυστα δοχεία που δεν είναι ορατά από έξω θα φέρουν ετικέτα σύμφωνον προς το μοντέλο Νο. 9. Εάν το εύθραυστο δοχείο ή δοχεία περιέχουν υγρά, τα κόλα επιπροσθέτως, με εξαίρεση την περίπτωση των σφραγισμένων αμπουλών, θα φέρουν ετικέτες σύμφωνες προς το μοντέλο Νο. 8· οι ετικέτες αυτές θα τοποθετούνται ψηλά σε δύο αντίθετες πλευρές των κιβωτίων ή κατά τρόπον ισοδύναμον όταν χρησιμοποιούνται άλλες συσκευασίες.

2479

B.- Στοιχεία του εγγράφου μεταφοράς

Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς πρέπει να είναι σύμφωνη με μία των ονομασιών των υπογραμμισμένων στο περιθώριο 247I. Όταν η ονομα-

2480

πλά της ύλης δεν καθορίζεται, προκειμένου περί της I<sup>ο</sup>, 2480  
 η εμπορική ονομασία πρέπει να χρησιμοποιείται. Η περι- (Συνεχίζεται)  
 γραφή των εμπορευμάτων πρέπει να υπογραμμίζεται με κόκκινο  
και να ακολουθείται από τα στοιχεία της Κλάσεως, τον  
αριθμόν του είδους (μαζί με, το τυχόν, γράμμα), και τα αρ-  
χικά "ADR" ή "RID" (π.χ. 4.3 2<sup>ο</sup>(α), ADR).

248I-

2497

Γ.- Κενά είδη συσκευασίας

(1) Τα δοχεία και οι δεξαμενές της 5<sup>ο</sup> πρέπει 2498  
 να κλείνουν κατά τον ίδιο τρόπο και να είναι του αυτού  
 βαθμού στεγανά ως εάν ήσαν πλήρη.

(2) Η περιγραφή στο έγγραφο μεταφοράς πρέπει να  
 είναι:- "Κενό δοχείο (ή κενή δεξαμενή), 4.3 5<sup>ο</sup>, ADR (ή  
RID". Η περιγραφή αυτή πρέπει να υπογραμμίζεται με κόκ-  
κινο.

## ΚΛΑΣΜ 5.Ι ΟΞΕΙΔΩΤΙΚΕΣ ΥΛΕΣ

Ι.- Κατάλογος υλών

Μεταξύ των υλών και ειδών των καλυπτομένων υπό 2500 τον τίτλον Κλάσμ 5.Ι, οι αναγραφόμενες στο περιθώριο 250Ι υπόκεινται στις διατάξεις του παρόντος Παραρτήματος και του Παραρτήματος Β. Οι ύλες αυτές και είδη/γίνονται δεκτά για μεταφορά υπό ωρισμένους όρους θα θεωρούνται ως ύλες και είδη της ADR.

Σημειώσεις:— Εκτός εάν ειδικώς αναγράφονται στη Κλάση Ια ή Κλάση Ιγ, μίγματα οξειδωτικών υλών με καύσιμες ύλες δεν θα γίνονται δεκτά για μεταφορά εάν μπορούν να εκραγούν σε επαφή με φλόγα ή εάν είναι λίαν ευαίσθητα και περισσότερο ευαίσθητα στη κρούση και τριβή από το από το δινιτροβενζόλιο.

Ι<sup>ο</sup> Σταθεροποιημένα, υδάτινα διαλύματα υπεροξειδίου του υδρογόνου περιέχοντα περισσότερο από 60 τοις εκατόν υπεροξείδιο του υδρογόνου, και σταθεροποιημένο υπεροξείδιο του υδρογόνου.

Σημειώσεις:— Ι.- Για υδάτινα διαλύματα υπεροξειδίου του υδρογόνου περιέχοντα όχι περισσότερο του 60 τοις εκατόν υπεροξείδιο του υδρογόνου, βλέπε περιθώριο 280Ι, 4Ι<sup>ο</sup>.

2.- Υδάτινα διαλύματα υπεροξειδίου του υδρογόνου περιέχοντα του 60 ~~τοις~~ εκατόν υπεροξείδιο του υδρογόνου, μη σταθεροποιημένο, και υπεροξείδιο του υδρογόνου, μη σταθεροποιημένο, δεν γίνονται δεκτά για μεταφορά.

Τετρανιτρομεθάνιο, ελεύθερο από καυσίμους αναθαρ-  
σίας.

250I  
(Συνεχίζεται)

Σημείωση: - Τετρανιτρομεθάνιο μη απαλλαγμένο από καυσίμους αναθαρσίας δεν γίνεται δεκτό για μεταφορά.

3<sup>ο</sup> Υπερχλωρικό οξύ σε υδάτινα διαλύματα περιέχοντα περισσότερο από 50 γραμ. εκατόν αλλά όχι περισσότερο από 72.5 γραμ. εκατόν υπερχλωρικό οξύ ( $\text{HClO}_4$ ).

Βλέπε επίσης περιθώριο 250Iα, υπό στοιχείου (α).

Σημείωση: - Υπερχλωρικό οξύ σε υδάτινα διαλύματα περιέχοντα όχι περισσότερο του 50 γραμ. εκατόν υπερχλωρικό οξύ ( $\text{HClO}_4$ ) είναι ύλη της Κλάσεως 8 (βλέπε περιθώριο 280I, 4<sup>ο</sup>). Υδάτινα διαλύματα υπερχλωρικού οξέος περιέχοντα περισσότερο από 72.5 γραμ. εκατόν υπερχλωρικό οξύ δεν γίνονται δεκτά για μεταφορά· το ίδιο ισχύει για μίγματα υπερχλωρικού οξέος με οποιοδήποτε υγρό πλην του νερού.

4<sup>ο</sup> (α) Χλωρινά Άλατα: ανόργανου χλωρινού άλατος χιζανιοκτόνα αποτελούμενα από μίγματα χλωρινού νατρίου, χλωρινού καλίου ή χλωρινού ασβεστίου με υφροσκοπικό χλωρίδιο (όπως χλωριούχο μαγνήσιο ή χλωριούχο ασβέστιο).

Σημείωση: - Χλωριόν Αμμώνιον δεν γίνεται δεκτό για μεταφορά.

(β) υπερχλωρινά άλατα (με εξαίρεση το υπερχλωριόν αμμώνιον, βλέπε 5<sup>ο</sup>).

(γ) χλωρινά άλατα νατρίου και καλίου.

(δ) μίγματα χλωριών αλάτων, υπερχλωριών αλάτων και χλωριωδών αλάτων (των (α), (β) και (γ) με άλλα).



Για τα (α), (β), (γ) και (δ), βλέπε επίσης περιθώριο 250Iα, υπό στοιχείον (β).

250I  
(Συνεχίζεται)

5° Υπερχλωρικόν αμμώνιον. Βλέπε επίσης περιθώριο 250Iα υπό στοιχείον (β).

6° (α) Νιτρικόν αμμώνιον μη περιέχον καύσιμες ύλες σε μεγαλύτερα αναλογικά του 0.4 τοις εκατόν.

Σημείωσις:— Νιτρικόν αμμώνιον περιέχον περισσότερο του 0.4 τοις εκατόν καύσιμες ύλες δεν γίνεται δεκτό για μεταφορά εκτός εάν είναι συστατικό εκρηκτικής ύλης των I2° ή I4° του περιθωρίου 2I0I.

(β) μίγματα νιτρικού αμμωνίου με θειϊκό αμμώνιον ή φωσφορικό αμμώνιον περιέχοντα περισσότερο του 40 τοις εκατόν νιτρικού άλατος αλλά όχι περισσότερο από 0.4 τοις εκατόν καύσιμες ύλες.

(γ) μίγματα νιτρικού αμμωνίου με αδρανή ύλην (π.χ., πορώδης γή (τριπολική), ανθρακικό ασβέστιο, χλωριούχο κάλιο) περιέχοντα περισσότερο του 65 τοις εκατόν νιτρικού άλατος αλλά όχι περισσότερο του 0.4 τοις εκατόν καύσιμες ύλες.

Για τα (α), (β) και (γ), βλέπε επίσης περιθώριο 250Iα, υπό στοιχείον (β).

Σημείωσις:— I.— Μίγματα νιτρικού αμμωνίου με θειϊκό αμμώνιον ή φωσφορικό αμμώνιον περιέχοντα όχι περισσότερο του 40 τοις εκατόν νιτρικό άλας, και μίγματα νιτρικού αμμωνίου με αδρανή ανόργανο ύλην περιέχοντα όχι περισσότερο του 65 τοις εκατόν νιτρικού άλατος, δεν υπόκεινται στις διατάξεις της ADR.

(2) Στα μίγματα της παραγράφου (γ), μόνον 250Ι  
 ανόργανοι ύλες που δεν είναι ούτε καύσιμες ούτε οξει- (Συνεχίζεται)  
 δωτικές μπορούν να θεωρηθούν ως αδρανείς.

(3) Σύνθετα λιπάσματα στα οποία το ολικό περιε-  
 χόμενο του αζώτου ως νιτρικόν άλας και ως αμμωνία δεν  
 υπερβαίνει το 146 τοις εκατόν ή στα οποία το εις άζωτον  
 περιεχόμενον ως νιτρικόν άλας δεν υπερβαίνει το 76 τοις  
 εκατόν δεν υπόκεινται στις διατάξεις της ADR.

7<sup>ο</sup> (α) Νιτρικόν νάτριον.

(β) μίγματα νιτρικού αμμωνίου με νιτρικά άλατα νατρίου,  
 καλίου, ασβεστίου ή μαγνησίου.

(γ) νιτρικόν βάριον, νιτρικός μόλυβδος.

Για τα (α), (β) και (γ), βλέπε επίσης περιθώριο 250Ια,  
 υπό στοιχείον (β).

Σημείωσις: - I.- Εάν δεν περιέχουν άνω του 10 τοις εκατόν  
 νιτρικού αμμωνίου, τα μίγματα νιτρικού αμμωνίου με νιτρι-  
 κόν ασβέστιον ή νιτρικόν μαγνήσιον ή με αμφότερα δεν υπό-  
 κεινται στις διατάξεις της ADR.

2.- Κενά σάκκοι από ύφασμα οι οποίοι περιέ-  
 χαν νιτρικόν νάτριον και δεν έχουν πλήρως ελευθερωθεί από το  
 νιτρικόν άλας που διαπότισε αυτά είναι είδη της Κλάσεως 4.3  
 (βλέπε περιθώριο 243Ι, 13<sup>ο</sup>).

8<sup>ο</sup> Ανόργανα νιτρίλια. Βλέπε επίσης περιθώριο 250Ια, υπό στοι-  
 χείον (β).

Σημείωσις: - Νιτρώδες αμμώνιο και μίγματα ανοργάνου νιτρι-  
 λίου με άλας αμμωνίου δεν γίνονται δεκτά για μεταφορά.

- (α) Υπεροξειδία αλκαλιμετάλλων και μίγματα περιέχοντα 250Ι  
υπεροξειδία αλκαλιμετάλλων τα οποία δεν είναι πε- (Συνεχίζε-  
 ρισσότερο επικίνδυνα από το υπεροξειδίο του νατρίου· ται)
- (β) διοξειδία και λοιπά υπεροξειδία μετάλλων αλκαλικών  
γαιών, π.χ. διοξειδίο του βαρίου·
- (γ) υπερμαγγανικά άλατα νατρίου, καλίου, ασβεστίου και  
βαρίου.

Για τα (α), (β) και (γ), βλέπε επίσης περιθώριο 250Ια, υπό στοιχείων (β).

Σημείωσις:— Υπερμαγγανικών αμμώνιον, και μίγματα υπερμαγγανικού άλατος με άλας αμμωνίου, δεν γίνονται δεκτά για μεταφορά.

ΙΟ° Τριοξειδίο του Χρωμίου (χρωμικός ανυδρίτης· καλούμενος  
επίσης χρωμικόν οξύ).

Βλέπε επίσης περιθώριο 250Ια, υπό στοιχείων (β).

ΙΙ° Κενά είδη συσκευασίας, ακαθάριστα, και κενές δεξαμενές,  
ακαθάριστες, που περιείχαν ύλες της Κλάσεως 5.Ι.

Σημείωσις:— Κενά είδη συσκευασίας και κενές δεξαμενές που περιείχαν χλωρικό άλας, υπερχλωρικό άλας, χλωρίτη (4° και 5°), ανόργανο νιτρώδες άλας (8°) ή ύλες των 9° και ΙΟ°, με υπολείμματα από το προηγούμενο περιεχόμενό τους προσκολλημένα στο εξωτερικό, δεν γίνονται δεκτά για μεταφορά.

Ύλες παραδοθείσες για μεταφορά συμφώνως 250Ια προς τις παρακάτω διατάξεις δεν υπόκεινται ούτε στις διατάξεις της παρούσης Κλάσεως τις περιεχόμενες στο παρόν Παράρτημα ούτε στις διατάξεις τις περιεχόμενες στο

## Παράρτημα Β.

ύλες της 3<sup>ο</sup>, σε ποσότητες μη υπερβαίνουσες τα 200 250Ια  
 γραμμάρια ανά δοχείο, υπό τον όρον ότι είναι συσκευα- (Συνεχίζε-  
 σμένες σε δοχεία έτσι κλεισμένα ώστε να είναι στεγανά ται)  
 και να μη μπορούν να προσβληθούν από το περιεχόμενό  
 τους, και όπως τα δοχεία συσκευάζονται, όχι περισσό-  
 τερα των 10 ανά κιβώτιο, σε ξύλινο κιβώτιο με αδρανές  
 απορροφητικό αποσβεστήριο υλικό.

(β) ύλες των 4<sup>ο</sup> - 10<sup>ο</sup>, σε ποσότητες μη υπερβαίνουσες τα  
 10 ΚG, συσκευασμένες όχι περισσότερες των 2 ΚG ανά  
 δοχείο σε δοχεία έτσι κλεισμένα ώστε να είναι στεγανά  
 και να μη μπορούν να προσβληθούν από το περιεχόμενό  
 τους, και που θα εγχειλούνται σε γερά, στεγανά είδη  
 συσκευασίας κατασκευασμένα από ξύλο ή φύλλο-μετάλλου,  
 διαθέτοντα στεγανά κλεισίματα.

2.- ΔιατάξειςΑ.- ΚόλαI.- Γενικοί όροι συσκευασίας

(1) Τα δοχεία θα είναι έτσι κλεισμένα και διευθε- 2502  
 τημένα ώστε να αποφεύγεται οποιαδήποτε απώλεια του περιεχο-  
 μένου.

(2) Τα υλικά από τα οποία τα είδη συσκευασίας και  
 τα κλεισίματά τους είναι κατασκευασμένα δεν πρέπει να κιν-  
 δυνεύουν να προσβληθούν από το περιεχόμενο, ή να προκαλούν  
 την αποσύνθεση του περιεχομένου, ή να σχηματίζουν με αυτό  
 επιβλαβείς ή επικινδύνους ενώσεις.

(3) Τα είδη συσκευασίας, συμπεριλαμβανομένων των  
 κλεισιμάτων των, πρέπει να είναι επαρκώς άκαμπτα και γερά

σε όλα τους τα μέρη ώστε να αποφεύγεται οποιαδήποτε χαλάρωση διαρκούσης της μεταφοράς και να πληρούν τους κανονικούς όρους μεταφοράς. Ειδικότερα, ~~όταν~~ οι ύλες αυτές είναι σε υγρή κατάσταση, τα δοχεία και τα κλεισίματα τους πρέπει, εκτός εάν το άρθρο το τιτλοφορούμενο "Συσκευασία μιάς ύλης" προβλέπει άλλως, να είναι σε θέση να αντέχουν οποιαδήποτε πίεση η οποία, λαμβανομένης υπόψη της υπάρξεως αέρος, ενδέχεται να εγερθεί εσωτερικώς των δοχείων κατά την συνήθη μεταφορά. Διά τον σκοπόν αυτόν ελεύθερος χώρος πρέπει να αφήνεται, λαμβανομένης υπόψη της διαφοράς μεταξύ της θερμοκρασίας των υλών κατά τον χρόνον του γεμίσματος και της ανωτάτης μέσης θερμοκρασίας την οποίαν ενδέχεται να φθάσουν διαρκούσης της μεταφοράς. Εκτός εάν άλλως ειδικώς ορίζεται στο άρθρο το τιτλοφορούμενο "Συσκευασία μιάς ύλης", οι εσωτερικές συσκευασίες μπορούν να εγκλείονται σε εξωτερικές συσκευασίες, είτε μία-μία είτε ομοαδικά.

(4) Οι φιάλες και τα λοιπά γυάλινα δοχεία πρέπει να είναι απαλλαγμένα από βλάβες που κινδυνεύουν να εξασθενήσουν την αντοχή τους· ειδικώτερα, πρέπει να αλ-ρονται καταλλήλως οι εσωτερικές τάσεις. Τα τοιχώματα δεν πρέπει να έχουν πάχος μικρότερο των 3 MM (χιλ.) στη περίπτωση δοχείων που ζυγίζουν, μαζί με το περιεχόμενό τους, άνω των 35 KG, και όχι μικρότερο των 2 MM (χιλ.) στη περίπτωση άλλων δοχείων.

Η στεγανότητα του συστήματος κλεισίματος πρέπει να εξασφαλίζεται με πρόσθετο μηχανισμό (πώμα, στέμμα (κο-

2502

(Συνεχίζεται)

ρώνα), σφραγίδα, δέσιμο, κλπ.)) ικανόν να εμποδίζει 2502  
 οποιαδήποτε χαλάρωση του συστήματος κλεισίματος διαρ- (Συνεχίζεται)  
 κούσης της μεταφοράς.

(5) Οσάντις δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρόμοια υλικά προβλέπονται ή επιτρέπονται, πρέπει να ασφαλίζονται με αποσβεστικό υλικό σε προστατευτικές συσκευασίες. Το αποσβεστικό υλικό πρέπει να είναι άκαυτο (άμίαντο, υαλοέριο, απορροφητική γή, τριπολική γή, κλπ.) και ανήκανο να σχηματίζει επικίνδυνες ενώσεις με το περιεχόμενο των δοχείων. Εάν το περιεχόμενο είναι υγρό, το αποσβεστικό υλικό θα είναι επίσης απορροφητικό και αναλογικό σε ποσότητα με τον όγκον του υγρού· αυτό το εσωτερικό απορροφητικό στρώμα δεν πρέπει, *εδώ* εφόσον, να έχει πάχος μικρότερο των 4 CM σε οποιοδήποτε σημείο.

#### Συσκευασία μιας ύλης

(I) Υδάτινα διαλύματα υπεροξειδίου του υδρο- 2503  
 γόνου, της I<sup>ο</sup>, θα συσκευάζονται σε βαρέλια ή άλλα δοχεία κατασκευασμένα από αργύλιο (αλουμίνιο) καθαρότητας 99.5% *εκατόν* τουλάχιστον ή από ειδικό χάλυβα μη κινδυνεύοντα να προκαλέση αποσύνθεση του υπεροξειδίου του υδρογόνου. Τα δοχεία αυτά θα είναι εφοδιασμένα με χειρολαβή· θα πρέπει να παραμένουν όρθια σε σταθερό σχήμα και πρέπει:-

<sup>νά</sup>  
 (α)/δια-θέτουν στο άνω μέρος αυτών μηχανισμόν κλεισίματος εξασφαλίζοντα ίσην εσωτερικήν και ατμοσφαιρικήν πίεση· ο μηχανισμός αυτός κλεισίματος πρέπει σε

κάθε περίπτωση να εμποδίζει οιαδήποτε διαφυγήν του υγρού και οιαδήποτε είσοδον ξένης ύλης στο δοχείο και πρέπει να προστατεύεται από αεριζόμενο πώμα ή

2503

(Συνεχίζεται)

(β) να είναι σε θέση να ανθίστανται σε εσωτερική πίεση  $2.5 \text{ KG/CM}^2$  και να διαθέτουν στο άνω μέρος μηχανισμό ασφαλείας τιθέμενον σε λειτουργίαν όταν η επί πλέον εσωτερική πίεσις είναι κυρίως  $1 \text{ KG/CM}^2$ .

(2) Τα δοχεία δεν θα πληρούνται πέραν του 90 εκατόν της χωρητικότητάς των.

(3) Το κέλον δεν πρέπει να ζυγίζει άνω των 90 KG.

Το τετρανιτρομεθάνιο ( $2^0$ ) θα περιέχεται σε φιάλες κατασκευασμένες από ύαλο, πορσελάνη, είδη κεραμικής ή παρόμοιο υλικό ή κατάλληλη πλαστική ύλη, με άκαυστους αναστολείς, τοποθετημένους εσωτερικά ξυλίνου κιβωτίου με πλήρεις πλευρές· εύθραυστα δοχεία θα ασφαρίζονται εκεί με απορροφητικό αποσβεστικό υλικό. Τα δοχεία δεν θα πληρούνται πέραν του 93 εκατόν της χωρητικότητάς των.

Υπερχλωρικό οξύ σε υδάτινα διαλύματα ( $3^0$ ) θα περιέχεται σε γυάλινα δοχεία, τα οποία θα πληρούνται με όχι περισσότερο του 93 εκατόν της χωρητικότητός των. Τα δοχεία θα ασφαρίζονται με απορροφητικό και άκαυστο αποσβεστικό υλικό σε άκαυστα προστατευτικά είδη συσκευασίας αδιαπέραστα από υγρά και ικανά να συγκρατούν το περιεχόμενο των δοχείων. Το κλείσιμο των δοχείων θα προστατεύεται από πώματα· εάν τα προστατευτικά είδη συσκευασίας δεν κλείουν πλήρως.

Γυάλινες φιάλες κλεισμένες με γυάλινους αναστο- 2505  
 λείς μπορούν επίσης να ασφαρίζονται με απορροφητικό (Συνεχίζεται))  
 και άκαυστο αποσβεστικό υλικό σε ξύλινα κιβώτια με πλή-  
 ρεις πλευρές.

Κόλα περιέχοντα εύθραυστα δοχεία και μεταφερό-  
 μενα όχι ως πλήρη φορτία δεν πρέπει να ζυγίζουν περισ-  
 σσότερο των 75 KG και θα διαθέτουν χειρολαβή.

(I) Ύλες των 4<sup>ο</sup> και 5<sup>ο</sup> και διαλύματα των υλών 2506  
 της 4<sup>ο</sup> θα συσκευάζονται σε δοχεία κατασκευασμένα από  
 ύαλο, ή κατάλληλη πλαστική ύλη, ή μέταλλο· στερεές ύλες  
 της 4<sup>ο</sup>(β) μπορούν επίσης να εγυαλίζονται σε κάδους από  
 χοντρό ξύλο.

(2) Εύθραυστα δοχεία και δοχεία κατασκευασμένα  
 από πλαστική ύλη πρέπει να ασφαρίζονται με αποσβεστικό  
 υλικό σε ξύλινα ή μεταλλικά προστατευτικά είδη συσκευα-  
 σίας. Μπορούν επίσης να ασφαλισθούν χωριστά με άκαυστο  
 αποσβεστικό υλικό σε άθραυστα ενδιάμεσα δοχεία τα οποία  
 με τη σειρά τους πρέπει σταθερά να τοποθετούνται ή ασφα-  
 λίζονται με προστατευτικό υλικό σε προστατευτικά είδη  
 συσκευασίας. Το κάθε δοχείο πρέπει να περιέχει όχι πε-  
 ρισσότερο από 5 KG ύλης. Προκειμένου περί δοχείων των ο-  
 ποίων το περιεχόμενο είναι υγρό, το αποσβεστικό υλικό  
 πρέπει να είναι απορροφητικό.

(3) Προκειμένου περί δοχείων κατασκευασμένων από  
 πλαστική ύλη και περιεχόντων διαλύματα υλών της 4<sup>ο</sup>, τα  
 προστατευτικά είδη συσκευασίας ενδέχεται να μην απαιτούν-  
 ται εάν τα τοιχώματα είναι σε κάθε σημείο πάχους όχι μι-  
 κρότερο των 4 MM (χιλ.), όταν τα τοιχώματα έχουν ενισχυ-



Θεώ με γερές ενισχυμένες στεφάνες, τα άκρα ενισχυθούν, 2506  
το άνω μέρος διαθέτει δύο γερές χειρολαβές, και οι χει- (Συνεχίζεται)  
ρολαβές, και το άνοιγμα είναι εφοδιασμένα με κοχλιωτό  
κλείσιμο.

(4) Δοχεία για υγρά δεν θα πληρούνται πέραν του 95 τοις εκατόν της χωρητικότητός των.

(5) Κόλα περιέχοντα εύθραυστα δοχεία ή δοχεία κατασκευασμένα από πλαστική ύλη (βλέπε (2) και (3)), εάν περιέχουν υγρά, και κόλα περιέχοντα εύθραυστα δοχεία ή δοχεία κατασκευασμένα από πλαστική ύλη (βλέπε(2)), εάν περιέχουν μόνον στερεές ύλης και μεταφέρονται όχι ως πλήρες φορτίο, δεν πρέπει να ζυγίζουν πάνω από 75 KG. Κόλα μεταφερόμενα όχι ως πλήρες φορτίο θα διαθέτουν χειρολαβήν.

(6) Κόλα που μπορούν να κυλιθούν δεν πρέπει να ζυγίζουν περισσότερο από 400 KG· εάν ζυγίζουν περισσότερο των 275 KG πρέπει να διαθέτουν κυλιόμενες στεφάνες (ROLLING HOOPS).

(7) Δοχεία περιέχοντα στερεά χλωρικά άλατα πλην των αναφερομένων υπό το στοιχείον (8), δεν πρέπει να περιέχουν καύσιμο υλικό πλην μικρού παρεμβύσματος από κηρόχαρτο.

(8) Εάν το χλωρικό άλας είναι υπό μορφήν δισκίων, μετά ή άνευ καταλλήλου σύνδετικής ύλης, και συσκευάζεται σε φιάλες περιέχουσες όχι άνω των 200 γραμμ., επαρκής ποσότητα βαμβακο-ερίου μπορεί να χρησιμοποιείται για να εμποδισθεί η υπερβολική μετακίνηση των δισκίων στην φιάλη. Οι φιάλες θα συσκευάζονται σε κυτία από ινοσανίδα τοποθετούμενα σε ενδιάμεση συσκευασία χωριστά από την εξωτερική συσκευασία.

Η ενδιάμεση συσκευασία δεν θα περιέχει άνω του 1 KG 2506  
 ή το κέλυφος άνω των 6 KG χλωρινού άλατος. (Συνεχίζεται)

(I) Οι ύλες των 6<sup>ο</sup>, 7<sup>ο</sup>, και 8<sup>ο</sup> θα συσκευάζονται: 2507

- (α) σε βαρέλια ή κιβώτια ή  
 (β) σε γερούς σάκκους κατασκευασμένους από στενά υφασμένο ύφασμα ή από γερό χαρτί τουλάχιστο πεντάφυλλο ή, σε ποσότητες μη υπερβαίνουσες τα 50 KG, σε σάκκους κατασκευασμένους από κατάλληλη πλαστική ύλη επαρκούς πάχους και γερής ώστε να αποφεύγεται οποιαδήποτε απώλεια του περιεχομένου.

Εάν η ύλη είναι περισσότερο υγροσκοπική από το νιτρικό νάτριο, οι σάκκοι οι κατασκευασμένοι από στενά υφασμένο ύφασμα ή από γερό χαρτί πεντάφυλλο πρέπει να επενδύονται με κατάλληλη πλαστική ύλη ή να καθίστανται αδιαπέραστοι δια καταλλήλου μέσου.

Κόλα τα οποία μπορούν να κυλιθούν δεν πρέπει να ζυγίζουν περισσότερο από 400 KG· εάν ζυγίζουν πάνω από 275 KG πρέπει να είναι εφοδιασμένα με κυλιόμενες στεφάνες (ROLLING HOOPS).

(I) Οι ύλες της 9<sup>ο</sup> (α) θα συσκευάζονται: 2508

- (α) σε βαρέλια από χάλυβα ή  
 (β) σε δοχεία κατασκευασμένα από φύλλο-μετάλλου, φύλλο σιδήρου επενδεδυμένο με μολυβδο, ή πλάκα-κασσιτέρου ασφαλιζόμενα σε ξύλινα κιβώτια συσκευασίας έχοντα μεταλλική επένδυση καταστάσαν στεγανήν, π.χ. με μαλακή συγκόλληση.

Όταν μεταφέρονται ως πλήρες φορτίο οι ύλες

2508

(Συνεχίζεται)

της 9<sup>ο</sup>(α), πρέπει να συσκευάζονται σε δοχεία από πλάκα κασιτέρου τοποθετημένα αποκλειστικώς σε προστατευτικούς σιδηρούς κάλαθους (IRON HAMPERS).

(2) Δοχεία περιέχοντα ύλες της 9<sup>ο</sup>(α) πρέπει να είναι έτσι κλεισμένα και στεγανά ώστε να αποφεύγεται η είσοδος υγρασίας.

(3) Ύλες της 9<sup>ο</sup>(β) και (γ) θα συσκευάζονται:-

- (α) σε άκαυστα δοχεία εφοδιασμένα με άκαυστο ερμητικό κλείσιμο. Εάν τα άκαυστα δοχεία είναι εύθραυστα, το καθένα θα ασφαρίζεται χωριστά με αποσβεστικό υλικό σε ξύλινο δοχείο επενδεδυμένο με γερό χαρτί ή
- (β) σε κάδους από σκληρό ξύλο με στενά εφαρμοσμένες σανίδες, επενδεδυμένους με γερό χαρτί.

(4) Κόλα περιέχοντα εύθραυστα δοχεία και μεταφερόμενα όχι ως πλήρη φορτία δεν πρέπει να ζυγίζονται πάνω από 75 KG και θα διαθέτουν χειρολαβήν.

Κόλα ικανά να κυλίσουν δεθ πρέπει να ζυγίζονται πάνω από 400 KG· πρέπει να είναι εφοδιασμένα με κυλιόμενες στεφάνες (ROLLING HOOPS) εάν ζυγίζονται πάνω από 275 KG.

(I) Το τριοξείδιο του χρωμίου θα συσκευάζεται: 2509

- (α) σε δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρόμοια υλικά, σφιχτά ασφαλισμέβα σε ξύλινο κιβώτιο με αδρανές και απορροφητικό αποσβεστικό υλικό ή
- (β) σε μεταλλικά βαρέλια.

(2) Κόλα περιέχοντα εύθραυστα δοχεία μεταφερόμενα όχι ως πλήρες φορτίο δεν πρέπει να ζυγίζονται περισσότερο από 75 KG και θα είναι εφοδιασμένα με χειρολαβή.

2509  
(Συνεχίζεται)

Κόλα ικανά να κυλίνουν δεν πρέπει να ζυγίζονται περισσότερο από 400 KG· πρέπει να είναι εφοδιασμένα με κυλιόμενες στεφάνες (ROLLING HOOPS), εάν ζυγίζονται περισσότερο από 275 KG.

### 3.- Μικτή συσκευασία

(I) Ύλες ομαδοποιημένες υπό το αυτό γράμμα 2510 μπορούν να συμπεριλαμβάνονται στο ίδιο κόλον. Οι εσωτερικές συσκευασίες θα συμφωνούν με ό,τι προβλέπεται για κάθε ύλη, και η εξωτερική συσκευασία θα είναι η ορισθείσα για τις ύλες του ~~επιθέματος~~ αριθμού είδους.

(2) Εάν μικρότερες ποσότητες δεν προβλέπονται υπό του άρθρου του τιτλοφορουμένου "Συσκευασία μιάς ύλης", οι ύλες της παρούσας Κλάσεως, σε ποσότητες μη υπερβαίνουσες τα 6 KG προκειμένου περί στερεών ή τις 3 λίτρες προκειμένου περί υγρών για όλες τις ύλες τις αναγραφόμενες υπό τον αυτόν αριθμόν είδους ή το αυτό γράμμα, μπορούν να εγκλειστούν στο αυτό κόλον είτε με τις ύλες άλλου αριθμού είδους είτε άλλου γράμματος της αυτής Κλάσεως, ή με επικίνδυνες ύλες ανήκουσες σε άλλες Κλάσεις (εάν μικτή συσκευασία επιτρέπεται ομοίως προκειμένου περί τοιούτων υλών), ή με άλλα εμπορεύματα, υπό την επιφύλαξη των παρακάτω ειδικών όρων.

Οι εσωτερικές συσκευασίες πρέπει να πληρούν

τους γενικούς και ειδικούς όρους συσκευασίας. Επιπρο- 2510  
σθέτως, οι γενικές διατάξεις των περιθωρίων 2001(5) (Συνεχίζε-  
και 2002(6) και (7)) πρέπει να τηρούνται. ται)

Το κέλυφος δεν πρέπει να ζυγίζεται περισσότερο  
από 150 KG, ή περισσότερο από 75 KG εάν περιέχει εύθραυ-  
στα δοχεία.

Ειδικόί όροι:-

Αρ.Είδους	Περιγραφή Ύλης	Ανωτάτη Ποσότητα		Ειδικά Διατάξεις
		ανά δοχείο	ανά κέλυφος	
1 <sup>ο</sup>	Υπεροξειδίο υδρογόνου και υδατινα διαλύματα υπεροξειδίου του υδρο- γόνου περιέχοντα άνω των 60 <sup>ο</sup> /ο υπεροξειδίου του υδρογόνου.			Μικτή συσκευασία δεν επιτρέπεται.
2 <sup>ο</sup>	Τετρανιτρομεθάνιο			
3 <sup>ο</sup>	Υπερχλωρικό οξύ			
4 <sup>ο</sup>	Διαλύματα υλών της 4 <sup>ο</sup>			
4 <sup>ο</sup> (α)	Χλωρικά Άλατα - σε εύθραυστα δοχεία - σε άλλα δοχεία	I KG 5 KG	2.75 KG 5 KG	Δεν πρέπει να συσκευάζονται με ασθενώς εμ- πλουτισμένη νι- τροκυτταρίνη, κόκκινο φωσφόρο, άλατα υδροφο- ρικού οξέος, υγρές αλογοποιημένες ερε- θιστικές ουσίες, υδροχλωρικό οξύ, θειϊκό οξύ, χλωροσουλφανικά οξέα, οξικό οξύ, βενζοϊκό οξύ, σαλικυλικόν οξύ, μυρμηκικόν οξύ, νιτρικόν οξύ, ελεύθερα σουλφονικά οξέα, μικτά

Αρ.Είδους Περιγραφή Ύλης	Ανωτάτη Ποσότητα		Ειδικά Διατάξεις
	ανά δοχείο	ανά κόλον	

( Σ ω ν έ χ ε ι α )

αζωτούχα οξέα, θείων, υδραζίνη. Πρέπει να χωρίζονται από μη-συνδεδεασμένο άνθρακα (υπό οποιαδήποτε μορφή), υποφωσφορώδη άλατα, αμμωνία και ενώσεις αυτής, τριαιθανολαμίνη, ανιλίνη, ξυλιδίνη, τολουιδίνη ή εύφλεκτα υγρά έχοντα σημείο αναφλέξεως κάτω των 21°C.

4 <sup>ο</sup> (β) και 5 <sup>ο</sup> Υπερχλωρικά Άλατα	5 KG	5 KG	Δεν πρέπει να συσκευάζονται μαζί με ασθενώς εμπλουτισμένη με άζωτο νιτροκυτταρίνη, κόκκινο φωσφόρο, διφθοριούχα, υγρές αλογοποιημένες ερεθιστικές ουσίες, υδροχλωρικό οξύ, θειϊκό οξύ, χλωροσουλφονικό ο-
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Αρ. Εξόδου	Περιγραφή Ύλης	Ανωτάτη Ποσότητα Ειδικών	
		ανά δοχείο	ανά Διατάξεις κόβου

( Σ ω ν έ χ ε ι α )

Ξύ, νιτρικό οξύ, μικτά αζωτούχα οξέα, ανιλίνη, πυριδίνη, ξυλιδίνη, τολουιδίνη, θειόν, υδραζίνη

4° (γ) Όλες οι ύλες  
και (δ),  
6°, 7°,  
8°

Δεν πρέπει να συσκευάζονται μαζί με ασθενώς εμπλουτισμένη με άζωτο νιτροκυτταρίνη ή κόκκινο φωσφόρο.

9° (α) Υπεροξειδία  
και (β) - σε εύθραυστα δοχεία 500 γραμ. 2.5KG  
- σε άλλα δοχεία 5 KG 5 KG

Οι ίδιες ύλες που απαγορεύονται προκειμένου περί υπερχλωρικών αλάτων, ως και: κόνις αργυλίου, πυρτιόξ ή κόκκοι, οξικό οξύ υδάτινα υγρά, εύφλεκτα υγρά των Κλάσεων 3 και 6.1, ύλες της Κλάσεως 4.Π τα μεταλλικά υπεροξειδία δεν πρέπει να συσκευάζονται στο ίδιο κόβον.

Αρ.Είδους	Περιγραφή Ύλης	Ανωτάτη Ποσότης		Ειδικές Διατάξεις
		ανά δοχείο	ανά κόβον	

( Σ υ ν έ χ ε ι α )

με τα διαλύματα του υπεροξειδίου του υδρογόνου. Ο περιορισμός των 2.5 KG ισχύει για τα υπεροξειδία της 9<sup>ο</sup>(α) και (β) για όλες τις όλες αυτές. Η χρήση πριονιδίου ή άλλων οργανικών υλών γεμίματος απαγορεύεται

9 <sup>ο</sup> (γ)	Υπερμαγγανικά Αλατα	5 KG	5 KG	Οι ίδιες ύλες που απαγορεύονται προκειμένου περί χλωρικών αλάτων ως και: διαλύματα υπεροξειδίου του υδρογόνου, γλυκερίνη και γλυκόλη. Πρέπει να χωρίζονται από τις ίδιες ύλες ως ορίζεται στη περίπτωση των χλωρικών αλάτων.
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10 <sup>ο</sup>	Χρωμικός ανυδρίτης (χρωμικό οξύ)	4.5KG	4.5KG	Η χρήση πριονιδίου ή άλλων οργανικών υλών πληρώσεως απαγορεύεται.
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Ένδειξεις (μαρκάρισμα) και ετικέτες κινδύνου επί των κόλων (βλέπε Προσθήκη Α.9) 2511

(1) Κόλα περιέχοντα ύλες της Κλάσεως 5.1 θα φέρουν ετικέτα του μοντέλου Νο.3. Εν τούτοις, κόλα περιέχοντα ύλες της 1<sup>ο</sup> έως 5<sup>ο</sup> ή της 8<sup>ο</sup> - 10<sup>ο</sup> θα φέρουν δύο ετικέτες σύμφωνα προς το μοντέλο Νο. 3.

Κόλα περιέχοντα ύλες της 3<sup>ο</sup> θα φέρουν επιπροσθέτως ετικέτα σύμφωνα προς το μοντέλο Νο. 5.

(2) Κόλα περιέχοντα εύθραυστα δοχεία μή ορατά από έξω θα φέρουν ετικέτα σύμφωνα με το μοντέλο Νο.9. Εάν τα εύθραυστα δοχεία περιέχουν υγρά, τα κόλα, επιπροσθέτως, εκτός προκειμένου περί σφραγισμένων αμπουλών, θα φέρουν ετικέτες σύμφωνα προς το μοντέλο Νο. 8<sup>ο</sup> οι ετικέτες αυτές θα τοποθετούνται ψιλά σε δύο αντίθετες πλευρές των κιβωτίων ή κατά τρόπον ισοδύναμον όταν χρησιμοποιούνται άλλα είδη συσκευασίας.

(3) Στη περίπτωση αποστολών μεταφερομένων ως πλήρες φορτίο, οι ετικέτες Νο 4 και 5, ως προβλέπεται υπό το στοιχείον (1), δεν χρειάζεται να τεθούν στα κόλα εάν το δοχείον φέρει την ένδειξιν την προβλεπομένην υπό του Παραρτήματος Β, περιθώριο 0 500.

Β.- Στοιχεία του εγγράφου μεταφοράς

2512

Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφο-2513  
ράς πρέπει να συμφωνεί με μία των ονομασιών των υπογραμ-  
μισμένων στο περιθώριο 2501<sup>ο</sup> πρέπει να υπογραμμίζεται με  
κόκκινο και ακολουθείται από τα στοιχεία της κλάσεως, τον  
αριθμόν του είδους (μαζί με το, τυχόν, γράμμα), και τα  
αρχικά "ADR" ή "RID" (π.χ. 5.1 4<sup>ο</sup> (α), A45)

2514-

2520

Γ.- Κενά είδη συσκευασίας

(1) Είδη συσκευασίας και δεξαμενές της II<sup>ο</sup> 252I  
πρέπει να κλείνουν κατά τον αυτόν τρόπον και να είναι  
του αυτού βαθμού στεγανά ως εάν ήσαν πλήρη.

(2) Η περιγραφή στο έγγραφο μεταφοράς πρέπει  
να είναι: -"Κενό είδος συσκευασίας, 5.1, II<sup>ο</sup>, ADR (ή  
RID)". Η περιγραφή αυτή πρέπει να υπογραμμίζεται με  
κόκκινο.

(3) Κενοί σάκιοι από ύφασμα, ακαθάριστοι οι  
οποίοι περιείχαν νιτρικόν νάτριον (7<sup>ο</sup>(α)) υπόκεινται  
στις διατάξεις της Κλάσεως 4.2 (βλέπε περιθώριο 244I).

2522-

2549

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## ΚΛΑΣΗ 5.2 ΟΡΓΑΝΙΚΑ ΥΠΕΡΟΞΕΙΔΙΑ

I.- Κατάσταση υλών

Μεταξύ των υλών και ειδών των καλυπτομένων υπό 2550 τον τίτλον της Κλάσεως 5.2, μόνον τα αναγραφόμενα εις περιθώριον 255I είναι δεκτά για μεταφορά, και τότε μόνον υπό την επιφύλαξη των διατάξεων του παρόντος Παραρτήματος και του Παραρτήματος Β. Οι ύλες αυτές και είδη που γίνονται δεκτά για μεταφορά υπό ωρισμένους όρους θα θεωρούνται ως ύλες και είδη της ADR.

Σημείωση: - Οργανικά υπεροξειδία τα οποία μπορούν να εκραγούν σε επαφή με φλόγα ή τα οποία είναι περισσότερο ευαίσθητα στη κρούση και τη τριβή από το δινιτροβενζόλιο δεν γίνονται δεκτά για μεταφορά εκτός εάν ειδικώς αναγράφονται στη Κλάση Ia (βλέπε περιθώριο 2I0I, I0<sup>o</sup> και Προσθήκη Α.Ι, περιθώριο 3I12<sup>o</sup> επίσης περιθώριο 255I, Ομάς Ε κατωτέρω).

Ομάς Α

255I

1<sup>o</sup> Υπεροξειδίο διτριτογενούς βουτυλίου (DITERTIARY BUTYL PEROXIDE).

2<sup>o</sup> Υδροϋπεροξειδίο τριτογενούς βουτυλίου (TERTIARY BUTYL HYDROPEROXIDE) με όχι λιγώτερο του 206τoς εκατόν υπεροξειδίου διτριτογενούς βουτυλίου και όχι λιγώτερο του 206τoς εκατόν αδρανοποιητικής ουσίας (PHLEGMATIZER).

Σημείωση: - Υδροϋπεροξειδίο τριτογενούς βουτυλίου (TERTIARY BUTYL HYDROPEROXIDE) με όχι λιγώτερο του 206τoς εκατόν υπεροξειδίου διτριτογενούς βουτυ-

λίου αλλά χωρίς αδρανοποιητική ουσία αναγράφεται '255I  
υπό στοιχείον 3I<sup>ο</sup>.

(Συνεχίζε-  
ται)

- 3<sup>ο</sup> Υπεροξικόδν τριτογενές βουτύλιο (TERTIARY BUTYL PERACETATE) με όχι λιγώτερο του 30 στοι εκατόν αδρανοποιητικής ουσίας.
- 4<sup>ο</sup> Υπερβενζοϊκό τριτογενές βουτύλιο (TERTIARY BUTYL PERBENZOATE).
- 5<sup>ο</sup> TERTIARY BUTYL PERMALEATE με όχι λιγώτερο του 50 στοι εκατόν αδρανοποιητικής ουσίας.
- 6<sup>ο</sup> Διυπερφθαλικόν διτριτογενές βουτύλιο (DITERTIARY BUTYL DIBENPHALATE) με όχι λιγώτερο του 50 στοι εκατόν αδρανοποιητικής ουσίας.
- 7<sup>ο</sup> 2,2-BIS (TERTIARY BUTYL PEROXY) BUTANE με όχι λιγώτερο του 50 στοι εκατόν αδρανοποιητικής ουσίας.
- 8<sup>ο</sup> Υπεροξειδίο Βενζοϋλίου:-  
(α) με όχι λιγώτερο του 10 στοι εκατόν ύδωρ.  
(β) με όχι λιγώτερο του 30 στοι εκατόν αδρανοποιητικής ουσίας.

Σημειώσεις:- I.- Το υπεροξειδίο του βενζοϋλίου ~~σε~~ ξηράν κατάσταση ή με λιγώτερο του 10 στοι εκατόν ύδωρ ή λιγώτερο του 30 στοι εκατόν αδρανοποιητικής ουσίας είναι ύλη της κλάσεως Ia (βλέπε περιθώριο 2101 10<sup>ο</sup> (α)).

2.- Υπεροξειδίο του βενζοϋλίου περιέχον όχι λιγώτερο του 70 στοι εκατόν ξηρά και αδρανή σρε-ρεά δεν υπόκειται στις διατάξεις της ADR.

- 9<sup>ο</sup> Υπεροξειδία κυκλοεξανόλης (I-HYDROXY-I'-HYDROPEROXY-

DICYCLOHEXYL PEROXIDE AND BIS (1-HYDROXYCYCLOHEXYL)

υπεροξειδίο και μίγματα των δύο αυτών ενώσεων)):-

(α) με όχι λιγώτερο του 56τοα εκατόν ύδωρ·

(β) με όχι λιγώτερο του 30τοα εκατόν αδρανοποιη-  
τικής ουσίας.

Σημειώσεις:- 1.- Υπεροξειδία κυκλοεξανόλης και τα μίγ-  
ματά τους σε ξηρά κατάσταση ή με λιγώτερο του 56τοα  
εκατόν ύδωρ ή λιγώτερο του 30τοα εκατόν αδρανοποιη-  
τικής ουσίας είναι ύλης της Κλάσεως Ia (βλέπε περιθώ-  
ριο 2101, 10° (β)).

2.- Υπεροξειδία κυκλοεξανόλης και τα μίγ-  
ματά τους περιέχοντα όχι λιγώτερο του 70τοα εκατόν  
ξηρά και αδρανή σφεραά δεν υπόκεινται στις διατάξεις  
της ADR.

10° α, α - DIMETHYLBENZYL HYDROPEROXIDE (υδροϋπεροξειδίο  
διμεθυλοβενζυλίου) (CUMYL HYDROPEROXIDE) με περιεχό-  
μενο σε υπεροξειδίο μη υπερβαίνον το 95τοα εκατόν.

11° Υπεροξειδίο DILAUROYL.

12° 1,2,3,4-TETRANHYDRO-1-NAPHTYL HYDROPEROXIDE.

13° 2,4-DICHLOROBENZOYL PEROXIDE (υπεροξειδίο διχλωροβεν-  
ζοϋλίου)

(α) με όχι λιγώτερο του 10τοα εκατόν ύδωρ·

(β) με όχι λιγώτερο του 30τοα εκατόν αδρανοποιητικής  
ουσίας (PHLEGMATIZER).

14° p-MENTHANYL HYDROPEROXIDE με περιεχόμενον εις υπεροξει-  
δίο μη υπερβαίνον το 95τοα εκατόν (υπόλοιπον: αλκοό-  
λαι και κετόναι).

15° 2,6,6-TRIMETHYL NORPINANYLE HYDROPEROXIDE (PINANYL 2551  
HYDROPEROXIDE • PINANE HYDROPEROXIDE) με περιεχόμε- (Συνεχίζεται)  
 νο εις υπεροξειδίο μη υπερβαίνον το 95 ~~το~~ εκατόν  
 (υπόλοιπον: αλιόλαι και κετόναι).

16° DI-(α, α -DIMETHYLBENZYL) PEROXIDE με περιεχόμενον  
 εις υπεροξειδίο μη υπερβαίνον το 95 ~~το~~ εκατόν.

Σημείωσις: - DI-(α, OC-DIMETHYLBENZYL)

Το υπεροξειδίο του DICUMYL περιέχον 60 ~~το~~ς εκατόν  
 ή και περισσότερον στερεά και αδρανή στερεά δεν υπό-  
 κειται στις διατάξεις της ADR.

17° PARACHLOROBENZOYL <sup>Υπεροξειδίο</sup> PEROXIDE (Παραχλωροβενζουόλιου(:-

(α) με όχι λιγώτερο του 10 ~~το~~ς εκατόν ύδωρ.

(β) με όχι λιγώτερο του 30 ~~το~~ς εκατόν αδρανοποιη-  
 τικής ουσίας (PHLEGMATIZER).

Σημείωσις: - 1.- Το υπεροξειδίο παραχλωροβενζουόλιου σε  
 ξηρά κατάσταση ή με λιγώτερο του 10 ~~το~~ς εκατόν ύδωρ  
 ή λιγώτερο του 30 ~~το~~ς εκατόν αδρανοποιητικής ουσίας  
 είναι ύλη της Κλάσεως Ia (βλέπε περιθώριο 2101, 10°  
 (γ)).

2.- Το υπεροξειδίο παραχλωροβενζουόλιου πε-  
 ριέχον 70 τοις εκατόν ή περισσότερον ξηρά και αδρανή  
 στερεά δεν υπόκειται στις διατάξεις της ADR.

18° DI-ISOPROPYLBENZENE HYDROPEROXIDE (ISOPROPYLCUMYL  
HYDROPEROXIDE) με 45 τοις εκατόν μίγμα αλιόλης και  
 ακετόνης.

19° 4-METHYLPENTAN-2-ONE PEROXIDE (ISOBUTYLMETHYLKETONE  
PEROXIDE) με όχι λιγώτερο του 40 ~~το~~ς εκατόν αδρανο-  
 ποιητικής ουσίας.

TERTIARY BUTYL (α, α- I-DIMETHYLBENZYL) PEROXIDE 255I

με όχι περισσότερο από 956τoις εκατόν υπεροξειδίο. (Συνεχίζεται)

21<sup>ο</sup> Υπεροξειδίο DIACETYL (Διακετυλίου) με όχι λιγώτερο του 756τoις εκατόν αδρανοποιητικής ουσίας (PHLEGMATIZER).

22<sup>ο</sup> Υπεροξειδίο ακετυλο-βενζοϋλίου (ACETYL BENZOYL PEROXIDE) με όχι λιγώτερο του 606τoις εκατόν αδρανοποιητικής ουσίας.

Σημείωσις:— Περὶ 1<sup>ο</sup> ἕως 22<sup>ο</sup>. Ὑλεις πού εἶναι αδρανεις σε οργανικά υπεροξειδία και ἔχουν σημειον αναφλέξεως όχι χαμηλώτερο των 100<sup>ο</sup>C και σημειον βρασμοῦ όχι χαμηλώτερο των 150<sup>ο</sup>C θεωρούνται ότι εἶναι αδρανοποιητικές ὕλεις. Οι ὕλεις τῆς Ομάδος Α μπορούν ἐπίσης να αραιωθούν με διαλύτας που εἶναι αδρανεις στις ὕλεις αυτές.

#### Ομάς Β

30<sup>ο</sup> Υπεροξειδίο Βουτανονίου (αιθυλο-μεθυλο-κετον-υπεροξειδίο) (BUTANONE PEROXIDE (ETHYL METHYL KETONE PEROXIDE))

(α) με όχι λιγώτερο του 506τoις εκατόν αδρανοποιητικής ουσίας (PHLEGMATIZER).

(β) σε διαλύματα περιέχοντα όχι άνω του 126τoις εκατόν του υπεροξειδίου αυτού σε διαλύτες που εἶναι αδρανεις εις τούτο.

31<sup>ο</sup> Υδρουπεροξειδίο Τριτογενούς Βουτυλίου (TERTIARY BUTYL HYDROPEROXIDE):—

(α) με όχι λιγώτερο του 206τoις εκατόν υπεροξειδίου

Αριτογενούς βουτυλλίου, χωρίς αδρανοποιητική ουσία 255I

(PHLEGMATIZER).

(Συνεχίζεται)

(β) σε διαλύματα περιέχοντα όχι περισσότερο του 126 γραμμών του υπεροξειδίου αυτού σε διαλύτες που είναι αδρανείς εις πούτο.

Σημείωση:— Περί 30° και 31°. Υλεις που είναι αδρανείς σε οργανικά υπεροξειδία και έχουν σημείον αναφλέξεως όχι χαμηλότερο των 100°C και σημείον βρασμού όχι χαμηλότερο των 150°C θεωρούνται ως αδρανοποιητικές ύλεις.

#### Ομάς Γ

35° Υπεροξικό οξύ περιέχον όχι περισσότερο του 406 γραμμών υπεροξικό οξύ και όχι λιγώτερο του 456 γραμμών οξικό οξύ και όχι λιγώτερο του 106 γραμμών ύδωρ.

Σημείωση:— Περί Ομάδων Α, Β και Γ. Μίγματα προϊόντων αναφερομένων στις Ομάδες Α, Β και Γ γίνονται δεκτά για μεταφορά υπό την επιφύλαξη των όρων της Ομάδος Γ εάν περιέχουν υπεροξικό οξύ, και σε άλλες περιπτώσεις υπό την επιφύλαξη των όρων της Ομάδος Β.

#### Ομάς Δ

40° Δείγματα αδρανοποιηθέντων οργανικών υπεροξειδίων μη αναγραφομένων στις Ομάδες Α, Β ή Γ, ή στα διαλύματα αυτών, γίνονται δεκτά σε ποσότητες μη υπερβαίνουσες το 1 KG ανά κέλον υπό τον όρον ότι η σταθερότητά τους εν αποθηκείσει είναι τουλάχιστον ίση προς εκείνη των υλών των αναγραφομένων στις Ομάδες Α και Β.

#### Ομάς Ε

Σημείωση:— Η Ομάς Ε περιλαμβάνει οργανικά υπεροξειδία



τα οποία αποσυντίθεται ευχερώς σε συνήθη θερμοκρα- 255I  
σία και επομένως πρέπει να μεταφέρονται μόνον υπό (Συνεχίζεται))  
συνθήκας καταλλήλου φύξεως. Μολονότι εκρηκτικής  
φύσεως ως ορίζονται υπό της Σημειώσεως της Κλάσεως  
5.2, ολίγα οργανικά υπεροξειδία συμπεριλαμβάνονται  
στην Ομάδα Ε διότι μπορούν να μεταφερθούν ασφαλώς  
σε κατεφυγμένη κατάσταση και δια να αποφεύγεται ο-  
ποιαδήποτε σύγχυσις αναφορικά με τον χειρισμό τους.

45° Υπεροξειδίο ΔΙΟΚΤΑΝΟΥΛ (υπεροξειδίο DICAPRYLYL)  
τεχνικής καθαρότητας.

46° Υπεροξειδίο ACETYL CYCLOHEXANE SULPHONYL:-

(α) περιέχον όχι λιγώτερο του 306τμλ εκατόν ύδωρ\*

(β) σε διάλυμα όχι λιγώτερο του 806τμλ εκατόν δια-  
λύτου\*

(γ) σε διάλυμα όχι λιγώτερο του 706τμλ εκατόν αδρα-  
νοποιητικής ουσίας (PHLEGMATIZER).

47° Υπεροξειδιανθρακικό Διισοπροπύλιο (DIISOPROPYL PEROXY-  
DICARBONATE):

(α) τεχνικής καθαρότητας\*

(β) σε διάλυμα με όχι λιγώτερο του 506τμλ εκατόν αδρα-  
νοποιητικήν ουσίαν ή διαλύτην.

48° Υπεροξειδίο Διπροπιονυλίου (DIPROPIONYL PEROXIDE)

σε διάλυμα με όχι λιγώτερο του 756τμλ εκατόν διαλύτην.

49° TERTIARY BUTYL PERPIVALATE:-

(α) τεχνικής καθαρότητας\*

(β) σε διάλυμα με όχι λιγώτερο του 256τμλ εκατόν αδρα-  
νοποιητικήν ουσίαν ή διαλύτην.

- 50° Υπεροξειδίο BIS-(3,5,5-TRIMETHYLHEXANOYL) σε διάλυμα 255I  
με όχι λιγώτερο του 20% εκατόν αδρανοποιητικήν (Συνεχίζεται)  
ουσίαν (PHLEGMATIZER).
- 51° Υπεροξειδίο Διπελαργονυλίου (DIPELARGONYL PEROXIDE),  
τεχνικής καθαρότητας.
- 52° TERTIARY BUTYL PER-2-ETHYLHEXANOATE τεχνικής καθαρό-  
τητας.
- 53° DI-2-ETHYLHEXYL-PEROXYDI CARBONATE σε διάλυμα με όχι  
λιγώτερο του 55% εκατόν αδρανοποιητικήν ουσίαν  
(PHLEGMATIZER) ή διαλύτην.
- 54° Υπεροξειδίο DIDECANOYL τεχνικής καθαρότητας.
- 55° TERTIARY BUTYL PERISOBUTYRATE σε διάλυμα με όχι λιγώ-  
τερο του 25% εκατόν διαλύτην.

Σημειώσεις: - I.- Ύλες που είναι αδρανείς σε οργανικά  
υπεροξειδία και έχουν σημείον-αναφλέξεως όχι χαμηλώτε-  
ρον των 100°C και σημείον βρασμού όχι χαμηλώτερον των  
150°C θεωρούνται ως αδρανοποιητικές ύλες (PHLEGMATIZ-  
ING SUBSTANCES).

2.- Ο αναφερθέντες διαλύτες είναι ύλες οι  
οποίες είναι αδρανείς σε οργανικά υπεροξειδία και οι  
οποίες επίσης πληρούν ένα των παρακάτω δρων:-

- (α) δεν είναι εύφλεκτοι και έχουν σημείον βρασμού όχι  
χαμηλώτερο των 85°C ή
- (β) δεν είναι εύφλεκτοι και έχουν σημείον βρασμού κάτω  
των 85°C αλλά όχι κάτω των 60°C, οπότε πρέπει να  
χρησιμοποιούνται υποδοχείς (δοχεία) ερμητικώς  
κλεισμένα ή
- (γ) έχουν σημείον-αναφλέξεως όχι κάτω των 21°C και

σημείον βρασμού όχι κάτω των  $85^{\circ}\text{C}$  ή 2551  
 (δ) έχουν σημείον-αναφλέξεως κάτω των  $21^{\circ}\text{C}$  αλλά ((Συνεχίζεται))  
 όχι κάτω των  $5^{\circ}\text{C}$  και σημείο βρασμού όχι κάτω  
 των  $60^{\circ}\text{C}$ , οπότε πρέπει να χρησιμοποιούνται.  
 ερμητικώς κλεισμένοι υποδοχείς (δοχεία).

### Ομάδα ΣΤ

99° Κενά είδη συσκευασίας, ακαθάριστα, και κενές δεξαμε-  
νές, ακαθάριστες, που περιείχαν ύλες της Κλάσεως 5.2.

### 2.ο Διατάξεις

#### A.- Κόλα

#### I.- Γενικοί όροι συσκευασίας

(1) Τα υλικά από τα οποία τα είδη συσκευασίας 2552  
 και τα κλεισίματά των κατασκευάζονται δεν πρέπει να κιν-  
 δυνεύουν να πρόσβληθούν από το περιεχόμενο ή να σχημα-  
 τίζουν με αυτό επιβλαβείς ή επικινδύνους ενώσεις.

(2) Τα είδη συσκευασίας, συμπεριλαμβανομένων των  
 κλεισιμάτων των, πρέπει να είναι επαρκώς άκαμπτα και γε-  
 ρά σε όλα τα μέρη τους ώστε να αποφεύγεται οποιαδήποτε  
 χαλάρωση διαρκούσης της μεταφοράς και να πληρούν τους  
 συνήθεις όρους μεταφοράς. Οι εσωτερικές συσκευασίες θα  
 ασφαλίζονται σταθερά στις εξωτερικές συσκευασίες. Εκτός  
 εάν άλλως ορίζεται στο άρθρο το τιτλοφορούμενο "Συσκευα-  
 σία μίας ύλης", οι εσωτερικές συσκευασίες μπορούν να  
 εγκλιούνται σε εξωτερικές συσκευασίες, είτε μία-μία  
 είτε ομαδικά.

(3) Το αποσβεστικό υλικό δεν πρέπει να είναι  
 ευχερώς εύφλεκτο· επιπροσθέτως θα ταιριάζει στη φύση

του περιεχομένου και δεν πρέπει να προκαλεί την απο-  
σύνθεση των υπεροξειδίων.

2552  
(Συνεχίζε-  
ται)

2.- Συσκευασία μιάς ύλης

α.- Συσκευασία υλών της Ομάδος Α

Τα δοχεία θα είναι έτσι κλεισμένα και στεγα-  
νά ώστε να αποφεύγεται οποιαδήποτε απώλεια του περιε-  
χομένου.

2553

(1) Ύλες των 1<sup>ο</sup> έως 7<sup>ο</sup>, 8<sup>ο</sup>(β), 9<sup>ο</sup>(β), 10<sup>ο</sup>  
έως 12<sup>ο</sup>, 13<sup>ο</sup>(β), 14<sup>ο</sup> έως 16<sup>ο</sup>, 17<sup>ο</sup>(β) και 18<sup>ο</sup> έως 22<sup>ο</sup>  
και τα διαλύματά τους πρέπει να συσκευάζονται:-

2554

(α) σε κασσιτερωμένα δι'εμβαπτίσεως εν θερμώ δοχεία ή  
σε δοχεία κατασκευασμένα από αργύλιο (αλουμίνιο),  
όχι λιγώτερο του 99.56τοια εκατόν'καθαρό· ή

(β) σε δοχεία, κατασκευασμένα από παράλληλη πλαστική  
ύλη, τα οποία θα τοποθετούνται σε προστατευτικές  
συσκευασίες· ή

(γ) όχι άνω των 2 λιτρών ανά φιάλην, σε σφιχτά-κλειστές  
γυάλινες φιάλες που θα ασφαρίζονται με αποσβεστικό  
υλικό σε προστατευτική συσκευασία εις τρόπον ώστε  
να προστατεύονται από το σπάσιμο.

(2) Ύλες των 1<sup>ο</sup> έως 3<sup>ο</sup>, 5<sup>ο</sup> έως 7<sup>ο</sup>, 8<sup>ο</sup>(β),  
9<sup>ο</sup>(β), 10<sup>ο</sup> έως 12<sup>ο</sup>, 13<sup>ο</sup>(β), 16<sup>ο</sup>, 18<sup>ο</sup> και 20<sup>ο</sup> μπορούν  
επίσης να συσκευάζονται σε γαλβανισμένα (HOT-TIPPED  
GALVANIZED) δοχεία.

(3) Οι ύλες των 8<sup>ο</sup>(α), 9<sup>ο</sup>(α), 13<sup>ο</sup>(α) και 17<sup>ο</sup>(α)  
θα περιέχονται, όχι περισσότερες των 5 KG ανά είδος συ-  
σκευασίας, σε υδατοστεγανά είδη συσκευασίας τοποθετού-

μένα σε ξύλινο κιβώτιο.

2554

(Συνεχίζεται)

(4) Γλοιώδη (σαν ζυμάρι) και στερεά υπεροξείδια μπορούν επίσης να συσκευάζονται σε δάκκους, κατασκευασμένους από κατάλληλη πλαστική ύλη, τοποθετούμενους σε κατάλληλα προστατευτικά είδη συσκευασίας. Το πάχος του υλικού συσκευασίας θα είναι επαρκές ώστε να εμποδίζεται οποιαδήποτε απώλεια του περιεχομένου από τους δάκκους κατά την συνήθη μεταφορά. Τα στερεά υπεροξείδια μπορούν να συσκευάζονται, όχι περισσότερο του 1 KG ανά δοχείον, σε δοχεία από ινοσανίδα επιχρισμένη με κηρόν παραφίνης τοποθετούμενα σε ξύλινο κιβώτιο· εν τούτοις, προκειμένου περί υπεροξειδίων κυκλοεξανόνης της  $9^{\circ}$ (α), το περιεχόμενο του δοχείου θα περιορίζεται στα 500 γραμμ.

(5) Οι ύλες της  $10^{\circ}$  και  $14^{\circ}$  έως  $18^{\circ}$  μπορούν επίσης να συσκευάζονται σε δοχεία κατασκευασμένα από φύλλο-μετάλλου.

(6) Με εξαίρεση δάκκους κατασκευασμένους από πλαστική ύλη, τα δοχεία τα περιέχοντα υγρά ή γλοιώδη (σαν ζυμάρι) οργανικά υπεροξείδια δεν πρέπει να πληρούνται πέραν του 93 τοις εκατόν της χωρητικότητός των.

(7) Το κέλον δεν πρέπει να ζυγίζεται περισσότερο των 50 KG. Κόλα ζυγίζοντα πάνω από 15 KG θα είναι εφοδιασμένα με χειρολαβήν.

**β.- Συσκευασία υλών της Ομάδος Β**

2555

(I) Δοχεία γεμισμένα με ύλες της  $30^{\circ}$ (α) και  $31^{\circ}$ (α) θα είναι εφοδιασμένα με μηχανισμόν εξαερισμού επι-

πρέπει να αντιστάθμισιν μεταξύ της εσωτερικής πίεσεως και 2554 της ατμοσφαιρικής πίεσεως και σε κάθε περίπτωση - ακόμη (Συνεχίζεται) και στη περίπτωση εκτονώσεως του υγρού δια θερμάνσεως - εμποδίζοντα το υγρό να εκτιναχθεί καθώς και ακαθαρσίες να εισέλθουν στο δοχείο. Για ύλες της 30<sup>ο</sup>(β) και 31<sup>ο</sup>(β), μόνον δοχεία έτσι κλεισμένα και στεγανά ώστε να αποφεύγεται οποιαδήποτε απώλεια του περιεχομένου θα γίνονται δεκτά.

(2) Τα κόλα θα είναι εφοδιασμένα με βάση η οποία να τα κρατά όρθια χωρίς τον κίνδυνον να πέσουν.

(I) Οι ύλες των 30<sup>ο</sup>(α) και 31<sup>ο</sup>(α) θα συσκευάζονται: - 2556

- (α) σε εμβαπτισμένα εν θερμώ κασσιτερωμένα ή εμβαπτισμένα εν θερμώ γαλβανισμένα δοχεία ή σε δοχεία κατασκευασμένα από αργύλιο (αλουμίνιο) όχι λιγώτερο του 99,5 τοις εκατόν καθαρό ή
- (β) σε δοχεία, κατασκευασμένα από κατάλληλο πλαστική ύλη, τοποθετούμενα σε προστατευτικές συσκευασίες. Η αντοχή των δοχείων αυτών θα είναι επαρκής ώστε να αποφεύγεται οποιαδήποτε απώλεια του περιεχομένου κατά την συνήθη μεταφοράν ή
- (γ) όχι άνω των 2 λιτρών ανά φιάλην, σε γυάλινες φιάλες, που θα ασφαλίζονται με αποσβεστικό υλικό σε προστατευτικές συσκευασίες ώστε να προστατεύονται από το σπάζσιμο.

(2) Δοχεία περιέχοντα υγρά ή γλοιώδη (σαν ζυμάρι) οργανικά υπεροξειδία δεν πρέπει να γεμίζονται πέραν του 90 έτος εκατόν της χωρητικότητός των

(3) Το κέλον δεν πρέπει να ζυγίζεται περισσότερα 2556  
 από 40 KG. Κόλα ζυγίζονται περισσότερο από 15 KG (Συνεχίζε-  
 θα είναι εφοδιασμένα με χειρολαβήν. ται)

(4) Οι ύλες της 30<sup>ο</sup>(β) και 31<sup>ο</sup>(β) μπορούν να  
 αποστέλονται μόνον σε ποσότητες μη υπερβαίνουσες τα  
 5 KG σε δοχεία ως ορίζεται εις (I) αλλά χωρίς να εί-  
 ναι εφοδιασμένα με μηχανισμόν εξαερισμού (σε γυάλινες  
 φιάλες, μόνον σε ποσότητες μη υπερβαίνουσες το 1.5  
 λίτρο). Τα δοχεία δεν πρέπει να πληρούνται πέραν του  
 75% του εκάστου της χωρητικότητός των.

γ.- Συσκευασία υλών της Ομάδος Γ

(I) Οι ύλες της 35<sup>ο</sup> και μίγματα περιέχοντα 2557  
 υπεροξικό δξύ θα συσκευάζονται, όχι περισσότερο από  
 25 KG ανά δοχείο, σε γυάλινα δοχεία με χονδρό τοίχωμα,  
 ή σε δοχεία κατασκευασμένα από κατάλληλο πλαστική ύλη,  
 εφοδιασμένα με ειδικό κλείσιμο κατασκευασμένο από  
 κατάλληλη πλαστική ύλη, ικανό να σφραγισθεί (στεγανο-  
 ποιηθεί), σε επικοινωνία με την ατμοσφαίρα δι' ανοίγμα-  
 τος κενμένου άνωθεν της στάθμης του υγρού, και σε κάθε  
 περίπτωση -αιόμη και στη περίπτωση εκτονώσεως του υγρού  
 δια θερμάνσεως- εμποδίζοντα το υγρό να εκτιναχθεί και  
 ακαθαρσίες να εισέλθουν στο δοχείο.

(2) Τα γυάλινα δοχεία θα ασφαρίζονται σταθερά,  
 με κόνιν (άλευρο) καθαράς μίκας ή υαλο-έριο χρησιμοποιο-  
 ύμενα ως αποσβεστικό υλικό, σε προστατευτικά είδη συ-  
 σκευασίας κατασκευασμένα από φύλλο-χάλυβος ή αργύλιο,  
 ικανά να κλείνουν, και εφοδιασμένα με χειρολαβήν και

με βάση διατηρούσα αυτά όρθια χωρίς τον κίνδυνον να πέσουν· τα δοχεία θα ασφαρίζονται ακόμη και εάν τα τοιχώματα των προστατευτικών συσκευασιών δεν είναι πλήρη. Δοχεία κατασκευασμένα από κατάλληλο πλαστική ύλη πρέπει να τοποθετούνται σε κλειστής-εφαρμογής προστατευτικά είδη συσκευασίας κατασκευασμένα από φύλλο-χάλυβος και ικανά να κλείνουν.

2557

(Συνεχίζεται)

δ.- Συσκευασία υλών της Ομάδος Δ

Οι ύλες της Ομάδος Δ θα συσκευάζονται, σε ποσότητες μη υπερβαίνουσες το I KG ανά κόλον, σε κασσι-  
 τρωμένα δι'εμβαπτίσεως εν θερμώ δοχεία, ή σε δοχεία κατασκευασμένα από αργύλιο (αλουμίνιο) όχι λιγότερο του 99.56% καθαρό, ή σε φιάλες κατασκευασμένες από κατάλληλο πλαστική ύλη καλουπιασμένες δι'εγχύσεως ή φυσημένες και έχουσαι κατάλληλον πάχος τοιχώματος, ή σε γυάλινες φιάλες τοποθετημένες σε προστατευτικά είδη συσκευασίας κατασκευασμένα από φύλλο-χάλυβος, αλουμίνιο ή ξύλο. Οι γυάλινες φιάλες θα ασφαρίζονται σταθερά στα προστατευτικά είδη συσκευασίας με κόνη (άλευρον) καθαρής μίκας ή υαλο-έριο χρησιμοποιούμενα ως αποσβεστικό υλικό. Στερεές ενώσεις μπορούν επίσης να συσκευάζονται σε σάκκους, κατασκευασμένους από κατάλληλο πλαστική ύλη επαρκούς πάχους, τοποθετούμενοι ομοίως σε προστατευτικά είδη συσκευασίας κατασκευασμένα από φύλλο-χάλυβος, αλουμίνιο ή ξύλο. Εάν τα υπεροξειδία βγάζουν αέρια σε θερμοκρασία κάτω των 40°C, τα δοχεία πρέπει να πληρούν τους όρους του περιθωρίου 2555.

2558



ε.- Συσκευασία υλών της Ομάδας Ε

(1) Κόλα περιέχοντα ύλες της Ομάδας Ε θα ελ- 2559  
ναι εφοδιασμένα με μηχανισμό εξαερισμού επιτρέποντα  
την αντιστάθμισον μεταξύ της εσωτερικής πίεσεως και της  
ατμοσφαιρικής πίεσεως και σε κάθε περίπτωση -ακόμη και  
στη περίπτωση εκτονώσεως του υγρού δια θερμάνσεως-  
εμποδίζοντα το υγρό να εκτιναχθελ και ακαθαρσίες να ει-  
σέλθουν στο δοχείο.

(2) Δοχεία περιέχοντα υγρά οργανικά υπεροξειδία  
δεν πρέπει να πληρούνται πέραν του 95<sup>6</sup> εκατόν της χω-  
ρητικότητός των.

(1) Ύλες της 45<sup>0</sup>, 51<sup>0</sup> και 54<sup>0</sup> θα συσκευάζον- 2560  
ται, όχι περισσότερο από 50 KG ανά δοχείον ή σάκκον, σε  
δοχεία ή σάκκους κατασκευασμένους από κατάλληλη πλαστι-  
κή ύλη, τα οποία ή οι οποίοι θα τοποθετούνται σε κατάλ-  
ληλα προστατευτικά είδη συσκευασίας σε ποσότητες μη  
υπερβαίνουσες τα 50 KG ανά είδος συσκευασίας.

(2) Ύλες της 46<sup>0</sup>(α) θα συσκευάζονται, όχι περισ-  
σότερο από 5 KG ανά σάκκον, σε σάκκους κατασκευασμένους  
από κατάλληλη πλαστική ύλη, οι οποίοι θα τοποθετούνται,  
όχι άνω των 20 KG ανά είδος συσκευασίας και είτε ένας-ένας  
είτε ομαδικά, σε κατάλληλα προστατευτικά είδη συσκευασίας.

(3) Ύλες της 47<sup>0</sup>(α) θα συσκευάζονται:-

(α) όχι περισσότερο του 1 KG ανά δοχείον, σε δοχεία κατα-  
σκευασμένα από κατάλληλη πλαστική ύλη·

(β) όχι περισσότερο των 3 KG ανά μπόλ, σε μπόλ κατασκευα-  
σμένα από αργύλιον (αλουμίνιον) όχι λιγώτερο των 99.5  
εκατόν καθαρόν, με πλαστικά πώματα.

Το προστατευτικό είδος συσκευασίας δεν πρέπει να περιέχει περισσότερα των 10 KG της ύλης. (Συνεχίζεται)

2560

((4) Οι ύλες των 46<sup>ο</sup>(β) και (γ), 47<sup>ο</sup>(β), 48<sup>ο</sup>, 49<sup>ο</sup>(β), 50<sup>ο</sup>, 52<sup>ο</sup>, 53<sup>ο</sup> και 55<sup>ο</sup> θα συσκευάζονται, όχι άνω των 25 KG ανά δοχείο, σε δοχεία κατασκευασμένα από κατάλληλη πλαστική ύλη, τα οποία θα τοποθετούνται, όχι άνω των 50 KG ανά συσκευασίαν (αλλά όχι άνω των 25 KG ανά συσκευασίαν προκειμένου περί υλών της 52<sup>ο</sup>), σε προστατευτικές συσκευασίες.

(5) Οι ύλες της 49<sup>ο</sup>(α) θα συσκευάζονται, όχι άνω των 10 KG ανά δοχείο, σε δοχεία κατασκευασμένα από κατάλληλη πλαστική ύλη, τα οποία θα τοποθετούνται, όχι άνω των 40 KG ανά συσκευασίαν, σε προστατευτικές συσκευασίες.

(6) Κόβρα ζυγίζοντα άνω των 35 KG, τα οποία περιέχουν ύλες της Ομάδας Ε, θα είναι εφοδιασμένα με χειρολαβήν.

στ.- Συσκευασία υλών σε μικρές ποσότητες

Ύλες των I<sup>ο</sup> έως 22<sup>ο</sup>, 30<sup>ο</sup> και 31<sup>ο</sup>, αποστελλόμενες σε μικρές ποσότητες, μπορούν επίσης να συσκευάζονται ως κάτωθι:-

(α) υγρά

όχι άνω του 1 KG ανά κόνον, σε φιάλες, κατασκευασμένες από αργύλιον (αλουμίνιον), κατάλληλη πλαστική ύλη, ή ύαλο, με αναστολείς, κατασκευασμένους από κατάλληλη πλαστική ύλη, ή με κλεισίματα μοχλού ή κοχλιωτά κλεισίματα, έχοντα, και στη μία και στην

άλλη περίπτωση, ελαστικό παρέμβασμα. Οι φιάλες θα 2561  
 ασφαλίζονται με άλευρον καθαράς μίνας ή υαλο- (Συνεχίζεται)  
 έριο χρησιμοποιούμενα ως αποσβεστικό υλικό σε  
 κυτία ινοσανίδος ή ξύλινα. Το υλικό πληρώσεως  
 πρέπει να είναι επαρκές σε ποσότητα για να απορ-  
 ροφήσει ολόκληρο το υγρό. Οι φιάλες δεν πρέπει να  
 γεμίζονται πέραν του 75<sup>ου</sup> εκατόν της χωρητικό-  
 τητάς των.

- (β) σε κατάσταση ζύμης ή κονιοποιημένες ύλες  
 όχι άνω του 1 KG ανά κδλον, σε κυτία από αλου-  
 μίνιο ή από ινοσανίδα ή ξύλινα (των δύο τελευ-  
 ταίων επενδεδυμένων με αλουμίνιον ή με κατάλληλη  
 πλαστική ύλη) με γερδ κλεισιμον. Ελεύθερος χώρος  
 εκ 10<sup>ου</sup> εκατόν θα αφήνεται στα είδη συσκευασίας.

### 3.- Μικτή συσκευασία

Ύλες της Κλάσεως 5.2 μπορούν να εγκλείον- 2562  
 ται στο αυτό κδλον είτε με άλλες ύλες ή είδη της ADR  
 είτε με άλλα εμπορεύματα. Ύλες της Ομάδας Γ δεν πρέπει  
 να συμπεριλαμβάνονται στο αυτό κδλον με ύλες των Ομάδων  
 Α, Β ή Ε.

### 4.- Ενδείξεις (Μαρκάρισμα) και ετικέτες κινδύνου επί 2563 των κδλων (βλέπε Προσθήκη Α.9)

(I) Κάθε κδλον περιέχον ύλες της Κλάσεως 5.2 θα  
 φέρει ετικέτα σύμφωνα προς το μοντέλο Νο. 3.

Κδλα περιέχοντα ύλες των 46<sup>ο</sup>(α), 47<sup>ο</sup>(α) και  
 49<sup>ο</sup>(α) θα φέρουν επίσης ετικέτα σύμφωνα προς το μοντέλο  
 Νο. I.

(2) Κόβλα περιέχοντα εύθραυστα δοχεία αδράτα 2563  
 από έξω θα φέρουν ετικέτα σύμφωνον προς το μοντέλο (Συνεχίζεται)  
 Νο. 9. Εάν τα εύθραυστα δοχεία περιέχουν υγρά, τα κόβλα  
 επιπροσθέτως, με εξαίρεση τος σφραγισμένες αμπούλες,  
 θα φέρουν ετικέτες σύμφωνες προς το μοντέλο Νο. 8°  
 κόβλα περιέχοντα ύλες των 30°, 31°, 35°, 40° και 45°  
 έως 55° θα φέρουν επίσης ετικέτες σύμφωνες με το μον-  
 τέλο Νο. 8° οι ετικέτες αυτές θα τοποθετούνται ψηλά  
 σε δύο αντίθετες πλευρές των κιβωτίων ή κατά τρόπον  
 ισοδύναμον όταν χρησιμοποιούνται άλλα είδη συσκευασίας.

2564

Β.- Στοιχεία του εγγράφου μεταφοράς

Η περιγραφή των εμπορευμάτων στο έγγραφο μετα-2565  
 φοράς πρέπει να συμφωνεί προς μίαν των ονομασιών των  
υπογραμμισμένων στο περιθώριο 255I° πρέπει να υπογραμ-  
μίζεται με κόκκινο και να ακολουθείται από τα στοιχεία  
της κλάσεως, τον αριθμόν του είδους (μαζί με το, τυχόν,  
γράμμα), και τα αρχικά "ADR" ή "RID" (π.χ. 5.2, 8°(α),  
ADR).

2566-

2569

Γ.- Κενά είδη συσκευασίας

(I) Δοχεία και δεξαμεμές της 99° πρέπει να κλει-2570  
 νουν κατά τον αυτόν τρόπον και να είναι του αυτού βαθ-  
 μού στεγανά ως εάν ήσαν πλήρη.

(2) Η περιγραφή στο έγγραφο μεταφοράς πρέπει  
 να είναι: "Κενόν δοχείον, 5.2, 99° ADR (ή (RID))". Η περι-  
 γραφή αυτή πρέπει να υπογραμμίζεται με κόκκινο.

257I-  
2599

## ΚΛΑΣΗ 6.Ι ΤΟΞΙΚΕΣ ΥΛΕΣ

Ι.- Κατάλογος υλών

(1) Μεταξύ των υλών και ειδών των καλυπτομέ- 2600  
νων υπό τον τίτλον της Κλάσεως 6.Ι, οι αναγραφόμενες  
στο περιθώριο 260Ι ή οι καλυπτόμενες υπό του συλλογικού  
τίτλου του ανωτέρω περιθωρίου υπόκεινται στις διατάξεις  
του παρόντος Παραρτήματος και του Παραρτήματος Β. Οι  
ύλες και τα είδη αυτά που γίνονται δεκτά για μεταφορά  
υπό ωρισμένους όρους θεωρούνται ως ύλες και είδη της ADR.

(2) Ύλες της Κλάσεως 6.Ι που πολυμεροποιούνται  
ευκόλως δεν γίνονται δεκτές για μεταφορά εκτός εάν παρ-  
θούν αι απαραίτητοι προφυλάξεις ώστε να αποφεύγεται ο  
πολυμερισμός των διαρκούσης της μεταφοράς.

(3) Το παρακάτω αναφερόμενον σημείον-αναφλέξεως  
θα καθορίζεται κατά τον περιγραφόμενον στη Προσθήκη Α.3  
τρόπον.

A.- Τοξικές ύλες με σημείον-αναφλέξεως κάτω των 21<sup>ο</sup> C και  
σημείον-βρασμού κάτω των 200<sup>ο</sup> C 260Ι

I<sup>ο</sup> Υδροκυανικό οξύ και εύφλεκτες πτητικές ύλες που έχουν  
όμοιο τοξικό αποτέλεσμα, όπως:-

(α) υδροκυανικό οξύ περιέχον όχι περισσότερο του 3  
βτα εκατόν ύδωρ (απορροφούμενο από αδρανή πορώ-  
δη ύλη ή σε υγρή κατάσταση), υπό τον όρον ότι  
το γέμισμα των δοχείων εγένετο προ χρονικού δια-  
στήματος μικροτέρου του ενός έτους.

Σημείωση:- Υδροκυανικόν οξύ μή πληρούν τους όρους  
αυτούς δεν γίνεται δεκτό για μεταφορά.

(β) υδάτινα διαλύματα υδροκυανικού οξέος περιέχοντα 260Ι  
 όχι περισσότερο του 20<sup>6</sup> τοις εκατόν υδροκυανικό (Συνεχίζε-  
 ται).  
 οξύ (HCN).

Σημείωση: - Διαλύματα υδροκυανικού οξέος περιέχοντα  
 άνω του 20<sup>6</sup> τοις εκατόν υδροκυανικού οξέος (HCN) δεν  
 γίνονται δεκτά για μεταφορά.

2<sup>ο</sup> Νιτρίλια (οργανικά κυανιούχα άλατα) (κυανίδια), όπως

(α) ακρυλονιτρίλιο

(β) αιετονιτρίλιο (μεθυλικό κυανίδιο)

(γ) ισοβουτυρονιτρίλιο (ισοβουτυρικό νιτρίλιο)

3<sup>ο</sup> Άλλες νιτρογενείς οργανικές ύλες με τοξικότητα όχι  
 μικροτέραν εκείνης της αιθυλενεϊμίνης περιεχομένης όχι  
 άνω των 0.003 τοις εκατόν ολικού χλωρίου και των υδα-  
 τίνων αυτού διαλυμάτων.

Σημείωση: - ETHYLENEIMINE (Αιθυλενεϊμίνη) οποιασδήποτε  
 άλλης φύσεως δεν γίνεται δεκτή για μεταφορά.

4<sup>ο</sup> Αλογονούχοι οργανικοί υλαί, όπως:

(α) αλλυλικό χλωρίδιο

(β) χλωροφορμικό μεθύλιο

(γ) χλωροφορμικό αιθύλιο

5<sup>ο</sup> Μεταλλικά ανθρακύλια, όπως:-

(α) νικελιούχο ανθρακύλιο (NICKEL TETRACARBONYL)

(β) σιδηρούχο ανθρακύλιο (IRON PENTACARBONYL)

B. - Τοξικές ύλες με σημείο-αναφλέξεως 21<sup>ο</sup> C και άνω,  
και μη-εύφλεκτοι τοξικές ύλες, έχουσαι αμφότεραι  
σημείο βρασμού κάτω των 200<sup>ο</sup> C

11<sup>ο</sup> Αζωτούχοι οργανικές ύλες, όπως:-

(α) 2-CYANOPROPAN-2-OI (ακετονική κυανυδρίνη)

(β) ανιλίνη

12<sup>ο</sup> Αλογονούχοι οργανικές ύλες, όπως:-

(α) 1-CHLORO-2,3-EPOXYPROPANE (επιχλωροϊδρίνη)

(β) γλυκολική χλωροϊδρίνη (2-CHLOROETHANOL)

(γ) τετραχλωριούχο ακετυλένιο (1,1,2,2-TETRACHLORO-ETHANE)

(δ) χλωροπικρίνη

Σημείωση:- Μίγματα χλωροπικρίνης με χλωριούχο μεθύλιο ή βρωμιούχο μεθύλιο είναι ύλες της Κλάσεως 2 εάν η πίεση ατμού του μίγματος στους 50<sup>ο</sup>C υπερβαίνει τα 3 KG/CM<sup>2</sup> (βλέπε περιθώριο 220I 8<sup>ο</sup>(α)).

(ε) χλωριούχο TRICHLOROMETHANESULPHENYL (τριχλωρομεθανιοθειοφαινόλιο ;)

(στ) 2,2-DICHLORODIETHYL ETHER, (χλωροαιθυλαιθέρας, 2-χλωροαιθυλαιθέρας)

13<sup>ο</sup> Οξυγονούχοι οργανικές ύλες, όπως:-

(α) πνεύμα αλλυλίου (αλλυλική αλιοόλη)

(β) θειϊκόν διμεθύλιο (DIMETHYL SULPHATE)

(γ) φαινόλη

14<sup>ο</sup> Αλικύλια μόλυβδου, όπως τετρααιθυλικός μόλυβδος, τετραμεθυλικός μόλυβδος και μίγματα αλικυλίων μόλυβδου με αλογονούχες οργανικές ενώσεις, π.χ. αιθυλικόν ρευστόν.

Γ.- Τοξικές οργανικές ύλες με σημείο βρασμού 200<sup>ο</sup>C και άνω

21<sup>ο</sup> Αζωτούχοι οργανικές ύλες, όπως:-

(α) 2-βρωμοφαινολακετονιτρίλιο (βρωμοβενζοϋλικόν κυανίδιον)

- (β) χλωριούχο φαινολανθρακυλαμίνιο (PHENYL CARBYLAMINE 2601 CHLORIDE) (Συνεχίζεται)
- (γ) 2,4-DIISOCYANATOTOLUENE (διϊσοκυανατοτολουόλη)
- (δ) ισοθειακυανιδικό αλλύλιο (ALLYL ISOTHIOCYANATE)
- (ε) χλωροανιλίνες
- (στ) μονονιτροανιλίνες και δινιτροανιλίνες
- (ζ) ναφθυλαμίνες
- (η) 2,4-διαμινοτολουόλη
- (θ) δινιτροβενζόλια
- (ι) χλωρονιτροβενζόλια
- (κ) μονονιτροτολουόλαι
- (λ) δινιτροτολουόλαι
- (μ) νιτροξυλένια
- (ν) τολουΐδιναι
- (ξ) ξυλιδίναι

22° Οξυγονούχοι οργανικές ύλες μη καλυπτόμενες υπό των 21° και 23°, όπως:-

- (α) κρεζόλαι
- (β) ξυλινόλαι

23° Αλογονούχοι οργανικές ύλες μη καλυπτόμενες υπό της 21°, όπως:-

- (α) βρωμιούχο ξυλύλιο
- (β) χλωριούχο φαινακύλιο (PHENACYL CHLORIDE)  
W-CHLOROACETOPHENONE)
- (γ) βρωμιούχο φαινακύλιο (W-BROMOACETOPHENONE)
- (δ) 4-χλωροακετοφαινόνη (4-CHLOROACETOPHENONE)  
(METHYL P-CHLOROPHENYLKETONE)
- (ε) συμμετρική διχλωροακετόνη



Δ.- Ανόργανες ύλες που μπορούν να βγάλουν τοξικά αέρια 260I  
σε επαφή με οξέα (αλλά βλέπε υπό στοιχείον Ε για (Συνεχίζε-  
 κράματα πυριτίου). ται)

31<sup>ο</sup> Ανόργανα κυανίδια:-

(α) κυανίδια και σύνθετα κυανίδια σε στερεά μορφή

(β) διαλύματα ανοργάνων κυανιδίων

(γ) παρασκευάσματα ανοργάνων κυανιδίων

Σημείωση:- Σιδηροκυανίδια και σιδηρικυανίδια δεν  
 υπόκεινται στις διατάξεις της ADR.

32<sup>ο</sup> Τα παρακάτω αζίδια:-

(α) αζίδιο του νατρίου

(β) αζίδιο του βαρίου με όχι λιγώτερο του 50<sup>ο</sup>τος εκα-  
 τόν ύδωρ ή αλιοόλες, και υδάτινα διαλύματα αζιδίου  
του βαρίου.

Σημείωση:- Το αζίδιο του βαρίου σε ξηρά κατάσταση ή  
 με λιγώτερο του 50<sup>ο</sup>τος εκατόν ύδωρ ή αλιοόλες δεν  
 γίνεται δεκτό για μεταφορά.

33<sup>ο</sup> Φωσφίδιο ψευδαργύρου

Σημείωση:- Φωσφίδιο ψευδαργύρου ικανό για στιγμιαία  
 ανάφλεξη ή, υπό την επίδραση υγρασίας, να βγάλει το-  
 ξικά αέρια δεν γίνεται δεκτό για μεταφορά.

Ε.- Κράματα πυριτίου ικανά να βγάλουν τοξικά αέρια

41<sup>ο</sup> Σιδηρο-πυρίτιο και μαγγανο-πυρίτιο με άνω του 30 τοις  
 (α) εκατόν και κάτω του 70<sup>ο</sup>τος εκατόν πυρίτιο.

(β) κράματα σιδηρο-πυριτίου με αλουμίνιο, μαγγάνιο, ασβέστιο

ή περισσότερα του ενός των μετάλλων αυτών, με ολικό  
 περιεχόμενο πυριτίου και στοιχείων διαφόρων του σι-

σίδηρου και μαγγανίου μεγαλύτερο του 306τοις εκατόν 260I

αλλά λιγώτερο του 706τοις εκατόν,

(συνεχίζε-  
ται)

όλες οι ύλες της 4I<sup>ο</sup> να έχουν αποθηκευθεί για χρονικό διάστημα όχι μικρότερο των τριών ημερών σε ξηρό τόπο ανοικτό στον αέρα.

Σημείωση: - I.- BRIQUETTES (πλινθάκια), σιδηροπυριτίου και μαγγανοπυριτίου, ανεξαρτήτως του περιεχομένου σε πυρίτιο, δεν υπόκεινται στις διατάξεις της ADR.

2.- Ύλες της 4I<sup>ο</sup> δεν υπόκεινται στις διατάξεις της ADR εάν δεν κινδυνεύουν να βγάλουν επικίνδυνα αέρια υπό την επίδραση υγρασίας κατά την μεταφορά και ο αποστολέας βεβαιολού τούτο στο έγγραφο μεταφοράς.

3.- Ύλες της 4I<sup>ο</sup> που δεν αποθηκεύθηκαν για χρονικό διάστημα λιγώτερο των τριών ημερών σε ξηρό τόπον ανοικτόν στον αέρα δεν γίνονται δεκτές για μεταφορά.

ΣΤ. Άλλες τοξικές ανόργανες ύλες

51<sup>ο</sup> Βηρύλλιον υπό μορφήν κόνεως· ενώσεις βηρυλλίου υπό μορφήν κόνεως.

52<sup>ο</sup> Αρσενικά ενώσεις, όπως:-

(α) οξείδια αρσενικού.

(β) σουλφίδια αρσενικού

Σημείωσις: - Αναφορικώς με αρσενικές ύλες και παρασίτευα-  
σματα χρησιμοποιούμενα ως παρασιτοκτόνα, βλέπε υπό στοι-  
χελον 81<sup>ο</sup> (I), 82<sup>ο</sup> (I) και 83<sup>ο</sup> (I).

~~Ενώσεις~~ υδραργύρου, όπως

260I

Χλωριούχος υδράργυρος (διχλωριούχος υδράργυρος),  
εκτός κιννάβαρι και υποχλωριούχου υδραργύρου (CALOMEL).

(Συνεχίζεται)

Σημειώσεις: - Αναφορικώς με υδραργυρικές ύλες και παρασκευάσματα χρησιμοποιούμενα ως παρασιτοκτόνα, βλέπε υπό στοιχείον 81<sup>ο</sup>(στ), 82<sup>ο</sup>(στ) και 83<sup>ο</sup>(στ).

#### 54<sup>ο</sup> Ενώσεις θαλλίου

Σημειώσεις: - Αναφορικώς με ύλες και παρασκευάσματα περιέχοντα θάλλιον και χρησιμοποιούμενα ως παρασιτοκτόνα, βλέπε υπό στοιχείον 81<sup>ο</sup>(η), 82<sup>ο</sup>(η) και 83<sup>ο</sup>(η).

#### Z. - Αλογονούχες οργανικές ύλες με επιβλαβές ή ερεθιστικό αποτέλεσμα

61<sup>ο</sup> Αλογονούχες οργανικές ύλες, πτητικές, εύφλεκτοι ή μη-εύφλεκτοι, με σημείον-αναφλέξεως 21<sup>ο</sup>C και άνω και σημείον βρασμού κάτω των 200<sup>ο</sup>C, όπως:-

(α) αιθυλενικό διβρωμίδιο (συμμετρικό διβρωμοαιθάνιο)

(β) χλωροακετόνη

(γ) βρωμοακετόνη

(δ) 1, 2-DIBROMOBUTAN-3-ONE

(ε) μεθυλικό χλωρο-οξικό άλας

(στ) αιθυλικό χλωρο-οξικό άλας

(ζ) μεθυλικό βρωμο-οξικό άλας

(η) αιθυλικό βρωμο-οξικό άλας

(θ) 1,1-DICHLORO-1-NITROETHANE

(ι) χλωριούχο βενζύλιο (βενζυλοχλωρίδιο)

(κ) 1-CHLORO-1-NITROPROPANE

62° Άλογονούχοι οργανικές ύλες χαμηλής πτητικότητας με σημείον βρασμού 200° C και άνω και μη καλυπτόμενες (Συνεχίζονται) υπό της 23°, όπως:-

(α) βενζυλο-ιωδίδιο (BENZYL IODIDE)

(β) τετραβρωμιούχο αιετυλένιο (1,1,2,2-TETRABROMOETHANE)

H.- Ανόργανες ύλες με επιβλαβές αποτέλεσμα

71° Ενώσεις βαρίου, όπως οξειδίο του βαρίου, υδροξείδιο του βαρίου, σουλφίδιο του βαρίου και άλλα άλατα βαρίου (εκτός θειϊνού βαρίου και τιτανικού βαρίου).

Σημειώσεις:- Χλωριϊκό βάριο, υπερχλωριϊκό, αζωτούχο, νιτρώδες, διοξειδίο του βαρίου, υπερμαγγανικό είναι ύλες της Κλάσεως 5.1 (βλέπε περιθώριο 250I υπό στοιχείον 4° (α) και (β), 7° (γ), 8° και 9° (β) και (γ)).

72° Ενώσεις μολύβδου, όπως οξειδία μολύβδου, άλατα μολύβδου συμπεριλαμβανομένων του οξεινού μολύβδου, χρωστικών μολύβδου (π.χ. λευκός μόλυβδος και χρωμιϊκό μόλυβδος), εκτός τιτανικού μολύβδου και θειούχου μολύβδου (γαληνίτου).

Σημειώσεις:- Χλωριϊκός μόλυβδος, υπερχλωριϊκός μόλυβδος και αζωτούχος μόλυβδος είναι ύλες της Κλάσεως 5.1 (βλέπε περιθώριο 250I 4° (α) και (β) και 7° (γ)).

73° Υπολείμματα και απορρίματα περιέχοντα ενώσεις αντιμονίου ή μολύβδου ή αμφότερα, π.χ. τέφρα μολύβδου ή αντιμονίου ή μολύβδου και αντιμονίου· ιλύς μολύβδου περιέχουσα λιγώτερο του 3 τοις εκατόν ελεύθερον οξύ.

Σημειώσεις:- Ιλύς μολύβδου περιέχουσα 3 τοις εκατόν και άνω ελεύθερον οξύ είναι ύλες της Κλάσεως 8 (βλέπε περιθώριο 280I, 1° (ε)).

74<sup>ο</sup> Ενώσεις βαναδίου υπό μορφήν κόνεως, όπως ΠΕΝΤΟΞΕΙΔΙΟ 260I βαναδίου και βαναδικά άλατα. (Συνεχίζεται)

Σημείωση: - Χλωριδ βανάδιο και υπερχλωριδ βανάδιο είναι ύλες της Κλάσεως 5.I (βλέπε περιθώριο 250I, 4<sup>ο</sup> (α) και (β)).

75<sup>ο</sup> Ενώσεις αντιμονίου, όπως οξειδία αντιμονίου και άλατα αντιμονίου, εκτός αντιμονίτου.

Σημείωση: - Χλωριδόν αντιμόνιον και υπερχλωριδόν αντιμόνιον είναι ύλες της Κλάσεως 5.I. (βλέπε περιθώριο 250I, 4<sup>ο</sup> (α) και (β)). Πενταχλωριούχο αντιμόνιο, τριχλωριούχο αντιμόνιο και πενταφθοριούχο αντιμόνιο είναι ύλες της Κλάσεως 8 (βλέπε περιθώριο 280I II<sup>ο</sup> (α), I2<sup>ο</sup> και I5<sup>ο</sup> (β)).

θ.- Ύλες και παρασκευάσματα χρησιμοποιούμενα ως παρασιτοκτόνα

8I<sup>ο</sup> Ύλες και παρασκευάσματα παρουσιάζοντα κίνδυνον πολύ σοβαράς δηλητηρίασεως:-

(α) Οργανο-φωσφορώδεις ενώσεις, όπως:- AZINPHOS-ETHYL, AZINPHOSMETHYL, DEMETON-I/S, DIMEFOX, ENDOTHION, HETP, MECARBAM, METHYLPARATHION, MEVINPHOS, PARATHION, PHOSPHAMIDON, SULFOTEP και TEPP, και παρασκευάσματα περιέχοντα άνω του 10<sup>ο</sup>τα εκατόν των υλών αυτών.

(β) Αλογονούχοι οργανικές συνθέσεις (ενώσεις), όπως:- ALDRIN, DIELDRIN, HEPTACHLOR, και παρασκευάσματα περιέχοντα άνω του 10<sup>ο</sup>τα εκατόν των υλών αυτών.

(γ) Αζωτούχοι οργανικές ενώσεις, όπως:- 4,6-DINITROPENOL,

DINOSEB, DINITROPHENYL ACETATE, DINOTRO-O-CRESOL, 260I  
 και παρασκευάσματα περιέχοντα άνω του 50<sup>6</sup>τοις εκα- (Συνεχίζε-  
 τόν των υλών αυτών. ται)

(δ) Καρβαμιδικά και παράγωγα ουρίας, όπως: ANTU, ISOLAN,  
 και παρασκευάσματα περιέχοντα άνω του 25<sup>6</sup>τοις εκατόν  
 των υλών αυτών.

(ε) Αλκαλοΐδη, όπως: νικοτίνη, βρουκίνη, στρυχνίνη, ή  
 τα άλατα αυτών, και παρασκευάσματα περιέχοντα άνω  
 του 10<sup>6</sup>τοις εκατόν των υλών αυτών.

(στ) Οργανικές ενώσεις μετάλλων, όπως:-

1.- οργανικές υδραργυρικές ενώσεις, και παρασκευά-  
 σματα περιέχοντα άνω των 5<sup>6</sup>τοις εκατόν των υλών  
 αυτών.

2.- τριαλκύλια και τριαρύλια ενώσεις κασιτέρου,  
 και παρασκευάσματα περιέχοντα άνω του 25<sup>6</sup>τοις  
 εκατόν των υλών αυτών.

(ζ) Άλλες οργανικές ενώσεις, όπως: CUMACHLOR, SODIUM  
FLUORACETATE, FLUORACETAMIDE, PINDOME, WARFARIN,  
 και παρασκευάσματα περιέχοντα άνω του 5<sup>6</sup>τοις εκατόν  
 των υλών αυτών.

(η) Ανόργανες ενώσεις μετάλλων, όπως: ενώσεις θαλλίου,  
 και παρασκευάσματα άνω του 10<sup>6</sup>τοις εκατόν των υλών  
 αυτών.

(θ) Άλλες ανόργανες ενώσεις, όπως:- ενώσεις αρσενικού,  
 και παρασκευάσματα περιέχοντα άνω του 10<sup>6</sup>τοις  
 εκατόν των υλών αυτών.

82<sup>ο</sup> Ύλες και παρασκευάσμα παρουσιάζοντα κίνδυνον σοβαράς  
 δηλητηριάσεως:-

(α) Οργανο-φωσφορώδεις ενώσεις, όπως:-

2601

(Συνεχίζεται)

- 1.- DEMETON-OS-METHYL, DIOXATION, ETHION,  
FENTHION, PHENKAPTON, THIOMETON, και παρα-  
σκευάσματα περιέχοντα άνω του 25 βτα εκατόν  
των υλών αυτών.
- 2.- παρασκευάσματα AZINPHOS-ETHYL, AZINPHOS-METHYL,  
DEMETON-OS, DIMEFOX, ENDOTHION, HETP, MECARBAM,  
METHYLPARATHION, MEVINPHOS, PARATHION, PHOSPHAMIDON,  
SULFOTEP και TEPP, περιέχοντα άνω του 2 βτα εκα-  
τόν αλλά όχι άνω του 10 βτα εκατόν ενεργόν ύλην.

(β) Αλογονούχοι οργανικές ενώσεις, όπως:-

- 1.- TOXAPHENE, PENTACHLOROPHENOL, και παρασκευάσματα  
περιέχοντα άνω του 20 βτα εκατόν των υλών αυτών.
- 2.- GAMMA-BHC (GAMMEXANE), DDT, και παρασκευάσματα πε-  
ριέχοντα άνω του 50 βτα εκατόν των υλών αυτών.

(γ) Παρασκευάσματα αζωτούχων οργανικών ενώσεων, όπως:-

- 1.- παρασκευάσματα 4,6-DINITROPHENOL, DINOSEB, DINI-  
TROPHENYL ACETATE και DINITRO-O-CRESOL, περιέχοντα  
άνω του 10 βτα εκατόν αλλά όχι άνω του 50 βτα ε-  
κατόν ενεργόν ύλην.
- 2.- παρασκευάσματα BINAPACRYL, περιέχοντα άνω του 50  
βτα εκατόν ενεργόν ύλην.

(δ) Καρβαμιδικά και παράγωγα ουρίας, όπως:-

- 1.- DIMETHAN, URBAZID, και παρασκευάσματα περιέχοντα  
άνω του 25 βτα εκατόν των υλών αυτών.
- 2.- παρασκευάσματα της ANTU και ISOLAN, περιέχοντα άνω  
του 5 βτα εκατόν αλλά όχι άνω του 25 βτα εκατόν  
ενεργόν ύλην.

- (ε) Παρασκευάσματα αλκαλοϊδών, όπως: παρασκευάσμα- 260I  
τα νικοτίνης, βρουκίνης, και στρυχνίνης, ή (Συνεχίζε-  
 ται))  
 τα άλατα αυτών, περιέχοντα άνω του 2.56τοι εκα-  
 τόν αλλά όχι άνω του 106τοι εκατόν ενεργόν ύλην.
- (στ) Παρασκευάσματα οργανικών ενώσεων μετάλλων, όπως:
- (1) οργανικά παρασκευάσματα υδραργύρου, περιέ-  
 χοντα άνω του 16τοις εκατόν αλλά όχι άνω του  
 56τοι εκατόν ενεργόν ύλην.
- (2) παρασκευάσματα τριαλκυλικών και τριαρυλικών  
ενώσεων κασσιτέρου, περιέχοντα άνω του 56τοι  
 εκατόν αλλά όχι άνω του 256τοις εκατόν ενεργόν  
 ύλην.
- (ζ) Παρασκευάσματα άλλων οργανικών ενώσεων, όπως:-
- 1.- παρασκευάσματα CUMACHLOR, SODIUM FLUORACETATE,  
PINDONE και WARFARIN, περιέχοντα άνω του 16τοι  
 εκατόν αλλά όχι άνω του 56τοι εκατόν ενεργόν  
 ύλην.
- 2.- παρασκευάσματα FLUORACETAMIDE, περιέχοντα όχι  
 άνω του 56τοι εκατόν ενεργόν ύλην.
- (η) Παρασκευάσματα ανοργάνων ενώσεων μετάλλων, όπως:-  
παρασκευάσματα ενώσεων θαλλίου, περιέχοντα άνω  
 του 2.56τοις εκατόν αλλά όχι άνω του 106τοις εκα-  
 τόν ενεργόν ύλην.
- (θ) Παρασκευάσματα άλλων ανοργάνων ενώσεων, όπως:-  
παρασκευάσματα ενώσεων αρσενικού, περιέχοντα όχι  
 άνω του 2.56τοις εκατόν αλλά όχι άνω του 106τοις  
 εκατόν ενεργόν ύλην.



83<sup>ο</sup> Επιβλαβείς ύλες και παρασκευάσματα:-

2601

(α) Οργανο-φωσφορώδεις ενώσεις, όπως:-

(Συνεχίζεται)

- 1.- ΔΙΑΖΙΝΟΝ, ΔΙΜΕΘΟΑΤΕ, ΤΡΙΧΛΟΡΦΟΝ, ΜΑΛΑΘΙΟΝ, και παρασκευάσματα περιέχοντα άνω του 56τοα εκατόν των υλών αυτών.
- 2.- παρασκευάσματα ΔΕΜΕΤΟΝ-Ο/S-METHYL, ΔΙΟΧΑΘΙΟΝ, ΕΘΙΟΝ, ΦΕΝΘΙΟΝ, ΡΗΕΝΚΑΡΤΟΝ και ΘΙΟΜΕΤΟΝ, περιέχοντα άνω του 2.56τοα εκατόν αλλά όχι άνω του 256τοα εκατόν ενεργόν ύλην.
- 3.- παρασκευάσματα ΑΖΙΝΦΟΣ-ΕΘΥΛ, ΑΖΙΝΦΟΣ-ΜΕΘΥΛ, ΔΕΜΕΤΟΝ-Ο/S, ΔΙΜΕΦΟΧ, ΕΝΔΟΘΙΟΝ, ΗΕΤΡ, ΜΕΚΑΡΒΑΜ, ΜΕΘΥΛΠΑΡΑΘΙΟΝ, ΜΕΒΙΝΦΟΣ, ΠΑΡΑΘΙΟΝ, ΦΟΣΦΑΜΙΔΟΝ, ΣΥΛΦΟΤΕΡ και ΤΕΡΡ, περιέχοντα όχι άνω του 2.56τοα εκατόν ενεργόν ύλην.

(β) Παρασκευάσματα αλογονούχων οργανικών ενώσεων, όπως:-

- 1.- παρασκευάσματα ΤΟΧΑΡΗΕΝΕ και ΡΕΝΤΑΧΛΟΡΟΦΗΝΟΛ, περιέχοντα άνω του 56τοα εκατόν αλλά όχι άνω του 206τοα εκατόν ενεργόν ύλην.
- 2.- παρασκευάσματα ΓΑΜΜΑ-ΒΗC (GAMMEXANE) και DDT, περιέχοντα άνω του 106τοα εκατόν αλλά όχι άνω του 506τοα εκατόν ενεργόν ύλην.
- 3.- παρασκευάσματα ΑΛΔΡΙΝ, ΔΙΕΛΔΡΙΝ και ΗΕΡΤΑΧΛΟΡ, περιέχοντα άνω του 2.56τοα εκατόν αλλά όχι άνω του 106τοα εκατόν ενεργόν ύλην.

(γ) Παρασκευάσματα αζωτούχων οργανικών ενώσεων, όπως:

- 1.- παρασκευάσματα ΒΙΝΑΡΑΚΡΥΛ, περιέχοντα άνω του 106τοα εκατόν αλλά όχι άνω του 506τοα εκατόν ενεργόν ύλην.

2.- παρασκευάσματα 4,6-DINITROPHENOL, DINOSEB, 260I  
DINITROPHENYL ACETATE και DINITRO-O-CRESOL, (Συνεχίζε-  
 περιέχοντα άνω του 2.56τσα εκατόν και όχι άνω  
 του 106τσα εκατόν ενεργόν ύλην. ται)

(δ) Παρασκευάσματα καρβαμιδιικών και παραγώγων ουρίας,  
 όπως:-

1.- παρασκευάσματα ANTU και ISOLAN, περιέχοντα άνω  
 του 16τσα εκατόν αλλά όχι άνω του 56τσα εκα-  
 τόν ενεργόν ύλην.

2.- παρασκευάσματα DIMETHAN και URBAZID, περιέχοντα  
 άνω του 2.56τσα εκατόν αλλά όχι άνω του 256τσα  
 εκατόν ενεργόν ύλην.

(ε) Παρασκευάσματα αλκαλοϊδών, όπως:- παρασκευάσματα νι-  
κοτίνης, βρουκίνης και στρυχνίνης, ή τα άλατα αυτών,  
 περιέχοντα όχι άνω του 2.56τσα εκατόν ενεργόν ύλην.

(στ) Παρασκευάσματα οργανικών ενώσεων μετάλλων, όπως:-

1.- παρασκευάσματα οργανικών υδραργυρικών ενώσεων,  
 περιέχοντα όχι άνω του 16τσα εκατόν ενεργόν ύλην.

2.- παρασκευάσματα τριαλκυλικών και τριαρυλικών ενώ-  
σεων κασσιτέρου, περιέχοντα άνω που 16τσα εκα-  
 τόν αλλά όχι άνω του 56τσα εκατόν ενεργόν ύλην.

(ζ) Παρασκευάσματα άλλων οργανικών ενώσεων, όπως:-

παρασκευάσματα CUMACHLOR, SODIUM FLUORACETATE, PINDONE  
 και WARFARIN, περιέχοντα όχι άνω του 16τσα εκατόν ενε-  
 γόν ύλην.

(η) Παρασκευάσματα ανοργάνων ενώσεων μετάλλων, όπως:-

παρασκευάσματα ενώσεων θαλλίου, περιέχοντα όχι άνω  
 του 2.56τσα εκατόν ενεργόν ύλην.

Παρασκευάσματα άλλων ανοργάνων ενώσεων, όπως: - 260Ι  
παρασκευάσματα ενώσεων αρσενικού, περιέχοντα όχι (Συνεχίζεται)  
 άνω του 2.56 τοις εκατόν ενεργόν ύλην.

84<sup>ο</sup> (α) κβκκοι δημητριακών και σπόροι εμποτισμένοι με  
 ένα ή περισσότερα παρασιτοκτόνα ή άλλες τοξικές  
 ουσίες της Κλάσεως 6.Ι, χρησιμοποιούμενες ως παρα-  
 σιτοκτόνα.

(β) ακαθάριστοι (DRESSED SEEDS)  
σπόροι χρησιμοποιούμενοι με παρασιτοκτόνα ή με  
 άλλες τοξικές ύλες της Κλάσεως 6.Ι, αλλά μη χρη-  
 σιμοποιούμενοι ως παρασιτοκτόνα.

Ι.- Κενά είδη συσκευασίας:

91<sup>ο</sup> Κενά είδη συσκευασίας, ακαθάριστα, κενές δεξαμενές,  
 ακαθάριστες, και κενοί σάκκοι, ακαθάριστοι, που περι-  
 είχαν ύλες των Ι<sup>ο</sup> - 5<sup>ο</sup>, ΙΙ<sup>ο</sup> - Ι4<sup>ο</sup>, 2Ι<sup>ο</sup> - 23<sup>ο</sup>, 3Ι<sup>ο</sup> -  
 33<sup>ο</sup>, 4Ι<sup>ο</sup>, 5Ι<sup>ο</sup> - 54<sup>ο</sup>, 8Ι<sup>ο</sup> και 82<sup>ο</sup>.

92<sup>ο</sup> Κενά είδη συσκευασίας, ακαθάριστα, κενές δεξαμενές,  
 ακαθάριστες, και κενοί σάκκοι, ακαθάριστοι, που περι-  
 είχαν ύλες των 6Ι<sup>ο</sup>, 62<sup>ο</sup>, 7Ι<sup>ο</sup> - 75<sup>ο</sup>, 83<sup>ο</sup> και 84<sup>ο</sup>.

Σημειώσεις:- 91<sup>ο</sup> και 92<sup>ο</sup>. Κενά είδη συσκευασίας με  
 υπολείμματα του προηγούμενου περιεχομένου των κολ-  
 λημένα εξωτερικώς δεν γίνονται δεκτά για μεταφορά.

## 2.- Διατάξεις

Α.Θ Κόλα

2602

Ι.- Γενικοί όροι συσκευασίας

(Ι) Τα είδη συσκευασίας θα είναι έτσι κλεισμέ-  
 να και διευθετημένα ώστε να αποφεύγεται οποιαδήποτε απώ-  
 λεια του περιεχομένου. Για την ειδική διάταξη την αναφε-

ρομένην στις ύλες της 4I<sup>ο</sup> βλέπε περιθώριο 2618.

2602

(2) Τα υλικά από τα οποία τα είδη συσκευασίας και τα κλεισίματά των είναι κατασκευασμένα δεν πρέπει να κινδυνεύουν να προσβληθούν από το περιεχόμενο ή να σχηματίζουν με αυτό επιβλαβείς ή επικινδύνους ενώσεις.

(Συνεχίζεται)

(3) Τα είδη συσκευασίας, περιλαμβανομένων των κλεισιμάτων των, πρέπει να είναι επαρκώς άκαμπτα και γερά σε όλα τα μέρη των ώστε να εμποδίζεται οποιαδήποτε χαλάρωση διαρκούσης της μεταφοράς και να πληρούν τους συνήθεις όρους μεταφοράς. Ειδικότερα, οσάκις οι ύλες είναι σε υγρά κατάσταση ή σε διάλυμα, ή έχουν υγροποιηθεί με υγρό, τα δοχεία και τα κλεισίματά των πρέπει, εκτός εάν το άρθρο το τιτλοφορούμενο "Συσκευασία μιάς ύλης" προβλέπει άλλως, να είναι σε θέση να ανθίστανται σε οποιαδήποτε πλεση η οποία, λαμβανομένης επίσης υπόψη της υπάρξεως αέρος, μπορεί να εγερθεί εσωτερικώς των δοχείων κατά την συνήθη μεταφοράν. Για τον σκοπόν αυτόν ελεύθερος χώρος πρέπει να αφήνεται, λαμβανομένης υπόψη της διαφοράς μεταξύ της θερμοκρασίας των υλών κατά το γέμισμα και της ανωτάτης μέσης θερμοκρασίας την οποίαν ενδέχεται να φθάσουν διαρκούσης της μεταφοράς. Οι εσωτερικές συσκευασίες θα είναι θετικά ασφαλισμένες στις εξωτερικές συσκευασίες. Εκτός εάν άλλως ορίζεται στο άρθρο το τιτλοφορούμενο "Συσκευασία μιάς ύλης", οι εσωτερικές συσκευασίες μπορούν να εγκλείονται στις εξωτερικές, είτε μία-μία είτε ομαδικά.

(4) Φιάλες και άλλα γυάλινα δοχεία πρέπει να 2602  
είναι ελεύθερα από βλάβες ικανές να εξασθενήσουν την (Συνεχί-  
αντοχήν τους ειδικότερα, πρέπει να αίρονται καταλ- ζεται)  
λήλως οι εσωτερικές τάσεις. Το πάχος των τοιχωμάτων  
πρέπει να μὴν εἶναι λιγώτερο των 3 MM (χιλ.) προκει-  
μένου περί δοχείων τα οποία, μαζί με το περιεχόμενόν  
τους, ζυγίζουν ἄνω των 35 KG, και πάχος ὄχι μικρότε-  
ρο των 2 MM (χιλ.) προκειμένου περί ἄλλων δοχείων.

Ἡ στεγανότητα τοῦ συστήματος κλεισίματος  
πρέπει να εξασφαλίζεται με πρόσθετον μηχανισμόν  
(πώμα, στέμμα (κορώνα), σφραγίδα, δέσιμο, κλπ.)  
ικανόν να εμποδίζει οποιαδήποτε χαλάρωση τοῦ συστή-  
ματος κλεισίματος διαρκούσης τῆς μεταφοράς, ἐκτός ἐάν το  
κλεισίμα κλεισίμον αποτελοῦν δύο πώματα, πο ἓνα ἐπά-  
νω στο ἄλλο, το ἓνα των οποίων να εἶναι κοχλιωτό.

(5) Οσάντις δοχεία κατασκευασμένα ἀπό ὑάλον,  
πορσελάνη, εἶδη κεραμεικῆς ἢ παρόμοιο υλικό προβλέ-  
πονται ἢ ἐπιτρέπονται, πρέπει να ἀσφαλίζονται με ἀπο-  
σβεστικό υλικό σε προστατευτικά εἶδη συσκευασίας. Το  
ἀποσβεστικό υλικό θα ταιριάζει με τὴν φύση τοῦ περιε-  
χομένου· ειδικότερα, θα εἶναι ἀπορροφητικό ὅταν το  
περιεχόμενο εἶναι υγρόν.

(6) Ὅταν παραδίδονται γιὰ μεταφορά, τα κόλα  
δεν πρέπει να ἔχουν μολυνθεῖ ἐξωτερικῶς ἀπό τοξικῆς  
ὕλης.

## 2.- Συσκευασία μιᾶς ὕλης

2603

(I) Το υδροκυανικό οξύ και εὐφλεκτοί πτητικαί

ύλες έχουσες όμοιο τοξικό αποτέλεσμα ( $I^{\circ}(\alpha)$ ) θα συ- 2603  
σκευάζονται:- (Συνεχίζε-  
ται)

(α) όταν απορροφούνται πλήρως από αδρανές πορώδες υλι-  
κό: σε γερά κυτία από φύλλο-μετάλλου, με χωρητικό-  
τητα όχι μεγαλύτερα των 7.5 λίτρων, εξ ολοκλήρου γε-  
μισμένα με το πορώδες υλικό, το οποίο πρέπει να εί-  
ναι τέτοιας φύσεως ώστε να μη στοιβάζεται κουνώντας  
το ή σχηματίζει επικινδύνους χώρους, ακόμη και μετά  
από παραταθείσαν χρήσιν ή υπό πρόσκρουσιν, σε θερμο-  
κρασίες μέχρι  $50^{\circ}C$ . Τα κυτία πρέπει να είναι σε θέση  
να ανθίστανται σε πίεση  $6 \text{ KG}/\text{CM}^2$  και πρέπει, όταν  
γεμισθούν στους  $15^{\circ}C$ , να εξακολουθούν να είναι στε-  
γανά στους  $50^{\circ}C$ . Η ημερομηνία του γεμίσματος θα σταμ-  
πάρεται στο κάλυμμα κάθε κυτίου. Τα κυτία θα τοποθε-  
τούνται σε κιβώτια συσκευασίας με πλευρές πάχους όχι  
μικροτέρου των 18 MM (χιλ.) κατά τοιούτον τρόπον  
ώστε να μη μπορούν να έλθουν σε επαφή το ένα με τό  
άλλο. Η ολική χωρητικότητα των κυτίων σε ένα κιβώτιο  
συσκευασίας δεν πρέπει να υπερβαίνει τα 120 λίτρα και  
το βάρος δεν πρέπει να ζυγίζει πάνω από 120 KG.

(β) όταν υγρές αλλά χωρίς να έχουν απορροφηθεί από πορώ-  
δες υλικό: σε δοχεία από ανθρακο-χάλωβα (CARBON-STEEL  
RECEPTALS). Αυτά θα είναι σύμφωνα προς το πνεύμα των  
διατάξεων που διέπουν τα τέτοια δοχεία της Κλάσεως 2,  
περιθώρια 22I1, 22I2(I), 22I3, 22I5 και 22I8, μετά  
των παρακάτω ανακλήσεων και ειδικών όρων:-

Η εσωτερική πίεση η οποία θα εφαρμοσθεί για τον

έλεγχου υδραυλικής πίεσεως πρέπει να είναι  $100 \text{ KG/CM}^2$ . 2603

Ο έλεγχος της πίεσεως θα επαναλαμβάνεται (Συνεχίζεται) κάθε δύο χρόνια, ότε και υπερβολικά λεπτολόγος επιθεώρησις του εσωτερικού των δοχείων θα διεξάγεται είσης και θα καθορίζεται το βάρος του δοχείου.

Επιπροσθέτως των ενδείξεων των προβλεπομένων στο περιθώριο 2218(I)(α)-(γ) και (ε)-(ζ), τα δοχεία πρέπει να φέρουν την ημερομηνίαν (μήνα, έτος) του ηρό τελευταίου γεμίσματος.

Το ανώτατο επιτρεπόμενο γέμισμα για τα δοχεία είναι 0.55 KG υγρό ανά λίτρο χωρητικότητας.

(γ) Αναφορικώς με τα στοιχεία του εγγράφου μεταφοράς, βλέπε περιθώριο 2634(2).

(2) Υδάτινα διαλύματα του υδροκυανικού οξέος ( $\text{I}^\circ(\beta)$ ) θα συσκευάζονται εντός φλογοστεγανών υαλίνων αμπουλών περιεχουσών όχι περισσότερα των 50 γραμμ., ή εντός υαλίνων με αναστολέα φιαλών κλεισμένων κατά τρόπον ώστε να είναι στεγανές και να περιέχουν όχι περισσότερα των 250 γραμμαρίων. Οι αμπούλες και φιάλες θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε κυτία από πλάκα-κασσιτέρου μαλακής συγκολλησεως ή σε προστατευτικά κιβώτια με επένδυση πλακός-κασσιτέρου μαλακής συγκολλησεως. Κόλον αποτελούμενον από κυτίον εκ πλακός-κασσιτέρου δεν πρέπει να ζυγίζει περισσότερο των 15 KG ή να περιέχει περισσότερο από 3 KG διάλυμα υδροκυανικού οξέος· κόλον αποτελούμενον από κιβώτιον δεν πρέπει να ζυγίζει περισσότερο των 75 KG.

(I) Οι ύλες της 2<sup>ο</sup> θα συσκευάζονται:-

2604

(α) I.- σε κάνιστρα από φύλλο-χάλυβος με τοιχώματα πάχους όχι μικροτέρου του 1 MM (χιλ.) και χωρητικότητας μη υπερβαίνουσας τις 60 λίτρες, των ανοιγμάτων κλειομένων με δύο πώματα, το ένα τοποθετημένο πάνω από το άλλο, του ενός τούτων όντος κοχλιωτού. Τα από φύλλο-χάλυβος κάνιστρα πρέπει να έχουν συγκολλημένες κατά μήκος ραφές, δύο ενισχυτικές δοκίδες στα τοιχώματα, και προστατευτική στεφάνη κάτω από τον αρμόν του πυθμένος. Κάνιστρα χωρητικότητας 40 - 60 λιτρών πρέπει να έχουν τους πυθμένες τους συγκολλημένους και να διαθέτουν χειρολαβήν στο πλευρόν· ή

2.- σε εξ ολοκλήρου συγκολλημένα βαρέλια από χάλυβα με τοιχώματα πάχους όχι μικροτέρου των 1.25 MM (χιλ.), εφοδιασμένα με κυλιόμενες στεφάνες (ROLLING HOOPS) και ενισχυτικές δοκίδες, και τα ανοίγματα τους να κλείνουν με δύο πώματα, το ένα τοποθετούμενο πάνω στο άλλο, του ενός τούτων όντος κοχλιωτού.

(β) Το ακρυλονιτρίλιο μπορεί επίσης να συσκευάζεται:-

I.- σε φιάλες από αργύλιο (αλουμίνιο) χωρητικότητας μη υπερβαίνουσας τα 2 λίτρα, ασφαλισμένες με τριπολική γή ως αποσβεστικό υλικό εντός δοχείων από φύλλο-μετάλλου των οποίων τα πώματα (καλύμματα) θα κολλούν σταθερά με κατάλληλες κολλητικές λωρίδες. Τα από φύλλο-μετάλλου δοχεία θα τοποθετούνται, με



το υλικό γεμίσματος, σε ξύλινα κιβώτια. Το κόλον 2604 δεν πρέπει να ζυγίζει περισσότερο από 75 KG. ή (Συνεχίζεται))

2.- σε μη-επιστρεπτέα μεταλλικά βαρέλια (των καινούργιών συσκευασιών προοριζομένων όπως χρησιμοποιηθούν μόνον μία φορά)\* τα βαρέλια αυτά, των οποίων τα τοιχώματα δεν θα έχουν πάχος μικρότερον των 1.2 MM (χιλ.), θα είναι εφοδιασμένα με κοχλιωτό πώμα διαθέτον παρέμβαση. Το πώμα θα ευρίσκεται επί του ενός των άκρων και θα προστατεύεται από την στεφάνη του βαρελιού. Τα βαρέλια μπορεί να έχουν κορμόν με έχοντα υποδοχήν άκρα και αρμούς ενισχυμένους με ούγια\* εάν δεν διαθέτουν κυλιόμενες στεφάνες θα εφοδιασθούν με ενισχυτικές δοκίδες. Το κόλον δεν πρέπει να ζυγίζει περισσότερο από 200 KG. Η μεταφορά μη-επιστρεπτέων βαρελιών θα λαμβάνει χώραν μόνον ως πλήρες φορτίο πάνω σε ανοικτά οχήματα\* ή

3.- σε μη-επιστρεπτέα βαρέλια από χάλυβα (των καινούργιών συσκευασιών προοριζομένων να χρησιμοποιηθούν μόνον μία φορά) έχοντα πλευρές κατασκευασμένες από φύλλο μετάλλου πάχους 1.24 MM (χιλ.), άκρα κατασκευασμένα από φύλλο μετάλλου πάχους 1.5 MM (χιλ.), και απόβαρο βάρους 22.5 KG\* τα βαρέλια πρέπει να είναι εφοδιασμένα με ενισχυτικές δοκίδες. Η ραφή του κορμού θα συγκολληθεί και τα άκρα θα έχουν διπλή ραφή δια συγκολλήσεως με τον κορμόν, με εσωτερικήν ενίσχυσιν πολυαιθυλενίου. Δύο μονάδες κλεισίματος κοχλιωτού πώματος, της μιάς 50.8 MM (χιλ.) (2" : ιντσών)

και μιάς 19.05 MM (χιλ.) (3/4" : ιντσών), θα διπλο- 2604  
 συρραφούν δια συγκολλησεως σε ένα από τα άκρα, με (Συνεχίζε-  
 εσωτερική ενίσχυσιν συνθετικού ελαστικού. Κυάθια ται)  
 από λεπτό φύλλο-μετάλλου θα τοποθετούνται πάνω από  
 τις μονάδες κλεισίματος.

(γ) το ακετονιτρίλιο μπορεί επίσης να συσκευασθεί σε δο-  
 χεία από ύαλο, πορσελάνη, είδη κεραμεικής ή παρόμοια  
 υλικά, ή από κατάλληλη πλαστική ύλη, χωρητικότητας  
 μη-υπερβαινούσης το I λίτρο, με τα ανοίγματα κλεισμέ-  
 να με δύο πώματα, τοποθετημένα το ένα πάνω στο άλλο,  
 το ένα εκ των δύο κοχλιωτό. Τα δοχεία αυτά θα ασφαλί-  
 ζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κι-  
 βώτιο ή κάποια άλλη εξωτερική συσκευασία καταλλήλου  
 αντοχής. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει πάνω  
 από 75 KG. Κόλα ζυγίζοντα πάνω από 30 KG, πλην των  
 αποστελομένων ως πλήρες φορτίο, θα είναι εφοδιασμένα  
 με χειρολαβή.

(2) Δοχεία περιέχοντα ακρυλονιτρίλιο ή ακε-  
 τονιτρίλιο δεν πρέπει να γεμίζονται πέραν του 93 τοις εκα-  
 τών, και δοχεία περιέχοντα ισοβουτυρονιτρίλιο όχι πέραν  
 του 92 τοις εκατόν, της χωρητικότητός των.

(I) Ύλες της 3<sup>ο</sup> θα συσκευάζονται σε δοχεία 2605  
 κατασκευασμένα από φύλλο-μετάλλου/επαρκούς πάχους, τα οποία  
 (χάλυβος)  
 θα κλείνουν με κοχλιωτό πώμα στεγανόν τόσο για υγρά όσο  
 και για ατμό δι' ενός καταλλήλου παρεμβάσματος. Τα δοχεία  
 πρέπει να είναι σε θέση να αντέχουν σε εσωτερική πίεση 3 KG/  
 CM<sup>2</sup>. Το κάθε δοχείο θα ασφαρίζεται με απορροφητικό αποσβεστι-  
 κό υλικό σε γερή και στεγανή προστατευτική μεταλλική συ-

συσκευασία. σε γερή και στεγανή προστατευτική μεταλλική 2605  
συσκευασία. Η προστατευτική συσκευασία θα είναι ερμη- (Συνεχίζεται)  
τικά κλεισμένη και το κλεισίματός της θα ασφαλίζεται κατά  
οποιοδήποτε εξ απροσεξίας ανοίγματος. Ο βαθμός του γε-  
μίματος δεν θα υπερβαίνει τα 0.67 KG ανά λίτρο χωρητι-  
κότητας του δοχείου.

(2) Το κέλον δεν πρέπει να ζυγίζει περισσότερο  
από 75 KG. Κάδα ζυγίζοντα περισσότερο από 30 KG, πλήν  
των αποστελλομένων ως πλήρες φορτίον, θα είναι εφοδια-  
σμένα με χειρολαβήν.

Υλεις της 4<sup>ο</sup> θα συσκευάζονται:-

2606

- (α) σε δοχεία από ύαλο, πορσελάνη, είδη κεραμεικής ή  
παρόμοια υλικά, ή από κατάλληλο πλαστική ύλη, χω-  
ρητικότητας μη υπερβαίνουσας τα 5 λίτρα, με τα α-  
νοίγματα κλεισμένα δια δύο πωμάτων, το ένα τοπο-  
θετημένο επάνω στο άλλο, του ενός τούτων όντος κο-  
χλιωτού. Τα δοχεία αυτά θα ασφαλίζονται με απορρο-  
φητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή κάποια  
άλλη εξωτερική συσκευασία καταλλήλου αντοχής. Τα  
δοχεία δεν θα γεμίζονται πέραν του 93% εκατόν  
της χωρητικότητός των. Ένα τέτοιο κέλον δεν πρέπει  
να ζυγίζει περισσότερο από 75 KG. Κάδα ζυγίζοντα πε-  
ρισσότερο από 30 KG, πλήν εκείνων που αποστέλονται  
ως πλήρες φορτίον, θα είναι εφοδιασμένα με χειρο-  
λαβήν, ή
- (β) σε φλογο-στεγανές γυάλινες αμπούλες περιέχουσες όχι  
περισσότερα των 100 γραμμ., οι οποίες θα ασφαλίζον-

ται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Οι αμπούλες δεν πρέπει να γεμίζονται πέραν του 936<sup>τα</sup> εκατόν της χωρητικότητάς των. Ένα τέτοιο κδλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG. Κδλα ζυγίζοντα περισσότερο από 30 KG, πλήν των αποστελομένων ως πλήρες φορτίον, θα είναι εφοδιασμένα με χειρολαβήν· ή

(Συνεχίζεται))

(γ) σε μεταλλικά δοχεία έχοντα, εάν χρειασθεί, κατάλληλον επένδυσιν, των δοχείων έχόντων χωρητικότητα μη υπερβαίνουσαν τις 15 λίτρες και ανοίγματα κλειδόμενα με δύο πώματα, το ένα τοποθετημένο πάνω στο άλλο, του ενός τούτων όντος κοχλιωτού. Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Τα δοχεία πρέπει να μη γεμίζονται πέραν του 936<sup>τα</sup> εκατόν της χωρητικότητός των. Ένα τέτοιο κδλον δεν πρέι να ζυγίζει περισσότερο από 100 KG· ή

(δ) σε συγκολλημένα μεταλλικά βαρέλια έχοντα, εάν χρειασθεί, κατάλληλον επένδυσιν, των βαρελίων έχόντων ανοίγματα κλειδόμενα δια δύο πωμάτων, το ένα τοποθετημένο επάνω στο άλλο, του ενός τούτων όντος κοχλιωτού. Τα βαρέλια δεν πρέπει να γεμίζονται πέραν του 936<sup>τα</sup> εκατόν της χωρητικότητός των. Εάν μαζί με το περιεχόμενόν τους, ζυγίζουν πάνω από 275 KG, θα είναι εφοδιασμένα με κυλιόμενες στεφάνες (ROLLING HOOPS)· ή

(ε) σε δοχεία κατασκευασμένα από γερό μαύρο φύλλο-σιδήρου ή πλάκα κασσιτέρου και ερμητικώς κλεισμένα. Το δοχείο από πλάκα-κασσιτέρου δεν πρέπει μαζί με το περιεχόμενό του να ζυγίζει πάνω από 6KG. Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό, είτε ένα-ένα είτε ομαδικά, σε ξύλινο κιβώτιο συσκευασίας. Ένα τέτοιο κδλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG.

2606

(συνεχίζεται)

(1) Οι ύλες της 5<sup>ο</sup> θα συσκευάζονται σε μεταλλικά δοχεία. Τα δοχεία πρέπει να είναι εφοδιασμένα με πλήρως στεγανούς μηχανισμούς κλεισίματος, οι οποίοι θα ασφαρίζονται για μηχανική βλάβη με προστατευτικά κωθια (πώματα). Τα εκ χάλυβος δοχεία πρέπει να έχουν τοιχώματα πάχους όχι μικρότερου των 3 MM (χιλ.) και δοχεία κατασκευασμένα από άλλα υλικά πρέπει να έχουν τοιχώματα πάχους ικανού να εξασφαλίζει ισοδύναμον μηχανικήν αντοχήν. Το κδλον δεν πρέπει να περιέχει περισσότερο των 25 KG υγρόν. Το επιτρεπόμενον ανώτατον γέμισμα θα είναι 1 KG υγρού ανά λίτρον χωρητικότητος.

2607

(2) Τα δοχεία θα ελέγχονται προτού τεθούν σε υπηρεσία για πρώτη φορά. Η εφαρμοστέα πίεση ελέγχου για τον έλεγχο της υδραυλικής πίεσεως θα είναι όχι μικρότερα των 10 KG/CM<sup>2</sup>. Η κίβητη κλέχθη Ο έλεγχος της πίεσεως θα επαναλαμβάνεται κάθε πέντε χροδνια και θα περιλαμβάνει πολύ λεπτοδγο επιθεώρηση του εσωτερικού του δοχείου και έλεγχον του βάρους του αποβάρου. Τα μεταλλικά δοχεία θα φέρουν τα παρακάτω στοιχεία με γράμματα ευανάγνωστα και ανεξίτηλα.

- (α) την πλήρη ονομασία του προϊόντος (οι ονομασίες 2607  
 αμφοτέρων των υλών μπορούν επίσης να εικονίζον- (Συνεχίζε-  
 ται η μία πλάϊ στην άλλη)• ται.)
- (β) το όνομα του ιδιοκτήτου του δοχείου•
- (γ) το απόβαρον του δοχείου, συμπεριλαμβανομένων τοι-  
 ούτων εξαρτημάτων ως βαλβίδων, προστατευτικών  
 κυαθίων (πωμάτων), κλπ. •
- (δ) την ημερομηνίαν (μήνα, έτος) του ελέγχου αποδοχής  
 και των μεταγενεστέρων ελέγχων, και την σφραγίδα  
 του εμπειρογνώμονος•
- (ε) το ανώτατο επιτρεπτό γέμισμα ανά δοχείο σε κιλά (KG)•
- (στ) την εσωτερική πίεση (πίεση δοκιμής/ελέγχου) την  
 εφαρμοστέα για τον έλεγχο της υδραυλικής πίεσεως.

(I) Οι Ύλες της II<sup>ο</sup> (α) θα συσκευάζονται: 2608

- (α) σε κάνιστρα από φύλλο-μετάλλου με τοιχώματα πάχους  
 όχι μικρότερου του I MM (χιλ.) και χωρητικότητας μη  
 υπερβαίνουσας τις 60 λίτρες, των ανοιγμάτων κλειο-  
 μένων δια δύο πωμάτων, του ενός επάνω στο άλλο, και  
 του ενός αυτών κοχλιωτού. Τα από φύλλο-χάλυβος κάνι-  
 στρα πρέπει να έχουν συγκολλημένους κατά μήκος ραφές,  
 δύο ενισχυτικές δοκίδες στα τοιχώματα, και προστα-  
 τευτικήν στεφάνην κάτω του φέροντος υποδοχήν αρμού  
 στον πυθμένα. Τα κάνιστρα με χωρητικότητα 40 - 60  
 λιτρών πρέπει να έχουν τους πυθμένας αυτών συγκολλη-  
 μένους και πρέπει να φέρουν χειρολαβές στις πλευρές  
 αυτών• ή
- (β) σε εξ ολοκλήρου συγκολλημένα βαρέλια εκ χάλυβος με

τοιχώματα πάχους όχι μικρότερου των 1.25 MM (χιλ.), 2608 εφοδιασμένα με κυλιόμενες στεφάνες (ROLLING HOOPS) (Συνεχίζεται) και ενισχυτικές δοκίδες και έχοντα τα ανοίγματα κλεισμένα δια δύο πωμάτων, τοποθετημένων το ένα επάνω στο άλλο, του ενός τούτων όντος κοχλιωτού. Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποιες άλλες εξωτερικές συσκευασίες επαρκούς αντοχής. Τα δοχεία δεν πρέπει να γεμίζονται πέραν του 95 τοις εκατόν της χωρητικότητός των.

Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG. Κόλα ζυγίζοντα άνω των 30 KG, πλην των αποστελλομένων ως πλήρες φορτίον, θα είναι εφοδιασμένα με χειρολαβήν ή

- (β) σε μεταλλικά δοχεία έχοντα, εάν χρειασθεί, κατάλληλον επένδυσιν, των δοχείων εχόντων χωρητικότητα μη υπερβαίνουσαν τις 15 λίτρες και εχόντων δύο ανοίγματα κλεισμένα δια δύο πωμάτων, το ένα επάνω στο άλλο, και το ένα τούτων κοχλιωτό. Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Τα δοχεία δεν πρέπει να γεμίζονται πέραν του 95 τοις εκατόν της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από 100 KG ή

- (γ) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια έχοντα, εάν χρειασθεί, κατάλληλον επένδυσιν. Τα βαρέλια δεν πρέπει να γεμίζονται πέραν του 95 τοις εκατόν της χωρητικότητάς των. Εάν ζυγίζουν, μαζί με το περιεχόμενον των,

πάνω από 275 KG, θα είναι εφοδιασμένα με κυλινδρικές στεφάνες· ή

2608

(Συνεχίζεται)

- (δ) σε ερμητικώς-κλεισμένους ξύλινοσ κάδουσ (βαρέλια) επαρκουσ αντοχής, με κατάλληλων επένδυσιν. Ένα τέτοιο κάδον δεν πρέπει να ζυγίζει περισσότερο από 250 KG.

(I) Οι ύλεσ της I2<sup>ο</sup> (α) και (β) θα συσκευάζοντασ:-

2609

τασ:-

- (α) Όχι περισσότερες των 5 λιτρών ανά φιάλην, σε γυάλινεσ φιάλεσ τοποθετημένεσ χωριστά, με απορροφητικό υλικό, σε γερό από πλάκα-κασσιτέρου δοχείο· στη περίπτωση του I-CHLORO-2,3-EPOXYPROPANE, μαύρο φύλλο-σιδήρου μπορεί να χρησιμοποιηθεί αντί πλάκασ-κασσιτέρου. Τα δοχεία θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο συσκευασίας. Το κάδον δεν πρέπει να ζυγίζει περισσότερο από 75 KG· ή
- (β) Όχι περισσότερες των 5 λιτρών ανά δοχείον, σε δοχεία, κατασκευασμένα από γερή πλάκα-κασσιτέρου, με στεγανά κλεισίματα· στη περίπτωση του I-CHLORO-2,3-EPOXYPROPANE μαύρο φύλλο-σιδήρου μπορεί να χρησιμοποιηθεί αντί της πλάκασ-κασσιτέρου. Τα δοχεία θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό ή αποσβεστικό υλικό από ξυλ-έριον (WOOD-WOOL) σε ξύλινο κιβώτιο συσκευασίας. Το κάδον δεν πρέπει να ζυγίζει περισσότερο από 75 KG· ή
- (γ) σε συγκολλημένα βαρέλια από χάλυβα με ανοίγματα



κλειδόμενα με δύο πώματα, το ένα επάνω στο άλλο, και το ένα τούτων κοχλιωτό, και τα βαρέλια θα είναι εφοδιασμένα με κυλιόμενες στεφάνες. Στη περίπτωση της GLYCOL CHLOROHYDRIN (γλυκόλης χλωροϋδρίνης) (2-CHLOROETHANOL) επιτρέπεται επίσης να χρησιμοποιούνται συγκολλημένα κάνιστρα με τα ανοίγματα των κλειδόμενα με δύο πώματα, το ένα επάνω στο άλλο, και το ένα από αυτά κοχλιωτό, και τα κάνιστρα θα είναι εφοδιασμένα με χειρολαβές, και θα κατασκευάζονται από φύλλο-χάλυβος πάχους I MM (χιλ.) γαλβανισμένο σε αμφότερες τις πλευρές, και θα έχουν χωρητικότητα μη υπερβαίνουσαν τα 60 λίτρα.

2609  
(Συνεχίζεται)

(δ) τα δοχεία δεν πρέπει να γεμίζονται πέραν του 95% εκατόν της χωρητικότητός των.

(2) Οι ύλες της I2<sup>ο</sup> (γ) θα συσκευάζονται:-

(α) σε ερμητικώς-κλεισμένα δοχεία κατασκευαζόμενα από ύαλο, πορσελάνην, είδη κεραμεικής, ή παρόμοια υλικά, ή από κατάλληλη πλαστική ύλη, χωρητικότητος μη υπερβαινούσης τα 5 λίτρα. Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Τα δοχεία δεν πρέπει να γεμίζονται πέραν του 95% εκατόν της χωρητικότητός των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG. Κόλα ζυγίζοντα περισσότερο από 30 KG, πλήν των αποστελλομένων ως πλήρες φορτίον, θα είναι εφοδιασμένα με χειρολαβήν ή

- (β) σε φλογο-στεγανές γυάλινες αμπούλες περιέχουσες 2609  
 όχι άνω των 100 γραμμ., οι οποίες θα ασφαρίζονται (Συνεχίζε-  
 με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώ-  
 τιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς  
 αντοχής. ~~Εκτός από~~ Οι αμπούλες δεν πρέπει να γεμί-  
 ζονται πέραν του 956τοι εκατόν της χωρητικότητάς  
 των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισ-  
 σότερο από 75 KG. Κόλα ζυγίζοντα περισσότερο από  
 30 KG. πλήν των αποστελλομένων ως πλήρες φορτίον,  
 θα είναι εφοδιασμένα με χειρολαβήν ή
- (γ) σε ερμητικώς κλεισμένα κάνιστρα κατασκευασμένα από  
 κατάλληλο μέταλλο, συγκολλημένα ή συγκολλημένα με  
 σκληρή-συγκόλληση, έχοντα χωρητικότητα μη υπερβαί-  
 νουσα τα 60 λίτρα, και εφοδιασμένα με χειρολαβήν.  
 Τα κάνιστρα δεν πρέπει να γεμίζονται πέραν του 95  
 6τοι εκατόν της χωρητικότητάς των, ή
- (δ) σε ερμητικώς-κλεισμένα μεταλλικά βαρέλια έχοντα, εάν  
 χρειασθεί, κατάλληλον εσωτερικην επένδυσιγ. Τα βα-  
 ρέλια δεν πρέπει να γεμίζονται πέραν του 956τοι ε-  
 κατόν της χωρητικότητός των. Εάν ζυγίζουν, μαζί με  
 το περιεχόμενό τους, περισσότερο των 275 KG, θα είναι  
 εφοδιασμένα με κυλιόμενες στεφάνες (ROLLING HOOPS)).

(3) Οι ύλες της 12<sup>ο</sup> (δ) και (ε) θα συσκευάζονται:-

- (α) σε ερμητικώς-κλεισμένα δοχεία κατασκευασμένα από  
 ύαλον, πορσελάνην, είδη κεραμεικής ή παρόμοια υλικά,  
 ή από κατάλληλη πλαστική ύλη, χωρητικότητος μη υπερ-  
 βαινούσης τα 5 λίτρα. Τα δοχεία αυτά θα ασφαρίζονται

με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο 2609  
ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αν- (Συνεχίζεται)  
τοχής. Τα δοχεία δεν πρέπει να γεμίζονται πέραν  
του 95 τοις εκατόν της χωρητικότητάς των. Ένα τέ-  
τοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από  
75 KG. Κόλα ζυγίζοντα άνω των 30 KG πλην των απο-  
στελλομένων ως πλήρες φορτίον, θα είναι εφοδιασμένα  
με χειρολαβήν.

(β) σε φλογο-στεγανές γυάλινες αμπούλες περιέχουσες όχι  
περισσότερα των 100 γραμμ., οι οποίες θα ασφαρίζον-  
ται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κι-  
βώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς  
αντοχής. Οι αμπούλες δεν πρέπει να γεμίζονται πέραν  
του 95 τοις εκατόν της χωρητικότητάς των. Ένα τέτοιο  
κόλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG.  
Κόλα ζυγίζοντα περισσότερο από 30 KG, πλην των απο-  
στελλομένων ως πλήρες φορτίον, θα είναι εφοδιασμένα  
με χειρολαβήν ή

(γ) σε ερμητικώς κλεισμένα μεταλλικά δοχεία έχοντα, εάν  
χρειασθεί, κατάλληλον επένδυσιν, και έχοντα χωρητι-  
κότητα μη υπερβαίνουσα τα 15 λίτρα. Τα δοχεία αυτά  
θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύ-  
λινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία  
επαρκούς αντοχής. Τα δοχεία δεν πρέπει να γεμίζον-  
ται πέραν του 95 τοις εκατόν της χωρητικότητάς των.  
Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισσότερο  
από 100 KG ή

(δ) σε ερμητικά κλεισμένα μεταλλικά βαρέλια έχοντα, 2609  
 εάν χρειασθεί, κατάλληλον επένδυσον. Τα βαρέλια (Συνεχίζε-  
 ται)  
 δεν πρέπει να γεμίζονται πέραν του 956τοι εκατόν  
 της χωρητικότητός των. Εάν ζυγίζουν, μαζί με το  
 περιεχόμενον τους, περισσότερο από 375 KG, θα εί-  
 ναι εφοδιασμένα με κυλιόμενες στεφάνες (ROLLING  
 HOOPS).

(4) Οι ύλες της I2<sup>ο</sup>(ε) μπορούν επίσης να  
 συσκευάζονται σε ερμητικώς κλεισμένα κάνιστρα κατα-  
 σκευασμένα από κατάλληλο μέταλλο, συγκολλημένα με μα-  
 λακή ή σκληρή συγκόλληση, έχοντα χωρητικότητα μη υπερ-  
 βαίνουσα τις 60 λίτρες, και εφοδιασμένα με χειρολαβήν.  
 Τα κάνιστρα δεν πρέπει να γεμίζονται πέραν του 956τοις  
 εκατόν της χωρητικότητός των.

(5) Οι ύλες της I2<sup>ο</sup>(στ) θα συσκευάζονται:-

(α) σε ερμητικώς κλεισμένα μεταλλικά δοχεία έχοντα,  
 εάν χρειασθεί, κατάλληλον επένδυσον, και έχοντα χω-  
 ρητικότητα μη υπερβαίνουσαν τις 15 λίτρες. Τα δο-  
 χεία αυτά θα ασφαρίζονται με απορροφητικό αποσβε-  
 στικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξω-  
 τερική συσκευασία επαρκούς αντοχής. Τα δοχεία/πρέπει  
 να γεμίζονται πέραν του 936τοις εκατόν της ~~απικαχίμ~~  
 χωρητικότητός των. Ένα τέτοιο κέλον δεν πρέπει να  
 ζυγίζει περισσότερο από 100 KG ή

(β) σε ερμητικώς κλεισμένα κάνιστρα κατασκευασμένα από  
 κατάλληλο μέταλλο, συγκολλημένα με μαλακή ή σκληρή  
 συγκόλληση, έχοντα χωρητικότητα μη υπερβαίνουσα

τις 60 λίτρες, και εφοδιασμένα με χειρολαβήν. Τα 2609  
 κάνιστρα δεν πρέπει να γεμίζονται πέραν του 93 6 τοις (Συνεχί-  
 εκατόν της χωρητικότητάς των· ή ζεται)

- (γ) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια έχοντα,  
 εάν χρειασθεί, κατάλληλον επένδυσιν. Τα βαρέλια  
 δεν πρέπει να γεμίζονται πέραν του 93 6 τοις εκατόν  
 της χωρητικότητάς των. Εάν ζυγίζουν, μαζί με το πε-  
 ριεχόμενό τους, περισσότερο των 275 KG, θα είναι εφο-  
 διασμένα με κυλιόμενες στεφάνες (ROLLING HOOPS).

(I) Υλεις της I3<sup>ο</sup> (α) και (β) θα συσκευάζονται:- 2610

- (α) σε φλογο-στεγανές γυάλινες αμπούλες ή σε ερμητικώς  
 κλεισμένες γυάλινες φιάλες· για τον σκοπόν αυτόν  
 μπορεί να χρησιμοποιηθεί αναστολεύς (STOPPER) κατα-  
 σκευασμένος από φελλόν επενδυμένον με κηρόν παραφίνης,  
 ή γυάλινός (GROUND-GLASS) αναστολεύς. Οι αμπούλες και  
 οι φιάλες δεν πρέπει να γεμίζονται πέραν του 93 τοις  
 εκατόν της χωρητικότητάς των και δεν πρέπει να ζυγί-  
 ζουν, μαζί με το περιεχόμενό τους, περισσότερο από  
 3 KG. Θα τυλίγονται σε κυματοειδή ινοδανίδα και ασφα-  
 λίζονται με κατάλληλο ποσότητα αδρανούς και απορροφη-  
 τικού αποσβεστικού υλικού (τριπολική γή ή παρεμφερές  
 υλικό) σε μαλακώς συγκολληθέντα κυτία από πλάνα κασ-  
 σιτέρου ή σε ξύλινα κιβώτια επενδυμένα με επένδυσιν  
 συναρμολογούμενα  
 πλάκας-κασσιτέρου/δια μαλακής συγκολλήσεως. Κόλον  
 αποτελούμενον από κυτίον εκ πλάκας-κασσιτέρου δεν  
 πρέπει να ζυγίζει περισσότερο από 15 KG και κόλον  
 αποτελούμενον από ξύλινο κιβώτιο όχι περισσότερο

από 75 KG· ή

2610

- (β) σε συγκολληθέντα ή άνευ-ραφών δοχεία από φύλλο-μετάλλου ή σε δοχεία κατασκευασμένα από κατάλληλο πλαστική ύλη. Τα δοχεία αυτά θα είναι ερμητικώς κλεισμένα· δεν πρέπει να γεμίζονται πέραν του 936τοι εκατόν της χωρητικότητός των και δεν πρέπει να ζυγίζονται, μαζί με το περιεχόμενό τους, περισσότερο των 50 KG· εάν είναι κατασκευασμένα από λεπτό φύλλο-μετάλλου, π.χ. πλάκα-κασσιτέρου, δεν πρέπει να ζυγίζονται, μαζί με το περιεχόμενό τους, περισσότερο από 6 KG. Τα από φύλλο μετάλλου ή από πλαστική ύλη δοχεία θα ασφαρίζονται με κατάλληλο ποσότητα αδρανούς και απορροφητικού αποσβεστικού υλικού (π.χ. τριπολική γη ή παρόμοιο υλικό) σε προστατευτικά δοχεία εφοδιασμένα με χειρολαβή. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από 100 KG· ή

- (γ) σε ερμητικώς κλεισμένα συγκολλημένα ή άνευ ραφών μεταλλικά βαρέλια εφοδιασμένα με ταινίες στα άκρα και κυλιόμενες στεφάνες (ROLLING HOOPS) και μη γεμιζόμενα πέραν του 936τοι εκατόν της χωρητικότητάς των.

(2) Οι ύλες της I3<sup>ο</sup>(γ) θα συσκευάζονται:-

- (α) σε ερμητικώς-κλεισμένα δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρεμφερή υλικά, ή από κατάλληλη πλαστική ύλη, τα οποία δεν πρέπει να περιέχουν περισσότερα των 5 KG το καθένα. Δοχεία, κατασκευασμένα από πλαστική ύλη μπορούν, εάν αποστέλονται ως πλήρες φορτίο, να περιέχουν μέχρι 10 KG της ύλης.

Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό υλικό σε ξύλινο δοχείο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG· ή

2610

(Συνεχίζεται)

(β) σε ερμητικώς κλεισμένα μεταλλικά δοχεία έχοντα, εάν χρειασθεί, κατάλληλη επένδυση και τα οποία δεν πρέπει να περιέχουν περισσότερα των 15 KG το καθένα. Τα δοχεία αυτά θα ασφαρίζονται με αποσνεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία καταλλήλου αντοχής. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από 100 KG· ή

(γ) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια έχοντα, εάν χρειασθεί, κατάλληλη επένδυση. Εάν τα βαρέλια, μαζί με το περιεχόμενό τους, ζυγίζουν περισσότερο από 275 KG, θα εφοδιάζονται με κυλιόμενες στεφάνες· ή

(δ) σε ερμητικώς κλεισμένους ξυλίνους κάρδους (βυτία, βαρέλια) επαρκούς αντοχής, με κατάλληλη επένδυση. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από 250 KG· ή

(ε) σε πώκιους κατασκευασμένους από κατάλληλη πλαστική ύλη, έτσι κλεισμένους ώστε να είναι κλειστοστεγανοί, και τοποθετούμενους σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG.

ΟΙ ύλες της I4<sup>ο</sup> θα συσκευάζονται:-

2611

(α) σε συγκολλημένα από χάλυβα βαρέλια με ανοίγματα

κλειόμενα με δύο πώματα, το ένα επάνω στο άλλο, 2611  
 το ένα από τα πώματα κοχλιωτό, και τα βαρέλια εφο- (Συνεχίζε-  
 διασμένα με κυλιόμενες στεφάνες (ROLLING HOOPS). Τα ται)  
 βαρέλια δεν πρέπει να γεμίζονται πέραν του 95 έτος  
 εκατόν της χωρητικότητάς των· ή

- (β) σε δοχεία κατασκευασμένα από γερό μαύρο φύλλο σι-  
 δήρου ή πλάνα-κασσιτέρου και ερμητικώς κλεισμένα.  
 Δοχείο από φύλλο-κασσιτέρου δεν πρέπει, μαζί με το  
 περιεχόμενό του, να ζυγίζει περισσότερο από 6 KG.  
 Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό απο-  
 σβεστικό υλικό σε ξύλινο κιβώτιο συσκευασίας. Ένα  
 τέτοιο κέλον δεν πρέπει να ζυγίζει περισσότερο από  
 75 KG.

(I) Υλεις των 2I<sup>0</sup> (α), (β), (γ) και (δ), και 2612  
 υγρά της 2I<sup>0</sup> (ε) και (στ), θα συσκευάζονται:-

- (α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύα-  
 λο, πορσελάνη, είδη κεραμεικής ή παρόμοια υλικά, ή  
 από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερ-  
 βαίνουσας τα 5 λίτρα. Τα δοχεία αυτά θα ασφαρίζον-  
 ται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κι-  
 βώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρ-  
 κούς αντοχής. Τα δοχεία δεν πρέπει να γεμίζονται  
 πέραν του 95 έτος εκατόν της χωρητικότητάς των.  
 Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει περισσότερο  
 από 75 KG. Κόλα ζυγίζοντα περισσότερο από 30 KG,  
 πλην των αποστελλομένων ως πλήρες φορτίον, θα είναι  
 εφοδιασμένα με χειρολαβήν· ή



- σε φλογο-στεγανές γυάλινες αμπούλες περιέχουσες 2612  
όχι περισσότερα από 100 γραμμ. οι οποίες θα ασφα-  
λίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλι-  
νο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία  
επαρκούς αντοχής. Οι αμπούλες δεν πρέπει να γεμί-  
ζονται πέραν του 95% εκατόν της χωρητικότητάς  
των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισ-  
σότερο από 75 KG. Κόλα ζυγίζοντα περισσότερο από  
30 KG, πλην εκείνων που αποστέλλονται ως πλήρες  
φορτίο, θα είναι εφοδιασμένα με χειρολαβή ή
- (γ) σε ερμητικώς κλεισμένα μεταλλικά δοχεία έχοντα,  
εάν χρειασθεί, κατάλληλη επένδυση, και έχοντα  
χωρητικότητα μη υπερβαίνουσα τις 15 λίτρες. Τα δο-  
χεία αυτά θα ασφαλίζονται με απορροφητικό αποσβε-  
στικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη  
εξωτερική συσκευασία επαρκούς αντοχής. Τα δοχεία  
δεν πρέπει να γεμίζονται πέραν του 95% εκατόν  
της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέπει  
να ζυγίζει περισσότερο από 100 KG ή
- (δ) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια έχοντα,  
εάν χρειασθεί, κατάλληλη επένδυση. Τα βαρέλια  
δεν πρέπει να γεμίζονται πέραν του 95% εκατόν  
της χωρητικότητάς των. Εάν ζυγίζουν, μαζί με το πε-  
ρρεχόμενό τους, περισσότερο από 275 KG, θα εφοδιά-  
ζονται με κυλιόμενες στεφάνες (ROLLING HOOPS).

(2) Υλεις της 2I<sup>0</sup>(β), (γ) και (δ) και υγρά της  
2I<sup>0</sup>(ε) και (στ) μπορούν επίσης να συσκευασθούν σε ερμη-

ετικώς κλεισμένα κάνιστρα κατασκευασμένα από κατάλληλο 2612  
 μέταλλο, με μαλακή ή σκληρή συγκόλληση, έχοντα χωρητι- (Συνεχίζε-  
 κότητα μη υπερβαίνουσα τα 60 λίτρα, και εφοδιασμένα με ται)  
 χειρολαβήν. Τα κάνιστρα δεν πρέπει να γαμίζονται πέραν  
 του 95% των εκατόν της χωρητικότητάς των.

(3) Οι ύλες της 21<sup>ο</sup> (ε) και (στ) σε στερεά κατά-  
 σταση, και οι ύλες της 21<sup>ο</sup> (ζ), (η), (θ) και (ι), θα συ-  
 σκευάζονται:-

(α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύα-  
 λο, πορσελάνη, είδη κεραμεικής και παρόμοια υλικά,  
 ή από κατάλληλη πλαστική ύλη, τα οποία δεν πρέπει  
 να περιέχουν περισσότερο από 5 KG το καθένα. Δοχεία  
 κατασκευασμένα από πλαστική ύλη μπορούν, εάν αποστα-  
 λούν ως πλήρες φορτίο, να περιέχουν μέχρι 10 KG ύλης.  
 Τα δοχεία αυτά θα ασφαρίζονται με αποσβεστικό υλικό  
 σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευα-  
 σία επαρκούς αντοχής. Ένα τέτοιο κιβώτιο δεν πρέπει  
 να ζυγίζει περισσότερο από 75 KG· ή

(β) σε ερμητικώς κλεισμένα μεταλλικά δοχεία έχοντα, εάν  
 χρειασθεί, κατάλληλον επένδυση και τα οποία δεν πρέ-  
 πει να περιέχουν περισσότερο από 15 KG το καθένα.  
 Τα δοχεία αυτά θα ασφαρίζονται με αποσβεστικό υλικό  
 σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευα-  
 σία επαρκούς αντοχής. Ένα τέτοιο κιβώτιο δεν πρέπει να  
 ζυγίζει περισσότερο από 100 KG· ή

(γ) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια έχοντα, εάν  
 χρειασθεί, κατάλληλον επένδυση. Εάν τα βαρέλια ζυ-

γίνονται, μαζί με το περιεχόμενό τους, περισσότερο από 275 KG, θα εφοδιάζονται με κυλιόμενες στεφάνες (ROLLING HOOPS). (Συνεχίζονται)

(4) Οι ύλες της 2I<sup>ο</sup>(ε) και (στ) σε στερεά κατάσταση, και οι ύλες της 2I<sup>ο</sup>(ζ) και (η), μπορούν επίσης να συσκευασθούν:-

(α) σε σάκους κατασκευασμένους από κατάλληλη πλαστική ύλη, έτσι κλεισμένους ώστε να είναι στεγανοί, και τοποθετημένους σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Ένα τέτοιο κέλον δεν μπορεί να ζυγίζει περισσότερο από 75 KG. ή

(β) σε ερμητικώς κλεισμένα ξύλια βυτία (βαρέλια, κάδους) επαρκούς αντοχής με κατάλληλη επένδυση. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει περισσότερο από 250 KG.

(5) Οι ύλες της 2I<sup>ο</sup>(ζ) μπορούν επίσης να συσκευασθούν σε ερμητικώς κλεισμένα δοχεία, κατασκευασμένα από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τις 60 λίτρες. Τα δοχεία αυτά θα τοποθετούνται ένα-ένα και σφικτά σε προστατευτική συσκευασία με πλήρεις πλευρές, κατασκευασμένη από χαρτοσανίδα ή από κάποιο άλλο υλικό επαρκούς αντοχής.

(6) Οι ύλες της 2I<sup>ο</sup>(λ), (μ), (ν), (ξ) και (ο) θα συσκευάζονται:-

(α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμικής ή παρόμοια υλικά, ή από κατάλληλο πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τα 5 λίτρα. Τα δοχεία αυτά θα ασφαρίζονται με απορροφη-

τικόν αποσβεστικό υλικόν σε ξύλινο κιβώτιο ή σε κά- 2612  
ποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. (Συνεχίζε-  
ται)

Τα δοχεία δεν πρέπει να γεμίζονται πέραν του 95  
στοις εκατόν της χωρητικότητάς των. Ένα τέτοιο κό-  
λον δεν πρέπει να ζυγίζει περισσότερο από 75 KG.  
Κόλα ζυγίζοντα περισσότερο από 30 KG, πλήν εκείνων  
που αποστέλλονται ως πλήρες φορτίο, θα εφοδιάζονται  
με χειρολαβήν· ή

(β) σε φλογο-στεγανές γυάλινες αμπούλες περιέχουσες όχι  
περισσότερο από 100 γραμμ., οι οποίες θα ασφαλίζον-  
ται με απορροφητικό αποσβεστικό υλικόν σε ξύλινο κι-  
βώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς  
αντοχής. Οι αμπούλες δεν πρέπει να γεμίζονται πέραν  
του 95στοις εκατόν της χωρητικότητάς των. Ένα τέ-  
τοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από  
75 KG. Κόλα ζυγίζοντα περισσότερο από 30 KG, πλήν  
εκείνων που αποστέλλονται ως πλήρες φορτίο, θα εφο-  
διάζονται με χειρολαβήν· ή

(γ) σε ερμητικώς κλεισμένα μεταλλικά δοχεία έχοντα, εάν  
χρειασθεί, κατάλληλη επένδυση, και έχοντα χωρητι-  
κότητα μη υπερβαίνουσαν τις 15 λίτρες. Τα δοχεία αυτά  
θα ασφαλίζονται με απορροφητικό αποσβεστικό υλικόν σε  
ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευα-  
σία επαρκούς αντοχής. Τα δοχεία δεν πρέπει να γεμί-  
ζονται πέραν του 95στοις εκατόν της χωρητικότητάς  
των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισ-  
σότερο από 100 KG· ή

- (δ) σε ερμητικώς κλεισμένα κάνιστρα κατασκευασμένα από 26I2  
κατάλληλο μέταλλο, με μαλακή ή σκληρή συγκόλληση, (Συνεχίζεται)  
έχοντα χωρητικότητα μη υπερβαίνουσα τις 60 λίτρες,  
και εφοδιασμένα με χειρολαβές. Τα κάνιστρα δεν πρέπει  
να γεμίζονται πέραν του 95% εκατόν της χωρητικότητάς των· ή
- (ε) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια έχοντα, εάν  
χρειασθεί, κατάλληλη επένδυση. Τα βαρέλια δεν πρέπει  
να γεμίζονται πέραν του 95% εκατόν της χωρητικότητάς των. Εάν ζυγίζουν, μαζί με το περιεχόμενό  
τους, περισσότερο από 275 KG, θα είναι εφοδιασμένα με  
κυλιόμενες στεφάνες.

(7) Η 4-NITROTOLUENE (Νιτροτολουόλη) (2I<sup>0</sup>(I))  
μπορεί επίσης να συσκευασθεί:

- (α) σε σάκκους κατασκευασμένους από κατάλληλο πλαστική ύλη,  
έτσι κλεισμένους ώστε να είναι στεγανοί, και τοποθετημένους σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική  
συσκευασία επαρκούς αντοχής. Ένα τέτοιο κόλον  
δεν πρέπει να ζυγίζει περισσότερο από 75 KG· ή
- (β) σε ερμητικώς κλεισμένους ξύλινους κάδους (βυτία, βαρέλια)  
επαρκούς αντοχής, με κατάλληλη επένδυση. Ένα τέτοιο κόλον  
δεν πρέπει να ζυγίζει περισσότερο από 250KG· ή
- (γ) σε σάκκους κατασκευασμένους από γερό τετράφυλλο χαρτί,  
επευδεδυμένους με σάκκον καταλλήλου πλαστικής ύλης,  
έτσι κλεισμένοι ώστε να είναι στεγανοί. Ένας τέτοιος  
σάκκος (κόλον) δεν πρέπει να ζυγίζει περισσότερο από  
55 KG.

(8) Οι ύλες της 21<sup>ο</sup> (Ξ) σε νιφάδες (FLAKES) μπο- 2612  
 ρουν επίσης να συσκευάζονται σε σάκους κατασκευασμένους (Συνεχίζε-  
 από γερό τετράφυλλο χαρτί, επενδεδυμένους με σάκιο κατα-  
 σκευασμένον από κατάλληλο πλαστική ύλη και έτσι κλεισμέ-  
 νοι ώστε να είναι στεγανοί. Ένα τέτοιο κόλον δεν πρέπει  
 να ζυγίζει περισσότερο από 55 KG.

Οι ύλες της 22<sup>ο</sup> θα συσκευάζονται:- 2613

- (α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύαλο,  
 πορσελάνη, είδη κεραμεικής ή παρόμοια υλικά, ή από  
 κατάλληλο πλαστική ύλη, τα οποία δεν πρέπει να πε-  
 ριέχουν περισσότερο από 5 KG το καθένα. Δοχεία κατα-  
 σκευασμένα από πλαστική ύλη μπορούν, εάν αποστέλλον-  
 ται ως πλήρες φορτίο, να περιέχουν μέχρι 10 KG ύλης.  
 Τα δοχεία αυτά θα ασφαρίζονται με αποσβεστικό υλικό  
 σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευα-  
 σία επαρκούς αντοχής. Ένα τέτοιο κόλον δεν πρέπει  
 να ζυγίζει περισσότερο από 75 KG\* ή
- (β) σε ερμητικώς κλεισμένα μεταλλικά δοχεία έχοντα, εάν  
 χρειασθεί, κατάλληλη επένδυση και τα οποία δεν πρέ-  
 πει να περιέχουν περισσότερο από 15 KG το καθένα. Τα  
 δοχεία αυτά θα ασφαρίζονται με αποσβεστικό υλικό σε  
 ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία  
 επαρκούς αντοχής. Ένα τέτοιο κόλον δεν πρέπει να ζυ-  
 γίζει περισσότερο από 100 KG\* ή
- (γ) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια έχοντα, εάν  
 χρειασθεί, κατάλληλη επένδυση. Εάν τα βαρέλια, μαζί  
 με το περιεχόμενό τους, ζυγίζουν περισσότερο από 275 KG,

θα εφοδιάζονται με κυλιόμενες στεφάνες (ROLLING HOOPS)· ή

2613

(Συνεχίζεται)

- (δ) σε ερμητικώς κλεισμένα δοχεία, κατασκευασμένα από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τις 60 λίτρες. Τα δοχεία αυτά θα τοποθετούνται ένα-ένα και σφιχτά σε προστατευτική συσκευασία με πλήρεις πλευρές, κατασκευασμένη από χαρτοσανίδα ή από κάποια άλλη ύλη επαρκούς αντοχής· ή
- (ε) σε σάκους κατασκευασμένους από κατάλληλο πλαστική ύλη, έτσι κλεισμένους ώστε να είναι στεγανοί, και τοποθετημένους σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG, ή
- (στ) σε ερμητικώς κλεισμένους ξύλινους κάδους (βυτία, βαρέλια) επαρκούς αντοχής, με κατάλληλη επένδυση. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από 250 KG.

(I) Υγρά της 23<sup>ο</sup> θα συσκευάζονται:-

2614

- (α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρόμοια υλικά, ή από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τις 5 λίτρες. Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Τα δοχεία δεν πρέπει να γεμίζονται πέραν του 95<sup>ου</sup> τοις εκατόν της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG. Κόλα ζυγίζοντα περισσότερο από 30 KG, πλην εκείνων που

αποστέλλονται ως πλήρες φορτίο, θα εφοδιάζονται με 26Ι4  
χειρολαβές· ή (Συνεχίζεται)

- (β) σε φλογο-στεγανές γυάλινες αμπούλες περιέχουσες όχι άνω των 100 γραμμ., οι οποίες θα α-σφαλίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Οι αμπούλες δεν πρέπει να γεμίζονται πέραν του 956τος εκατόν της χωρητικότητάς των. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG. Κόλα ζυγίζονται άνω από 30 KG, πλήν εκείνων που αποστέλλονται ως πλήρες φορτίο, θα εφοδιάζονται με χειρολαβές· ή
- (γ) σε ερμητικώς κλεισμένα μεταλλικά δοχεία έχοντα, εάν χρειασθεί, κατάλληλη επένδυση, και έχοντα χωρητικότητα μη υπερβαίνουσαν τις 15 λίτρες. Τα δοχεία αυτά θα ασφαλίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Τα δοχεία δεν πρέπει να γεμίζονται πέραν του 956τος εκατόν της χωρητικότητάς των. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει περισσότερο από 100 KG· ή
- (δ) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια έχοντα, εάν χρειασθεί, κατάλληλη επένδυση. Τα βαρέλια δεν πρέπει να γεμίζονται πέραν του 956τος εκατόν της χωρητικότητάς των. Εάν ζυγίζουν, μαζί με το περιεχόμενό τους περισσότερο από 275 KG, θα εφοδιάζονται με κυλιόμενες στεφάνες (ROLLING HOOPS).

(2) Στερεά της 23<sup>ο</sup> θα συσκευάζονται κατά τον ίδιο τρόπον όπως οι ύλες της 22<sup>ο</sup>.



(I) Οι θλές της 3I<sup>ο</sup>(α) και τα στερεά παρασκευά-26I5 σματα της 3I<sup>ο</sup>(γ) θα συσκευάζονται:-

- (α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρόμοια υλικά, ή από κατάλληλη πλαστική ύλη, τα οποία δεν πρέπει να περιέχουν περισσότερο από 5 KG το καθένα. Δοχεία κατασκευασμένα από πλαστική ύλη μπορούν, εάν αποστέλλονται ως πλήρες φορτίο, να περιέχουν μέχρι 10 KG ύλης. Τα δοχεία αυτά θα ασφαλίζονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Ένα τέτοιο κιβώτιο δεν πρέπει να ζυγίζει περισσότερο από 75 KG· ή
- (β) σε ερμητικώς κλεισμένα δοχεία έχοντα, εάν χρειασθεί, κατάλληλον επένδυση, και τα οποία δεν πρέπει να περιέχουν περισσότερο από 15 KG το καθένα. Τα δοχεία αυτά θα ασφαλίζονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Ένα τέτοιο κιβώτιο δεν πρέπει να ζυγίζει περισσότερο από 100 KG· ή
- (γ) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια έχοντα, εάν χρειασθεί, κατάλληλον επένδυση. Εάν τα βαρέλια, μαζί με το περιεχόμενό τους, ζυγίζουν άνω των 275 KG, θα εφοδιάζονται με κυλιόμενες στεφάνες (ROLLING HOOPS)· ή δοχεία, κατασκευασμένα από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τις 60 λίτρες. Τα δοχεία αυτά θα τοποθετούνται ένα-ένα και σφιχτά σε προστατευτική συσκευασία με πλήρεις πλευρές, κατασκευα-

σμένα από χαρτοσανίδα ή από κάποια άλλη ύλη επαρκούς 2615  
αντοχής· ή (Συνεχίζε-  
ται)

(ε) σε ερμητικώς κλεισμένους ξύλινους κάδους (βυτία, βα-  
ρέλια) επαρκούς αντοχής, με κατάλληλον επένδυση. Ένα  
τέτοιο κδλον δεν πρέπει να ζυγίζει περισσότερο από 250KG.

(2) Οι θλές της 31<sup>ο</sup>(β) και τα υγρά παρασκευάσμα-  
τα της 31<sup>ο</sup>(γ) θα συσκευάζονται:-

(α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύαλο,  
πορσελάνη, είδη κεραμικής ή παρόμοια υλικά, ή από κα-  
τάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας  
τά 5 λίτρα. Τα δοχεία αυτά θα ασφαρίζονται με απορροφη-  
τικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια  
άλλη εξωτερική συσκευασία επαρκούς αντοχής. Τα δοχεία  
δεν πρέπει να γεμίζονται πέραν του 956του εκατόν της  
χωρητικότητός των. Ένα τέτοιο κδλον δεν πρέπει να ζυ-  
γίζει περισσότερο από 75 KG. Κδλα ζυγίζοντα άνω των  
30 KG, πλην εκείνων που αποστέλλονται ως πλήρες φορτίο,  
θα εφοδιάζονται με χειρολαβές· ή

(β) σε φλογο-στεγανές γυάλινες αμπούλες περιέχουσες όμι πε-  
ρισσότερο από 100 γραμμ., οι οποίες θα ασφαρίζονται  
με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή  
σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής.  
Οι αμπούλες δεν πρέπει να γεμίζονται πέραν του 956τους  
εκατόν της χωρητικότητάς των. Ένα τέτοιο κδλον δεν  
πρέπει να ζυγίζει περισσότερο από 75 KG. Κδλα ζυγίζον-  
τα περισσότερο από 30 KG, πλην εκείνων που αποστέλλον-  
ται ως πλήρες φορτίο, θα εφοδιάζονται με χειρολαβές· ή

(γ) σε ερμητικώς κλεισμένα μεταλλικά δοχεία έχοντα, εάν χρειασθεί, κατάλληλον επένδυσιν, και έχοντα χωρητικότητα μη υπερβαίνουσαν τις 15 λίτρες. Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Τα δοχεία δεν πρέπει να γεμίζονται πέραν του 95 τοις εκατόν της χωρητικότητάς των. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει περισσότερο από 100 KG· ή

2615

(Συνεχίζεται)

(δ) σε ερμητικώς κλεισμένα κάνιστρα κατασκευασμένα από κατάλληλο μέταλλο, συγκολλημένα με μαλακή ή σκληρή συγκόλληση, έχοντα χωρητικότητα μη υπερβαίνουσα τις 60 λίτρες, και εφοδιασμένα με χειρολαβήν. Τα κάνιστρα δεν πρέπει να γεμίζονται πέραν του 95 τοις εκατόν της χωρητικότητάς των· ή

(ε) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια έχοντα, εάν χρειασθεί, κατάλληλον επένδυσιν. Τα βαρέλια δεν πρέπει να γεμίζονται πέραν του 95 τοις εκατόν της χωρητικότητάς των. Εάν τα βαρέλια, μαζί με το περιεχόμενό τους, ζυγίζουν περισσότερο από 275 KG, θα εφοδιάζονται με κυλιόμενες στεφάνες (ROLLING HOOPS).

(1) Το αζίδιο του νατρίου ( $32^{\circ}(\alpha)$ ) θα συσκευάζεται σε δοχεία κατασκευασμένα από μαύρο φύλλο σιδήρου ή πλάκα-κασσιτέρου. 2616

(2) Οι ύλες της  $32^{\circ}(\beta)$  θα συσκευάζονται σε δοχεία κατασκευασμένα από ύαλο ή κατάλληλη πλαστική ύλη. Το δοχείο δεν πρέπει να περιέχει περισσότερο από 10 KG αζίδιο του βα-

ού ούτε περισσότερο από 20 λίτρες διάλυμα αζιδίου του 26I6  
 βαρίου. Τα δοχεία θα ασφαρίζονται χωριστά, με απορρο- (Συνεχίζεται)  
 φητικό αποσβεστικό υλικό, σε κιβώτια ή σιδηρο-καλάθους  
 με πλήρεις πλευρές· ο όγκος του αποσβεστικού υλικού πρέ-  
 πει να είναι τουλάχιστον ίσος με το περιεχόμενο του δο-  
 χείου. Οσάκις χρησιμοποιούνται καλάθι, το αποσβεστικό  
 υλικό, εάν ευχερώς εύφλεκτον, θα φλογο-στεγανοποιείται  
 επαρκώς ώστε να αποφεύγεται η ανάφλεξη σε επαφή με τη  
 φλόγα.

Ο φωσφορούχος ψευδάργυρος (33°) θα συσκευάζεται 26I7  
 σε μεταλλικά δοχεία ασφαλισμένα σε ξύλινα κιβώτια. Το  
 κόλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG.

Οι ύλες της 4I° θα εγκλείονται σε ξύλινα ή μεταλ-26I8  
 λικά είδη συσκευασίας τα οποία μπορούν να εφοδιάζονται με  
 μηχανισμό επιτρέποντα τα αέρια να διαφύγουν. Λεπτώς κοκκο-  
 ποιημένες ύλες μπορούν επίσης να συσκευάζονται σε σάκους.

Οι ύλες της 5I° θα συσκευάζονται:- 26I9

(α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύα-  
 λο, πορσελάνη, είδη κεραμεικής ή παρόμοια υλικά, ή  
 από κατάλληλο πλαστική ύλη, τα οποία δεν πρέπει να  
 περιέχουν άνω των 5 KG το καθένα. Δοχεία κατασκευα-  
 σμένα από πλαστική ύλη μπορούν, εάν αποσταλούν ως  
 πλήρες φορτίο, να περιέχουν μέχρι 10 KG ύλης. Τα δο-  
 χεία αυτά θα ασφαρίζονται με αποσβεστικό υλικό σε  
 ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευα-  
 σία επαρκούς αντοχής. Ένα τέτοιο κόλον δεν πρέπει  
 να ζυγίζει περισσότερο από 75 KG· ή

- (β) σε ερμητικώς κλεισμένα μεταλλικά δοχεία έχοντα, εάν 2619  
χρειασθεί, κατάλληλον επένδυση, και τα οποία δεν (Συνεχίζεται)  
πρέπει να περιέχουν περισσότερο από 15 KG το καθένα.  
Τα δοχεία αυτά θα ασφαρίζονται με αποσβεστικό υλικό  
σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευα-  
σία επαρκούς αντοχής. Ένα τέτοιο κέλον δεν πρέπει να  
ζυγίζει περισσότερο από 100 KG\* ή
- (γ) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια έχοντα, εάν  
χρειασθεί, κατάλληλον επένδυσιν. Εάν τα βαρέλια, μαζί  
με το περιεχόμενό τους, ζυγίζουν περισσότερο από  
275 KG, θα εφοδιάζονται με κυλιόμενες στεφάνες (ROLL-  
ING HOOPS)\* ή
- (δ) σε ερμητικώς κλεισμένα δοχεία, κατασκευασμένα από  
κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνου-  
σας τις 60 λίτρες. Τα δοχεία αυτά θα τοποθετούνται  
ένα-ένα και σφιχτά σε προστατευτική συσκευασία με  
πλήρεις πλευρές, κατασκευασμένη από χαρτοσανίδα ή από  
κάποια άλλη ύλη επαρκούς αντοχής\* ή
- (ε) σε σάκκους κατασκευασμένους από κατάλληλο πλαστική ύλη,  
έτσι κλεισμένους ώστε να είναι στεγανοί, οι οποίοι θα  
τοποθετούνται σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική  
συσκευασία επαρκούς αντοχής. Ένα τέτοιο κέλον δεν πρέ-  
πει να ζυγίζει περισσότερο από 75 KG\* ή
- (στ) σε ερμητικώς κλεισμένους ξύλινους κάδους (βυτρία, βα-  
ρέλια), έτσι κλεισμένους ώστε να είναι στεγανοί, επαρ-  
κούς αντοχής, με κατάλληλον επένδυση. Ένα τέτοιο κέ-  
λον δεν πρέπει να ζυγίζει περισσότερο από 250 KG\* ή

(I) Οι θλές της 52<sup>ο</sup> θα συσκευάζονται:—

2620

- (α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμικής, ή παρόμοια υλικά, ή από κατάλληλη πλαστική ύλη, τα οποία δεν πρέπει να περιέχουν περισσότερο από 5 KG το καθένα· δοχεία κατασκευασμένα από πλαστική ύλη μπορούν, εάν αποσταλούν ως πλήρες φορτίο, να περιέχουν μέχρι 10 KG ύλης. Τα δοχεία θα ασφαρίζονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG· ή
- (β) σε ερμητικώς κλεισμένα μεταλλικά δοχεία έχοντα, εάν χρειασθεί, κατάλληλων επένδυσιν και τα οποία δεν πρέπει να περιέχουν περισσότερο από 15 KG το καθένα. Τα δοχεία αυτά θα ασφαρίζονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από 100 KG· ή
- (δ) σε ερμητικώς κλεισμένα δοχεία, κατασκευασμένα από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τις 60 λίτρες. Τα δοχεία αυτά θα τοποθετούνται ένα-ένα και σφικτά σε προστατευτική συσκευασία με πλήρεις πλευρές, κατασκευασμένη από χαρτοσανίδα ή από κάποια άλλη ύλη επαρκούς αντοχής· ή
- (γ) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια έχοντα, εάν χρειασθεί, κατάλληλων επένδυσιν. Εάν τα βαρέλια, μαζί με το περιεχόμενό τους, ζυγίζουν περισσότερο από 275 KG θα εφοδιάζονται με κυλιόμενες στεφάνες (ROLLING HOOPS), ή

(ε) σε σάκκους κατασκευασμένους από κατάλληλο πλαστική ύλη, έτσι κλεισμένους ώστε να είναι στεγανοί, οι οποίοι θα τοποθετούνται σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG. ή

(στ) σε δοχεία κατασκευασμένα από ξύλο ή χαρτοσανίδα, επενδεδυμένα με ατμο-στεγανή πλαστική ύλη και ερμητικώς κλεισμένα. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG. ή

(ζ) σε ερμητικώς κλεισμένα μεταλλικά δοχεία. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG.

(2) Όταν αποστέλλονται ως πλήρες φορτίο, οι ύλες μπορούν επίσης να συσκευάζονται:-

(α) σε ερμητικώς κλεισμένους ξυλίνους κάδους (βυτλα, βαρέλια) επαρκούς αντοχής, με κατάλληλες επένδυσις.

Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει περισσότερο από 250 KG. ή

(β) σε σάκκους κατασκευασμένους από γερό τετράφυλλο χαρτί, επενδεδυμένους με σάκκον κατασκευασμένον από κατάλληλη πλαστική ύλη, έτσι κλεισμένους ώστε να είναι στεγανοί. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει περισσότερο από 55 KG.

(I) Στερεά της 53<sup>ο</sup> θα συσκευάζονται:-

262I

(α) όχι περισσότερα από 10 KG ανά σάκκον, σε σάκκους κατασκευασμένους από δί-φυλλο χαρτί. ή

(β) σε σάκκους κατασκευασμένους από κατάλληλη πλαστική ύλη. ή

- (γ) σε δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρόμοια υλικά, ή από κατάλληλη πλαστική ύλη ή (Συνεχίζεται)
- (δ) σε χαλύβδινα δοχεία ή σε γερούς ξύλινους κάδους (βυτία, βαρέλια) εφοδιασμένους με ενισχυτικές ταινίες.

Περί: (α), (β) και (γ):— Τα δοχεία και οι σάκκοι θα ασφαρίζονται με αποσβεστικό υλικό σε ξύλινες εξωτερικές συσκευασίες.

(2) Υγρά ή ύλες σε διάλυμα της 53° θα συσκευάζονται:—

- (α) σε δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρόμοια υλικά. Τα δοχεία αυτά θα ασφαρίζονται με αποσβεστικό υλικό σε προστατευτικές συσκευασίες, οι οποίες, εάν δεν είναι κιβώτια, θα είναι εφοδιασμένες με χειρολαβές ή
- (β) σε μεταλλικά δοχεία.

(3) Κάδον περιέχον εύθραυστα δοχεία ή σάκκους κατασκευασμένους από πλαστική ύλη δεν πρέπει να ζυγίζει περισσότερο από 75 KG.

Οι ενώσεις θαλλού (54°), θα συσκευάζονται:— 2622

- (α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρόμοια υλικά, ή από κατάλληλο πλαστική ύλη, τα οποία δεν πρέπει να περιέχουν περισσότερο από 5 KG. το καθένα. Δοχεία κατασκευασμένα από πλαστική ύλη μπορούν, εάν αποστέλλονται ως πλήρες φορτίο, να περιέχουν άνω των 10 KG ύλης. Τα δοχεία αυτά θα ασφαρίζονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο



ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG· ή

2622

(Συνεχίζεται).

(β) σε δοχεία από πλάμα-κασσιτέρω· ή

(γ) σε ξύλινα κιβώτια εφοδιασμένα με ενισχυτικές ταινίες· ή

(δ) σε ξύλινους κάδους (βυτία, βαρέλια) με σιδηρές στεφάνες ή γερές ξύλινες στεφάνες (HOOPS).

(I) Οι ύλες των 61<sup>ο</sup> και 62<sup>ο</sup>, πλην των υλών της 2623

61<sup>ο</sup>(I), θα συσκευάζονται:-

(α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμικής ή παρόμοια υλικά, ή από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαινούσης τις 5 λίτρες. Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής.

Τα δοχεία δεν πρέπει να γεμίζονται πέραν του 95 τοις εκατόν της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG. Κόλα ζυγίζονται περισσότερο από 30 KG, πλην εκείνων που αποστέλλονται ως πλήρες φορτίο, θα εφοδιάζονται με χειρολαβές· ή

(β) σε φλογο-στεγανές γυάλινες αμπούλες περιέχουσες όχι περισσότερα από 100 γραμμ., οι οποίες θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής.

Οι αμπούλες δεν πρέπει να γεμίζονται πέραν του 95 τοις εκατόν της χωρητικότητάς των. Ένα τέτοιο κόλον δεν

πρέπει να ζυγίζει περισσότερο από 75 KG. Κάλα ζω- 2623  
γίζοντα περισσότερο από 30 KG, πλην εκείνων που (Συνεχίζε-  
αποστέλλονται ως πλήρες φορτίο, θα εφοδιάζονται ται)  
με χειρολαβές· ή

- (γ) σε ερμητικώς κλεισμένα μεταλλικά δοχεία έχοντα, εάν χρειασθεί, κατάλληλον επένδυσιν, και έχοντα χωρητικότητα μη υπερβαίνουσαν τας 15 λίτρες. Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Τα δοχεία δεν πρέπει να γεμίζονται πέραν του 956του εκατόν της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από 100 KG· ή
- (δ) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια έχοντα, εάν χρειασθεί, κατάλληλον επένδυσιν. Τα βαρέλια δεν πρέπει να γεμίζονται πέραν του 956του εκατόν της χωρητικότητάς των. Εάν τα βαρέλια, μαζί με το περιεχόμενό τους, ζυγίζουν περισσότερο από 275 KG πρέπει να εφοδιάζονται με κυλιόμενες στεφάνες (ROLLING HOOPS)· ή
- (ε) σε ερμητικώς κλεισμένα κάνιστρα κατασκευασμένα από κατάλληλο μέταλλο, συγκολλημένα με μαλακή ή σκληρή συγκόλληση, έχοντα χωρητικότητα μη υπερβαίνουσα τις 60 λίτρες, και εφοδιασμένα με χειρολαβάς. Τα κάνιστρα δεν πρέπει να γεμίζονται πέραν του 956του εκατόν της χωρητικότητάς των· ή
- (στ) σε ερμητικώς κλεισμένα δοχεία, κατασκευασμένα από κατάλληλο πλαστική ύλη, χωρητικότητας μη υπερβαίνου-

σης τις 60 λίτρες. Τα δοχεία αυτά θα τοποθετούνται ένα-ένα και σφιχτά σε προστατευτική συσκευασία με πλήρεις πλευρές, κατασκευασμένη από χαρτοσανίδα ή από κάποια άλλη ύλη επαρκούς αντοχής. Τα δοχεία δεν πρέπει να γεμίζονται πέραν του 95 τοις εκατόν της χωρητικότητός των. 2623 (Συνεχίζεται)

(2) Οι ύλες της 6I<sup>0</sup>(I) θα συσκευάζονται:-

- (α) σε εξ ολοκλήρου συγκολλημένα χαλύβδινα βαρέλια με τοιχώματα πάχους όχι μικρότερου των 1.25 MM (χιλ.), εφοδιασμένα με κυλιόμενες στεφάνες (ROLLING HOOPS) και ενισχυτικές δοκίδες και έχοντα π.α. ανοίγματα κλεισμένα με δύο πώματα, το ένα επάνω στο άλλο, το ένα τούτων κοχλιωτό, ή
- (β) σε κάνιστρα από φύλλο-μετάλλου με τοιχώματα πάχους όχι μικρότερου του 1 MM (χιλ.) και χωρητικότητα μη υπερβαίνουσα τις 60 λίτρες, τα ανοίγματα κλεισμένα με δύο πώματα, το ένα πάνω στο άλλο, του ενός τούτων κοχλιωτού. Τα κάνιστρα από φύλλο-μετάλλου πρέπει να έχουν συγκολλημένες κατά μήκος ραφές, δύο ενισχυτικές δοκίδες στα τοιχώματα, και προστατευτική στεφάνη (RIM) κάτω από τον φέροντα υποδοχήν αρμόν του πυθμένος. Τα κάνιστρα χωρητικότητας 40 έως 60 λιτρών πρέπει να έχουν συγκολλημένους τους πυθμένες των και να είναι εφοδιασμένα με χειρολαβές στις πλευρές ή
- (γ) σε φιάλες αλουμινίου χωρητικότητας μη υπερβαίνουσας τις 2 λίτρες, ασφαλισμένες με αποσβεστικό υλικό από

~~α)~~ πολιική γή σε δοχεία από φύλλο-μετάλλου των οποίων τα πώματα θα κολλούνται σταθερά με κατάλληλες κολλητικές λωρίδες. Τα από φύλλο-μετάλλου δοχεία θα τοποθετούνται, μαζί με το υλικό πληρώσεως, σε ξύλινα κιβώτια. Το κόλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG. ή

2623  
(Συνεχίζεται)

- (δ) σε μη-επιστρεπτέα μεταλλικά βαρέλια (καινούργη είδη συσκευασίας προοριζόμενα να χρησιμοποιηθούν μόνο μία φορά)\* τα βαρέλια αυτά, των οποίων τα τοιχώματα θα έχουν πάχος όχι μικρότερο των 1.2 MM (χιλ.), θα είναι εφοδιασμένα με κοχλιωτό πώμα εφαρμοσμένο με παρέμβυσμα. Το πώμα θα ευρίσκεται σε ένα από τα άκρα του βαρελιού και θα προστατεύεται από την στεφάνη. Τα βαρέλια μπορούν να έχουν κορμόν με άκρα φέροντα υποδοχήν, και αρμούς ενισχυμένους με ούγιες\* εάν δεν διαθέτουν κυλιόμενες στεφάνες (ROLLING HOOPS) πρέπει να είναι εφοδιασμένα με ενισχυτικές δοκίδες. Το κόλον δεν πρέπει να ζυγίζει περισσότερο από 200 KG. Η μεταφορά σε μη-επιστρεπτέα βαρέλια θα λαμβάνει χώραν μόνον ως πλήρες φορτίο πάνω σε ανοικτά οχήματα\* ή
- (ε) σε μη-επιστρεπτέα χαλύβδινα βαρέλια (καινούργη είδη συσκευασίας προοριζόμενα να χρησιμοποιηθούν μόνο μία φορά) έχοντα πλευρές κατασκευασμένες από φύλλο-χάλυβος πάχους 1.24 MM (χιλ.), άκρα κατασκευασμένα από φύλλο χάλυβος πάχους 1.5 MM (χιλ.), και απόβαρον 22.5 KG\* τα βαρέλια πρέπει να είναι εφοδιασμένα με ενισχυτικές δοκίδες. Η φαφή του κορμού θα συγκολλείται και τα

άκρα θα διπλο-συρράπτονται δια συγκολλήσεως με τον 2623  
 κορμό, μετ' εσωτερικής επενδύσεως πολυαιθυλενίου. (Συνεχίζεται)  
 Δύο μονάδες κλεισίματος δια κοχλιωτών πωμάτων,  
 μία των 50.8 MM (2") και μία των 19.05 MM (3/4"),  
 θα διπλο-συρράπτονται δια συγκολλήσεως εις ένα των  
 άκρων, μετ' εσωτερικής επενδύσεως εκ συνθετικού καου-  
 τσούκ. Κυάθια εκ λεπτού φύλλου χάλυβος θα τοποθετούν-  
 ται υπεράνω των μονάδων κλεισίματος.

(3) Τα δοχεία τα αναφερόμενα υπό στοιχείον

(2) (α) έως (ε) δεν πρέπει να γεμίζονται πέραν του 93%  
 εκατόν της χωρητικότητάς των.

ΟΙ ύλες της 71<sup>ο</sup> θα συσκευάζονται:-

2624

- (α) σε σιδηρά ή ξύλινα είδη συσκευασίας· ή
- (β) σε σάκκους κατασκευασμένους από γερό δί-φυλλο χαρτί,  
 ή κατασκευασμένους από γιούτα, επενδεδυμένους με σάκ-  
 κον κατασκευασμένον από κατάλληλον πλαστικήν ύλην,  
 έτσι κλεισμένους ώστε να είναι στεγανοί.

(1) Οι ύλες των 72<sup>ο</sup> και 73<sup>ο</sup> θα συσκευάζονται: 2625

- (α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύαλο,  
 πορσελάνη, είδη κεραμεικής ή παρόμοια υλικά, ή από  
 κατάλληλη πλαστική ύλη, τα οποία δεν πρέπει να περιέ-  
 χουν περισσότερο από 5 KG το καθένα. Δοχεία κατασκευα-  
 σμένα από πλαστική ύλη μπορούν, εάν αποστέλλονται ως  
 πλήρες φορτίο, να περιέχουν μέχρι 10 KG της ύλης. Τα  
 δοχεία αυτά θα ασφαλίζονται με αποσβεστικό υλικό σε  
 ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία  
 επαρκούς αντοχής. Ένα τέτοιο κέλο δεν πρέπει να ζυγί-

- ζει περισσότερο από 75 KG· ή
- (β) σε χαλύβδινα ή ξύλινα είδη συσκευασίας· ή
- (γ) σε σάκκους κατασκευασμένους από γερδ δι-φυλλο τουλάχιστο χαρτί. Εν τούτοις, οι σάκκοι για οξικό μολυβδο πρέπει να κατασκευάζονται:-
- 1.- από κάρναβιν επενδεδυμένη με κατάλληλη πλαστική ύλη ή με γερδ κρέπ χαρτί κολλημένο με βιτούμιον (πύσσα). Ένας τέτοιος σάκκος, μαζί με το περιεχόμενό του, δεν πρέπει να ζυγίζει περισσότερο από 30 KG· ή
- 2.- από γερδ χαρτί τουλάχιστο δι-φυλλο, επενδεδυμένο με σάκκον κατασκευασμένον από κατάλληλη πλαστική ύλη· ένας τέτοιος σάκκος, μαζί με το περιεχόμενό του, δεν πρέπει να ζυγίζει περισσότερο από 30 KG· ή
- 3.- από γερδ χαρτί τουλάχιστο πεντά-φυλλο, επενδεδυμένο με σάκκον κατασκευασμένον από κατάλληλη πλαστική ύλη· ένας τέτοιος σάκκος, μαζί με το περιεχόμενό του, δεν πρέπει να ζυγίζει περισσότερο από 55 KG· ή
- 4.- από γερδ χαρτί τουλάχιστο τρι-φυλλο, τοποθετημένο σε σάκκους από γιούτα· ένας τέτοιος σάκκος, μαζί με το περιεχόμενό του, δεν πρέπει να ζυγίζει περισσότερο από 55 KG· ή
- (δ) σε σάκκους κατασκευασμένους από κατάλληλη πλαστική ύλη, έτσι κλεισμένους ώστε να είναι στεγανός, οι οποίοι θα τοποθετούνται σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Ένα τέτοιο κό-

2625

(Συνεχίζεται)

λον δεν πρέπει να ζυγίζει περισσότερο από 75 KG. 2625

(2) Οι ύλες της 72<sup>ο</sup> μπορούν επίσης να συσκευασθούν σε δοχεία κατασκευασμένα από πλάμα κασιιτέρου ή από φύλλο χάλυβος. (Συνεχίζεται)

Οι ύλες των 74<sup>ο</sup> και 75<sup>ο</sup> θα συσκευάζονται:- 2626

- (α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρόμοια υλικά, ή από κατάλληλη πλαστική ύλη, τα οποία δεν πρέπει να περιέχουν περισσότερο από 5 KG το καθένα. Δοχεία κατασκευασμένα από πλαστική ύλη μπορούν, εάν αποστέλλονται ως πλήρες φορτίο, να περιέχουν μέχρι 10 KG της ύλης. Τα δοχεία αυτά θα ασφαρίζονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Ένα τέτοιο κιβώτιο δεν πρέπει να ζυγίζει περισσότερο από 75 KG ή
- (β) σε χαλύβδινα ή ξύλινα είδη συσκευασίας ή
- (γ) σε σάκκους κατασκευασμένους από γερό χαρτί τουλάχιστο δι-φύλλο, ή σε σάκκους από γιούτα ή
- (δ) σε δοχεία κατασκευασμένα από πλάμα-κασσιτέρου ή από φύλλο-μετάλλου.

Τα παρασιτοκτόνα της 81<sup>ο</sup> θα συσκευάζονται:- 2627

(α) υπό στερεάν/ή υπό μορφήν ζύμης (PASPE FORM):-

- I.- σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρόμοια υλικά, ή από κατάλληλη πλαστική ύλη, τα οποία δεν πρέπει να περιέχουν περισσότερο από 5 KG το καθένα. Δοχεία κατασκευασμένα από πλαστική ύλη μπορούν,

- εάν αποστέλλονται ως πλήρες φορτίο, να περιέχουν 2627 μέχρι 10 KG της ύλης. Τα δοχεία αυτά θα ασφαλιζονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Ένα τέτοιο κλώον δεν πρέπει να ζυγίζει περισσότερο από 75 KG ή
- 2.- σε ερμητικώς κλεισμένα μεταλλικά δοχεία έχοντα, εάν χρειασθεί, κατάλληλη επένδυση, και τα οποία δεν πρέπει να περιέχουν περισσότερο από 15 KG το καθένα. Τα δοχεία αυτά θα ασφαλιζονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Ένα τέτοιο κλώον δεν πρέπει να ζυγίζει περισσότερο από 100KG ή
- 3.- σε ερμητικώς κλεισμένα μεταλλικά βαρέλια έχοντα, εάν χρειασθεί, κατάλληλη επένδυση. Εάν τα βαρέλια, μαζί με το περιεχόμενό τους, ζυγίζουν περισσότερο από 275 KG, θα εφοδιάζονται με κυλιόμενες στεφάνες (ROLLING HOOPS) ή
- 4.- σε ερμητικώς κλεισμένα δοχεία, κατασκευασμένα από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τις 60 λίτρες. Τα δοχεία αυτά θα τοποθετούνται ένα-ένα και σφικτά σε προστατευτική συσκευασία με πλήρεις πλευρές, κατασκευασμένη από χαρτοσανίδα ή από κάποια άλλη ύλη επαρκούς αντοχής ή
- 5.- σε σάκκους κατασκευασμένους από κατάλληλη πλαστική ύλη, έτσι κλεισμένους ώστε να είναι στεγανοί, οι οποίοι θα τοποθετούνται σε ξύλινο κιβώτιο ή σε κάποια



άλλη εξωτερική συσκευασία επαρκούς αντοχής. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG· ή

2627

(Συνεχίζεται)

- 6.- σε δοχεία κατασκευασμένα από ξύλο ή χαρτοσανίδα, επενδεδυμένα με ατμο-στεγανή πλαστική ύλη και ερμητικώς κλεισμένα. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG· ή
- 7.- σε ερμητικώς κλεισμένα μεταλλικά δοχεία. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG·
- 8.- αρσενικά ενώσεις αποστελλόμεναι ως πλήρες φορτίο μπορούν επίσης να συσκευάζονται σε ερμητικώς κλεισμένους ξύλινους κάδους (βυτία, βαρέλια) επαρκούς αντοχής, με κατάλληλη επένδυση. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει περισσότερο από 250 KG·
- 9.- παρασκευάσματα μπορούν επίσης να εγκλείονται σε συσκευασίες έτοιμα προς χρήση, τα οποία θα συσκευάζονται σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG·

(β) υπό υγρά μορφήν:-

- I.- σε δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρόμοια υλικά, ή από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τις 5 λίτρες, με τα ανοίγματα κλεισμένα με δύο πώματα, το ένα πάνω στο άλλο, και το ένα από αυτά κοχλιωτό. Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό απο-

σβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξω- 2627  
 περιική συσκευασία επαρκούς αντοχής. Τα δοχεία δεν πρέ- (Συνεχίζε-  
 πει να γεμίζονται πέραν του 936τος, εκατόν της χωρητι-  
 κότητάς των. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει  
 περισσότερο από 75 KG. Κέλα ζυγίζοντα περισσότερο από 30KG  
 πλήν εκείνων που αποστέλλονται ως πλήρες φορτίο, θα εφο-  
 διαζονται με χειρολαβές ή

2.- σε φλογο-στεγανές γυάλινες αμπούλες περιέχουσες όχι  
 περισσότερο από 50 γραμμ., οι οποίες θα ασφαρίζονται με  
 απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε  
 κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Οι  
 αμπούλες δεν πρέπει να γεμίζονται πέραν του 936τος ε-  
 εκατόν της χωρητικότητάς των. Ένα τέτοιο κέλον δεν πρέ-  
 πει να ζυγίζει περισσότερο από 30 KG. Πλήν εκείνων που  
 αποστέλλονται ως πλήρες φορτίο, κέλα ζυγίζοντα περισσό-  
 τερο από 30 KG θα εφοδιάζονται με χειρολαβές ή

3.- σε μεταλλικά δοχεία έχοντα, εάν χρειασθεί, κατάλληλον  
 επένδυαιν, έχοντα χωρητικότητα μη υπερβαίνουσαν τις 15  
 λίτρες και έχοντα ανοίγματα κλειόμενα με δύο πώματα, το  
 ένα τοποθετημένο πάνω στο άλλο, και το ένα από αυτά κο-  
 χλιωτό. Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό  
 αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη  
 εξωτερική συσκευασία επαρκούς αντοχής. Τα δοχεία δεν  
 πρέπει να γεμίζονται πέραν του 936τος, εκατόν της χω-  
 ρητικότητάς των. Ένα τέτοιο κέλον δεν πρέπει να ζυγί-  
 ζει περισσότερο από 100 KG ή

4.- σε κάμιστρα κατασκευασμένα από κατάλληλο μέταλλο, συγ-

καλλημένα με μαλακή ή σκληρή συγκόλληση, με τοιχώματα 2627 πάχους όχι μικρότερου των 0.5 MM (χιλ.) και χωρητικότητας μη υπερβαίνουσα τις 60 λίτρες, και ανοίγματα κλειδόμενα με δύο πώματα, τó ένα τοποθετημένο επάνω στο άλλο, και τó ένα από αυτά τα πώματα κοχλιωτό, και εφοδιασμένα με χειρολαβές. Τα κάλιστα δεν πρέπει να γεμίζονται πέραν του 93 τοις εκατόν της χωρητικότητος των· ή

5.- σε ερμητικώς κλεισμένα μεταλλικά βαρέλια έχοντα, εάν χρειασθεί, κατάλληλη επένδυση. Εάν τα βαρέλια, μαζί με το περιεχόμενό τους, ζυγίζουν περισσότερο από 275 KG, θα εφοδιάζονται με κυλιδόμενες στεφάνες (ROLLING HOOPS). Τα βαρέλια δεν πρέπει να γεμίζονται πέραν του 93 τοις εκατόν της χωρητικότητάς των· ή

6.- σε δοχεία κατασκευασμένα από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τις 60 λίτρες, με ανοίγματα κλειδόμενα με δύο πώματα, το ένα τοποθετημένο πάνω στο άλλο, και το ένα από τα πώματα κοχλιωτό. Τα δοχεία αυτά θα τοποθετούνται ένα-ένα και σφικτά σε προστατευτική συσκευασία με πλήρεις πλευρές, κατασκευασμένη από χαρτοσανίδα ή από κάποια άλλη ύλη επαρκούς αντοχής. Τα δοχεία δεν πρέπει να γεμίζονται πέραν του 93 τοις εκατόν της χωρητικότητάς των.

Τα παρασιτοκτόνα της 82<sup>ο</sup> θα συσκευάζονται:-

2628

(α) υπό στερεάν μορφήν:

1.- κατά τον αυτόν τρόπον όπως τα στερεά της 81<sup>ο</sup>.

2.- όταν αποστέλλονται ως πλήρες φορτίο, επίσης σε

σάκκους κατασκευασμένους από γερό τετρά-φυλλο χαρτί

επενδεδυμένους με σάκκον κατασκευασμένον από κατάλλη- 2628  
 λην πλαστικήν ύλην, έτσι κλεισμένους ώστε να είναι (Συνεχίζε-  
 στεγανοί. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πε-  
 ρισσότερο από 55 KG\* ται)

(β) υπό υγρά μορφήν:

κατά τον ίδιο τρόπον όπως τα υγρά της 81<sup>ο</sup>.

Τα παρασιτοκτόνα της 83<sup>ο</sup> θα συσκευάζονται: 2629

(α) υπό στερεά μορφήν:

- 1.- κατά τον ίδιο τρόπον όπως τα στερεά της 81<sup>ο</sup> ή
- 2.- σε σάκκους από γιούτα καταστάντας αδιαπεράστους από την υγρασία δι' επενδύσεως γενομένης από κα-  
 τάλληλο υλικό, κολλημένο με βιτούμιον (πίσσα), ή  
 σε σάκκους από γιούτα επενδεδυμένους με σάκκον  
 κατασκευασμένον από κατάλληλην πλαστικήν ύλην,  
 έτσι κλεισμένοι ώστε να είναι στεγανοί. Ένα τε-  
 τοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από  
 55 KG\* ή
- 3.- στη περίπτωση των παρασκευασμάτων, και άλλων πα ρα-  
 σιτοκτόνων, εάν αποστέλλονται ως πλήρες φορτίο, σε  
 σάκκους κατασκευασμένους από γερό τετρά-φυλλο χαρτί,  
 επενδεδυμένους με σάκκον κατασκευασμένον από κατάλλη-  
 λη πλαστικήν ύλην και ερμητικώς κλεισμένοι. Ένα τέ-  
 τοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από 55KG\* ή
- 4.- στη περίπτωση τερεών αρσενικών ενώσεων:
  - I.- σε ξύλινους κάδους (βυτία, βαρέλια) με διπλά τοι-  
 χώματα, επενδεδυμένους με γερό χαρτί\* ή
  - II.- σε κυτία από ινοσανίδα τοποθετημένα σε ξύλινο κι-  
 βώτιο\* ή

III.- όχι άνω των 12.5 KG ανά σάκκον, σε διπλούς 2629  
 σάκκους, κατασκευασμένους από γερό χαρτί ή (Συνεχίζεται)  
 κατάλληλη πλαστική ύλη, οι οποίοι θα τοποθε-  
 τούνται είτε σε ξύλινο κιβώτιο επενδεδυμένο  
 με χονδρό χαρτί ή σφιχτά σε γερό κιβώτιο κα-  
 τασκευασμένο από διπλής-όψης κυματοειδούς ινο-  
 σανίδος ή στερεάς ινοσανίδος ισοδυναμού αντο-  
 χής, του κιβωτίου επενδεδυμένου με γερό χαρτί.  
 Όλοι οι αρμοί και πτερύγια θα καλύπτονται με  
 κολλητικές λωρίδες. Κόβον αποτελούμενον από  
 κιβώτιον ινοσανίδος δεν πρέπει να ζυγίζει πε-  
 ρισσότερο από 30 KG.

5.- στη περίπτωση αρσενικών ενώσεων αποστελλομένων ως πλή-  
 ρες φορτίον:-

I.- σε συνηθή ξύλινα είδη συσκευασίας επενδεδυμένα  
 με γερό χαρτί ή

II.- όχι περισσότερο των 25 KG ανά σάκκον, σε σάκ-  
 κους από δι-φυλλο χαρτί, ή σε σάκκους κατα-  
 σκευασμένους από κατάλληλη πλαστική ύλη, οι  
 οποίοι θα τοποθετούνται χωριστά σε σάκκους κατα-  
 σκευασμένους από γιούτα ή παρόμοιο υλικό επεν-  
 δεδυμένους με κρέπ χαρτί ή

III.- σε σάκκους κατασκευασμένους από χαρτί τουλάχι-  
 στον τρι-φυλλο ή σε σάκκους από δι-φυλλο χαρτί  
 επενδεδυμένους με σάκκον κατασκευασμένον από  
 κατάλληλον πλαστικήν ύλην. Ένα τέτοιο κόβον  
 δεν πρέπει να ζυγίζει περισσότερο από 20 KG ή

- IV.- σε σάκκους από δι-φυλλο χαρτί ή σε σάκκους κατασκευασμένους από κατάλληλη πλαστική ύλη, οι οποίοι θα τοποθετούνται σε σάκκους από τετραφυλλο χαρτί. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει περισσότερο από 60 KG. 2629 (Συνεχίζεται)

Στις περιπτώσεις των III και IV ανωτέρω, κάθε αποστολή πρέπει να συνοδεύεται από κενούς σάκκους εν αναλογία I για κάθε 20 σάκκους περιέχοντας αρσενικής ύλης (ύλης αρσενικού), οι κενοί δε αυτοί σάκκοι προορίζονται να περιλάβουν ποσότητες των υλών που ενδέχεται να διαφύγουν από σάκκους καταστραφέντας κατά την μεταφοράν.

(β) υπό υγρής μορφής:-

I.- κατά τον ίδιον τρόπον όπως τα υγρά της 81<sup>ο</sup> ή

2.- στη περίπτωση των παρασκευασμάτων:-

I.- σε ερμητικώς κλεισμένα κυλινδρικά δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμικής ή παρόμοια υλικά, χωρητικότητας μη υπερβαίνουσας τις 25 λίτρες. Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Τα δοχεία δεν πρέπει να γεμίζονται πέραν του 95% του εκάστης χωρητικότητάς των. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG ή

II.- σε ερμητικώς κλεισμένες γυάλινες νταμιζάνες, χωρητικότητας μη υπερβαίνουσας τις 25 λίτρες, οι οποίες θα ασφαρίζονται με απορροφητικό απο-

σβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη 2629  
εξωτερική συσκευασία επαρκούς αντοχής, ή οι οποίες (Συνεχίζε-  
ται)) θα ασφαλίζονται σε σιδηρούς ή φαθωτούς καλάθους.

Οι νταμιζάνες δεν πρέπει να γεμίζονται πέραν του  
956τοι εκατόν της χωρητικότητάς των. Ένα τέτοιο  
κόβλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG·ή

III.- σε δοχεία, κατασκευασμένα από κατάλληλη πλαστική ύ-  
λη, με τοιχώματα πάχους όχι μικρότερου των 4 MM  
(χιλ.) και χωρητικότητας μη υπερβαίνουσας τις 60 λί-  
τρες, των ανοιγμάτων κλειομένων με δύο πώματα, το  
ένα τοποθετημένο πάνω στο άλλο, του ενός των πω-  
μάτων κοχλιωτού, των δοχείων μη εχόντων προστατευ-  
τικήν συσκευασίαν εάν η αρμόδια αρχή της χώρας της  
αναχωρήσεως το επιτρέπει. Τα δοχεία δεν πρέπει να  
γεμίζονται πέραν του 956τοι εκατόν της χωρητικότητάς  
των. Το ποιούτο κόβλον δεν πρέπει να ζυγίζει περισσό-  
τερο από 75 KG.

ΟΙ ύλες της 84° θα συσκευάζονται:- 2630

- (α) κατά τον ίδιον τρόπον όπως τα στερεά της 81°· ή
- (β) στη περίπτωση υλών της 84° (α), λίαν εμφανώς εγχρώμων,  
σε σάκκους κατασκευασμένους από χαρτί τουλάχιστον δι-  
φυλλον, ή σε κατάλληλη πλαστική ύλη, οι οποίοι θα  
τοποθετούνται σε υφασματένιους σάκκους· ή
- (γ) στη περίπτωση υλών της 84°, σε στενά-υφασμένους σάκ-  
κους από γιούτα.

3.- Μικτή συσκευασία 2631

(I) Ύλες ομαδοποιημένες υπό τον αυτόν αριθμόν

είδους μπορούν να συμπεριλαμβάνονται στο αυτό κώλον. 263I

Οι εσωτερικές συσκευασίες θα είναι σύμφωνοι με ό,τι προβλέπεται για κάθε ύλη, και η εξωτερική συσκευασία θα είναι η ορισθείσα για τις ύλες του εν θέματι αριθμού είδους.

(2) Εάν μικρότερες ποσότητες δεν προβλέπονται υπό του άρθρου του τιτλοφορουμένου "Συσκευασία μιάς ύλης", οι ύλες της παρούσης Κλάσεως, σε ποσότητες μη υπερβαίνουσες τα 6 KG στη περίπτωση στερεών ή τις 3 λίτρες στη περίπτωση των υγρών για όλες τις ύλες τις αναγραφόμενες υπό τον αυτόν αριθμόν είδους ή το αυτό γράμμα, μπορούν να εγκλιούνται στο αυτό κώλον είτε με ύλες άλλου αριθμού είδους ή άλλου γράμματος της αυτής Κλάσεως, η με επικίνδυνες ύλες ανήκουσες σε άλλες Κλάσεις (εάν μικτή συσκευασία ομοίως επιτρέπεται στη περίπτωση τοιούτων υλών), ή με άλλα εμπορεύματα, υπό την επιφύλαξη των παρακάτω ειδικών όρων:-

Οι εσωτερικές συσκευασίες πρέπει να πληρούν τους γενικούς και ειδικούς όρους συσκευασίας. Επιπροσθέτως, οι γενικοί όροι των περιθωρίων 200I(5) και 2002 (6) και (7) πρέπει να τηρούνται.

Το κώλον δεν πρέπει να ζυγίζει περισσότερο από 150 KG, ή περισσότερο από 75 KG εάν περιέχει εύθραυστα δοχεία.



2631

(Συνεχίζεται)

Ειδικός όροι:-

Αριθμός Είδους	Περιγραφή Ύλης	Ανωτάτη Ποσότητα		Ειδικές Διατάξεις
		ανά δοχείον	ανά κόλον	
I <sup>ο</sup> (α)	Υδροκυανικό οξύ	Μικτή συσκευασία δεν επιτρέπεται		
I <sup>ο</sup> (β)	Διαλύματα υδροκυανικού οξέος περιέχοντα όχι άνω του 4 <sup>ο</sup> /ο υδροκυανικών οξέ (διαλύματα περιέχοντα άνω του 4 <sup>ο</sup> /ο απαγορεύονται)	I λίτρα	I λίτρα	Δεν πρέπει να συσκευάζονται με οποιοδήποτε άλλο οξύ
2 <sup>ο</sup>	Ακρυλονιτρίλιο, ακετονιτρίλιο, ισοβουτυρονιτρίλιο	I λίτρα	I λίτρα	Δεν πρέπει να συσκευάζονται μαζί με όλες της κλάσεως 5.1 και κλάσεως 8. Γυάλινα δοχεία πρέπει να ασφαρίζονται με αποσβεστικό υλικό σε

263I

(Συνεχίζεται)

Αριθμός Είδους	Περιγραφή Υλης	Ανωτάτη ανά δοχείο	Ποσότητα ανά κόλον	Ειδικές Διατάξεις
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( Σ υ ν έ χ ε ι α )

προστατευτικά

δοχεία

5 <sup>ο</sup> (α)	Καρβονώλιο Νικελίου	Μικτή συσκευασία απαγορεύεται		
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II <sup>ο</sup> (α)	2-CYANOPROPAN-2-οI	I λίτρα	I λίτρα	Δεν πρέπει να συσκευάζονται μαζί με ύλες των Κλάσεων 5.1 και 8. Γυάλινα δοχεία πρέπει να ασφα- λίζονται με αποσβεστικό υλικό σε προ- στατευτικά δο- χεία
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I3 <sup>ο</sup> (β)	Θειϊκό Διμεθύλιο (DIMETHYL SULPHATE)	I λίτρα	3 λίτρες	
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3I <sup>ο</sup> (α)	Κυανίδια σε στερεά μορφή - σε εύθραυστα δοχεία - σε συνήθη δοχεία	500 γραμ. 5 KG	500 γραμ. 5 KG	Δεν πρέπει να συσκευάζονται μαζί με ύλες φύσεως οξέος
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3I <sup>ο</sup> (β)	Διαλύματα ανοργάνων κυανιδίων	I λίτρα	3 λίτρες	
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4I <sup>ο</sup> (β)	Κράματα σιδηρο-πυριτίου με αλουμίνιο	2.5KG	2.5 KG	
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4.- Ένδειξεις (μαρκάρισμα) και ετικέτες κινδύνου 2632  
επί των κδλων (βλέπε Προσθήκη Α.9)

(1) Κδλα περιέχοντα ύλες των I<sup>ο</sup> - 5<sup>ο</sup>, II<sup>ο</sup> - I4<sup>ο</sup>, 2I<sup>ο</sup> - 23<sup>ο</sup>, 3I<sup>ο</sup> - 33<sup>ο</sup>, 4I<sup>ο</sup>, 5I<sup>ο</sup> - 54<sup>ο</sup>, 8I<sup>ο</sup> και 82<sup>ο</sup> θα φέρουν ετικέτα σύμφωνον προς το μοντέλο Νο.4<sup>ο</sup> κδλα περιέχοντα ύλες των 2<sup>ο</sup>, 4<sup>ο</sup>(α), 5<sup>ο</sup> και II<sup>ο</sup>(α), θα φέρουν, επιπροσθέτως, ετικέτα σύμφωνον προς το μοντέλο Νο. 2Α. Κδλα περιέχοντα ύλες των 6I<sup>ο</sup>, 62<sup>ο</sup>, 7I<sup>ο</sup> - 75<sup>ο</sup>, 83<sup>ο</sup> και 84<sup>ο</sup> θα φέρουν ετικέτα σύμφωνον προς το μοντέλο 4Α.

Κδλα περιέχοντα χρωμικά άλατα μολύβδου (χρωμικό μόλυβδο), μίνιον (κόκκινος μόλυβδος), κυαναμίδιο μολύβδου της 72<sup>ο</sup>, ή ύλες της 83<sup>ο</sup> ή 84<sup>ο</sup>, θα φέρουν ετικέτα σύμφωνον με το μοντέλο 4Α.

(2) Κδλα περιέχοντα εύθραυστα δοχεία άδρατα από έξω θα φέρουν ετικέτα σύμφωνον προς το μοντέλο Νο. 9. Εάν τα εύθραυστα δοχεία περιέχουν υγρά, τα κδλα επιπροσθέτως, πλην της περιπτώσεως των σφραγισμένων αμπουλών, θα φέρουν ετικέτες σύμφωνες προς το μοντέλο Νο. 8<sup>ο</sup> οι ετικέτες αυτές θα τοποθετούνται ψηλά σε δύο αντίθετες πλευρές των κιβωτίων ή κατά τρόπον ισοδύναμον όταν χρησιμοποιούνται άλλα είδη συσκευασίας.

(3) Προκειμένου περί φορτώσεων αποστελλομένων ως πλήρες φορτίον, οι ετικέτες 2Α, 4 ή 4Α δεν χρειάζεται να τοποθετούνται στα κδλα εάν το όχημα φέρει την ένδειξη την προβλεπομένην υπό του Παραρτήματος Β, περιθώριον 10.500.

B.- Στοιχεία εγγράφου μεταφοράς

2633

(I) Προκειμένου περί υλών που αναφέρονται με την ονομασία του καταλόγου υλών (περιθώριον 260I), η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς πρέπει να συμφωνεί με την ονομασίαν την υπογραμμισμένην στο περιθώριο 260I. Η περιγραφή των εμπορευμάτων πρέπει να υπογραμμίζεται με κόκκινο και ακολουθείται από τα στοιχεία της κλάσεως, τον αριθμόν του είδους (μαζί με το, τυχόν, γράμμα), και τα αρχικά "ADR" ή "RID" (π.χ. 6.I, I<sup>0</sup>(α), ADR).

2634

Προκειμένου περί υλών που δεν αναφέρονται με την ονομασίαν του καταλόγου υλών (περιθώριον 260I), η εμπορική ονομασία ή η χημική ονομασία πρέπει να χρησιμοποιείται. Η περιγραφή αυτή πρέπει να υπογραμμίζεται με κόκκινο και να ακολουθείται από τα στοιχεία της κλάσεως και τον αριθμόν του είδους (μαζί με το, τυχόν, γράμμα), της ύλης της παρουσιαζούσης συγκρινόμενον (ανάλογον) βαθμόν κινδύνου, και τα αρχικά "ADR" ή "RID" (π.χ. 6.I, 2I<sup>0</sup>(μ), ADR).

(2) Προκειμένου περί του υδροκυανικού οξέος (I<sup>0</sup>(α)) τα παρακάτω πρέπει να βεβαιούνται στο έγγραφο μεταφοράς: "Η φύσις των εμπορευμάτων, και το είδος της συσκευασίας, συμφωνούν με τις διατάξεις της ADR".

(3) Προκειμένου περί των υλών της 4I<sup>0</sup>, τα παρακάτω πρέπει να βεβαιούνται στο έγγραφο μεταφοράς: "Αποθηκευμένα στον ανοικτόν αέρα και σε ξηρόν τόπον όχι λιγώτερο από τρεις ημέρες".

(4) Προκειμένου περι αποστολών υλών που πολυ- 2634  
 μεροποιούνται ευχερώς, τα παρακάτω πρέπει να βεβαι- (Συνεχίζε-  
 ούνται στο έγγραφο μεταφοράς: "Πάρθηκαν τα απαραίτητα  
μέτρα για την αποφυγήν πολυμερισμού διαρκούσης της  
μεταφοράς".

2635-

2642

Γ.- Κενά είδη συσκευασίας

(1) Οι σάκκοι της 91<sup>ο</sup> και 92<sup>ο</sup> πρέπει να συ- 2643  
 σκευάζονται σε κιβώτια ή σε αδιαπέραστους σάκκους  
 προς αποφυγήν οιασδήποτε απώλειας των υλών .

(2) Άλλα είδη συσκευασίας και δεξαμενές της 91<sup>ο</sup>  
 και 92<sup>ο</sup> πρέπει να κλείνονται κατα τον ίδιο τρόπον και  
 και με τον αυτόν βαθμόν στεγανότητας ως εάν ήσαν πλήρεις.

(3) Κόλλα αποστελλόμενα όχι ως πλήρες φορτίο, δε-  
 ξαμενές, και συσκευασθέντες σάκκοι της 91<sup>ο</sup> θα φέρουν  
 ετικέτες σύμφωνες προς το μοντέλο Νο. 4<sup>ο</sup> συσκευασμένοι  
 σάκκοι της 92<sup>ο</sup> θα φέρουν ετικέτες σύμφωνες προς το μον-  
 τέλο Νο. 4Α (βλέπε Προσθήκη Α.9).

(4) Η περιγραφή στο έγγραφο μεταφοράς πρέπει να  
 είναι: "Κενή συσκευασία. 6.1, 91<sup>ο</sup> (ή 92<sup>ο</sup>), ADR (ή RID)".  
 Η περιγραφή αυτή πρέπει να υπογραμμίζεται με κόκκινο.

2644-

2649

ΚΛΑΣΗ: 6.2 ΑΠΕΧΘΕΙΣ ΥΛΕΣ ΚΑΙ ΥΛΕΣ ΠΟΥ ΜΠΟΡΟΥΝ  
ΝΑ ΠΡΟΚΑΛΕΣΟΥΝ ΜΟΛΥΝΣΗ.

I.- Κατάλογος υλών

Μεταξύ των υλών και ειδών που καλύπτονται 2650

υπό τον τίτλον Κλάσης 6.2, μόνον εκείνες που αναγράφονται στο περιθώριο 265I γίνονται δεκτές προς μεταφοράν, και μόνον υπό την επιφύλαξη των διατάξεων του παρόντος Παραρτήματος και του Παραρτήματος Β. Οι ύλες αυτές και είδη που γίνονται δεκτά για μεταφορά υπό ωρισμένους όρους θεωρούνται ως ύλες και είδη της ADR.

I<sup>ο</sup> (α) Νωποί τένοντες, ξακρίδια νωπών δερμάτων, μη αβε- 265I  
σταμμένων ή αλατισμένων, απορροήματα από νωπούς τέ-  
νοντες ή από ξακρίδια νωπών δερμάτων.

Σημείωση: - Ξακρίδια υγρών νωπών δερμάτων, ασβεστο-  
μένων ή αλατισμένων, δεν υπόκεινται στις διατάξεις  
της ADR.

(β) νωπά κέρατα, ή οπλές μη καθαρισμένες από κόκκινα  
και μαλακά συναφή μέρη, νωπά κόκκιαλα μη καθαρι-  
σμένα από το κρέας ή άλλα μαλακά συναφή μέρη.

(γ) ανατέργαστες γουρουνότριχες και μαλλί.

2<sup>ο</sup> Νωπά δέρματα, μη αλατισμένα ή αλατισμένα, από τα οποία  
προκλητικές ποσότητες αίματος ή άλμης στάζουν.

Σημείωση: - Κανονικώς αλατισμένα δέρματα περιέχοντα  
μικράν μόνον ποσότητα υγρασίας δεν υπόκεινται στις  
διατάξεις της ADR.

3<sup>ο</sup> Καθαρισμένα ή ξηραμένα κόκκιαλα, καθαρισμένα ή ξηραμέ-  
να κέρατα και οπλές.

Σημείωση: - Ξηρά κόκκαλα από τα οποία αφαιρέθηκαν 265I λίπος, μη αναδύοντα βρώμικη (σάπια) οσμή, δεν υπο- (Συνεχίζεται)  
κείνται στις διατάξεις της ADR.

4° Νωπές ρενέτες μοσχαριού, καθαρισμένες από όλα τα ίχνη εδωδίου ύλης.

Σημείωση: - Ξηραμένες ρενέτες μοσχαριού (CALF RENNETS) που δεν αναδύουν προκλητική οσμή δεν υπόκεινται στις διατάξεις της ADR.

5° Πεπιεσμένα υπολείμματα εκ της κατασκευής δερματοκόλλας (ασβεστούχα υπολείμματα, υπολείμματα από το ασβέστωμα ξακριδίων δερμάτων, ή υπολείμματα χρησιμοποιούμενα ως λιπάσματα).

6° Μη-πεπιεσμένα υπολείμματα εκ της κατασκευής δερματοκόλλας.

7° Μη-μολυβθέντα ούρα προστατευόμενα κατά της αποσυνθέσεως.

8° Ανατομικά τεμάχια, εντόσθια και αδένες.

(α) μη-μολυβθέντα

(β) μολυβθέντα

9° Κοπριά

10° Περιττώματα

11° Άλλες ύλες ζώων, απεχθείς ή δυνάμενες να προκαλέσουν μδλυνση, μη ήδη ειδικώς αναφερθείσαι εις I° έως 10°.

12° Κενά είδη συσκευασίας και κενοί σάκκοι που περιείχαν ύλες των I° έως 8°, 10° και 11°, και φύλλα που χρησιμοποιήθηκαν για κάλυμμα των υλών της Κλάσεως 6.2.

Σημείωση: - Εάν δεν ελκαθαρίστηκαν, τα είδη αυτά της συσκευασίας, σάκκοι και φύλλα δεν γίνονται δεκτά για

μεταφορά.

## 2.- Διατάξεις

### A.- Κόλα

#### I.- Γενικοί όροι συσκευασίας

(1) Τα είδη συσκευασίας θα είναι έτσι κλεισμένα και στεγανά ώστε να αποφεύγεται οποιαδήποτε απώλεια του περιεχομένου. 2652

(2) Τα είδη συσκευασίας, συμπεριλαμβανομένων των κλεισιμάτων των, πρέπει να είναι επαρκώς άκαμπτα και γερά σε όλα τα μέρη τους για να αποφεύγεται οποιαδήποτε χαλάρωση διαρκούσης της μεταφοράς και πρέπει να τηρούν τους συνήθεις όρους μεταφοράς. Ειδικότερα οσάκις οι ύλες είναι σε υγρά κατάσταση ή είναι υποκείμενες σε ζυμώσεις, τα δοχεία και τα κλεισίματα αυτών πρέπει, εκτός εάν το άρθρο το τιτλοφορούμενο "Συσκευασία μιάς ύλης" προβλέπει άλλως, να είναι σε θέση να ανθίστανται σε οποιαδήποτε πίεση η οποία, λαμβανομένης επίσης υπόψη της παρουσίας του αέρος, ενδέχεται να εγερθεί εσωτερικώς των δοχείων κατά την συνήθη μεταφοράν. Για τον σκοπόν αυτόν ελεύθερος χώρος πρέπει να αφήνεται, λαμβανομένης υπόψη της διαφοράς μεταξύ της θερμοκρασίας των υλών κατά τον χρόνον της πληρώσεως και της ανωτάτης μέσης θερμοκρασίας την οποίαν ενδέχεται να φθάσουν διαρκούσης της μεταφοράς.

(3) Ουδέν ίχνος του περιεχομένου πρέπει να κολλά στο εξωτερικό των κόλων.

#### 2.- Συσκευασία μιάς ύλης

Οι ύλες της I<sup>ο</sup> θα συσκευάζονται:-



(α) εάν δεν αποστέλλονται ως πλήρες φορτίο:-

2653

1.- σε μεταλλικά δοχεία εφοδιασμένα με ασφαλές

(Συνεχίζε-  
ται)

κλεισιμο ικανό να λειτουργεί σε εσωτερική  
(λεκάνες)  
πίεση, ή σε κάδους, μικρά βυτία/ή κιβώτια· ή-

2.- στη περίπτωση των υλών της 1<sup>ο</sup>(γ), σε ξηρά κατά-

σταση, επίσης σε σάκκους, υπό τον όρον ότι η  
κακή οσμή μπορεί να αφαιρεθεί δι' απολυμάνσεως.

Στη περίπτωση υλών όχι σε ξηρά κατάσταση, η  
συσκευασία σε σάκκους επιτρέπεται μόνον από  
της 1ης Νοεμβρίου μέχρι της 15ης Απριλίου·

(β) εάν αποστέλλονται ως πλήρες φορτίο:

1.- σε είδη συσκευασίας οριζόμενα εν (α)1. ανωτέ-  
ρω· ή

2.- υπό τον όρον ότι η κακή οσμή μπορεί να αφαιρεθεί  
δι' απολυμάνσεως, σε σάκκους εμποτισμένους με  
κατάλληλα απολυμαντικά.

Οι ύλες της 2<sup>ο</sup> θα συσκευάζονται:

2654

(α) εάν δεν αποστέλλονται ως πλήρες φορτίο:-

1.- σε κάδους, μικρές λεκάνες ή κιβώτια· ή

2.- κατά τους μήνες από Νοεμβρίου μέχρι Φεβρουαρίου  
συμπεριλαμβανομένων, σε σάκκους εμποτισμένους  
με κατάλληλα απολυμαντικά, υπό τον όρον ότι η  
κακή οσμή μπορεί να αφαιρεθεί δι' απολυμάνσεως·

(β) εάν αποστέλλονται ως πλήρες φορτίο:-

1.- σε είδη συσκευασίας οριζόμενα εν (α) 1. ανωτέρω·  
ή

2.- υπό τον όρον ότι η κακή οσμή μπορεί να αφαιρεθεί

δι' απολυμάνσεως σε σάκκους εμποτισμένους με κατάλληλα απολυμαντικά. 2654  
(Συνεχίζεται)

ΟΙ ύλες της 3<sup>ο</sup> θα συσκευάζονται σε κάδους, μικρές λεκάνες, κιβώτια, μεταλλικά δοχεία ή σάκκους. 2655

Οι ύλες της 4<sup>ο</sup> θα συσκευάζονται:- 2656

(α) εάν δεν αποστέλλονται ως πλήρες φορτίο:-

σε κάδους, μικρές λεκάνες, κιβώτια, μεταλλικά δοχεία ή σάκκους.

(β) εάν αποστέλλονται ως πλήρες φορτίο: σε οποιαδήποτε κατάλληλα είδη συσκευασίας.

Οι ύλες της 5<sup>ο</sup> και 6<sup>ο</sup> θα συσκευάζονται σε κάδους (βυτία, βαρέλια), μικρές λεκάνες, κιβώτια ή μεταλλικά δοχεία. 2657

Οι ύλες της 7<sup>ο</sup> θα συσκευάζονται <sup>σε</sup> ερμητικώς κλεισμένα δοχεία κατασκευασμένα από γαλβανισμένο φύλλο-μετάλλου. 2658

(1) Οι ύλες της 8<sup>ο</sup> θα συσκευάζονται σε μεταλλικά δοχεία εφοδιασμένα με κατάλληλο κλείσιμο ικανό να λειτουργεί σε εσωτερική πίεση, σε κάδους ή μικρές λεκάνες. οι ύλες της 8<sup>ο</sup>(α) μπορούν επίσης να συσκευασθούν σε κιβώτια. 2659

(2) Οι ύλες της 8<sup>ο</sup> μπορούν επίσης να συσκευάζονται ως κάτωθι:-

(α) ύλες της 8<sup>ο</sup>(α), σε δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής, μέταλλο ή κατάλληλο πλαστική ύλη. Τα δοχεία αυτά θα τοποθετούνται, είτε ένα-ένα είτε ομαδικά, σε γερό ξύλινο κιβώτιο, με

απορροφητικό αποσβεστικό υλικό εάν τα δοχεία εί- 2659  
ναι εύθραυστα. Εάν οι προς μεταφοράν ύλες έχουν (Συνεχίζε-  
ταί)  
εμβυθισθεί σε διατηρητικό ρευστό, οι απορροφητι-  
κές ύλες θα είναι επαρκούς ποσότητας ώστε να απορ-  
ροφηθεί όλο το ρευστό. Το διατηρητικό ρευστό δεν  
πρέπει να είναι εύφλεκτο. Κόλα ζυγίζονται πάνω από  
30 KG θα είναι εφοδιασμένα με χειρολαβές\*

(β) ύλες της 8<sup>ο</sup> (β), σε κατάλληλα δοχεία τοποθετημένα  
με αποσβεστικό υλικό σε γερό ξύλινο κιβώτιο έχον  
μεταλλικήν επένδυσιγ καταστάσαν στεγανήν π.χ. δια  
συγκολλησεως. Κόλα ζυγίζονται/ πάνω από 30 KG θα  
είναι εφοδιασμένα με χειρολαβές\*

Οι ύλες της 9<sup>ο</sup> θα αποστέλλονται μόνον χύμα. 2660

Οι ύλες της 10<sup>ο</sup> θα συσκευάζονται σε δοχεία 2661  
κατασκευασμένα από φύλλο-μετάλλου.

Οι ύλες της 11<sup>ο</sup> θα συσκευάζονται σε μεταλλικά 2662  
δοχεία εφοδιασμένα με κλείσιμο ασφαλείας ικανό να  
λειτουργεί σε εσωτερική πίεση, ή σε κάδους, μικρές  
λεκάνες ή κιβώτια.

### 3.- Μικτή συσκευασία

Ύλες αναγραφόμενες υπό αριθμόν είδους του πε- 2663  
ριθμίου 265I μπορούν να συμπεριληφθούν στο αυτό κόλον  
μόνον με ύλες αναγραφόμενες υπό τον αυτόν αριθμόν είδους,  
και τότε μόνον υπό τον όρον ότι θα χρησιμοποιηθούν τα  
είδη συσκευασίας τα προβλεπόμενα υπό των άρθρων Α.Ι και  
2 ανωτέρω.

4.- Ενδείξεις (μαρκάρισμα) και ετικέτες κινδύνου επί των κδλων (βλέπε Προσθήκη Α.9).

Κδλα περιέχοντα εύθραυστα δοχεία άδρατα από 2664  
έξω θα φέρουν ετικέτα σύμφωνον προς το μοντέλο Νο.9.  
Εάν τα εύθραυστα δοχεία περιέχουν υγρά, τα κδλα, επι-  
προσθέτως, εκτός της περιπτώσεως των σφραγισμένων αμ-  
πουλών, θα φέρουν ετικέτες σύμφωνες προς το μοντέλο  
Νο. 8· οι ετικέτες αυτές θα τοποθετούνται ψηλά σε δύο  
αντίθετες πλευρές των κιβωτίων ή κατά τρόπον ισοδύναμον  
όταν χρησιμοποιούνται άλλα είδη συσκευασίας.

2665

B.- Στοιχεία εγγράφου μεταφοράς

2666

Η περιγραφή των εμπορευμάτων στο έγγραφο με-  
ταφοράς πρέπει να συμφωνεί με μία των ονομασιών των υπο-  
γραμμισμένων στο περιθώριο 265I. Οσάνκις η ονομασία της  
ύλης δεν σημειούται, θα χρησιμοποιείται η εμπορική ο-  
νομασία. Η περιγραφή των εμπορευμάτων πρέπει να υπο-  
γραμμίζεται με κόκκινο και ακολουθείται από πα στοιχεία  
της Κλάσεως, τον αριθμόν του είδους (μαζί με το, τυχόν,  
γράμμα), και τα αρχικά "ADR" ή "RID" (π.χ. 6.2, I<sup>0</sup>(α),  
ADR).

Γ.- Κενά είδη συσκευασίας

(1) Τα είδη της I2<sup>0</sup> θα καθαρίζονται και επεξεργά- 2673  
ζονται με κατάλληλα απολυμαντικά.

(2) Η περιγραφή στο έγγραφο μεταφοράς πρέπει να  
είναι: "Κενή συσκευασία (ή κενός σάκκος, ή φύλλον), 6.2,  
I2<sup>0</sup>, ADR (ή RID)". Η περιγραφή αυτή πρέπει να υπογραμμί-  
ζεται με κόκκινο.

2674-

2699

ΚΛΑΣΙΣ 7  
ΡΑΔΙΕΝΕΡΓΕΙΣ ΥΛΕΣ.

Εισαγωγή.-

(1) Αντικείμενον

2700

(α) Μεταξύ των υλών με ειδικήν ενέργειαν άνω των 0.002 MICROCURIE ανά γραμμάριον και ειδών περιεχόντων τέτοιες ύλες, μόνον εκείνες και εκείνα που σημειούνται στους πίνακες του περιθωρίου 2703 γίνονται δεκτά για μεταφορά και τότε μόνον υπό τους όρους τους ανεφερομένους στους καταλλήλους πίνακες του ρηθέντος περιθωρίου και στη προσθήκη Α.6 (περιθώρια 3600 - 3699).

(β) Οι εν (α) ανωτέρω ύλες και είδη είναι ύλες και είδη της ADR.

ΣΗΜΕΙΩΣΙΣ:- Καρδιακοί βημαποδοτές περιέχοντες ραδιενεργείς ύλες, όταν έχουν χειρουργικώς εμφυτευθεί σε ασθενείς ή μεταφέρονται εντός των ασθενών κατά την ιατρικήν των θεραπείαν, δεν υπόκεινται στην ADR.

(2) Ορισμοί και επεξηγήσεις

A<sub>1</sub> και A<sub>2</sub>

"A<sub>1</sub>" σημαίνει την ανωτάτην ενέργεια ειδικής μορφής ραδιενεργών υλών που επιτρέπεται για κόλον Τύπου Α. "A<sub>2</sub>" σημαίνει την ανωτάτην ενέργεια ραδιενεργών υλών, πλην των ειδικής μορφής ραδιενεργών υλών, που επιτρέπεται για κόλον Τύπου Α. Οι τιμές αυτές είτε απαριθμούνται στη Προσθήκη Α.6 Πίναξ XXI είτε μπορούν να εξαχθούν σύμφωνα με τη διαδικασία την περιγραφομένην στα περιθώρια 3690 και 369I της Προσθήκης Α.6.

Επιτρεπτός αριθμός κόλων

2700

(Συνεχίζεται)

"Επιτρεπτός αριθμός I/ κόλων" σημείνει τον ανώτατον αριθμόν κόλων Διασπαστής Κλάσεως II ή Διασπαστής Κλάσεως III που μπορούν να ομαδοποιηθούν σε ένα μέρος κατά την διάρκεια της μεταφοράς ή διακούςης της αποθηκεύσεως κατά την διαμετακινήσειν (TRANSIT STORAGE).

I/ Όταν η ομάδα αποτελείται από κόλα διαφόρων σχεδίων, ο ανώτατος αριθμός κόλων θα είναι τέτοιος ώστε να ικανοποιείται ο παρακάτω τύπος

$\frac{v_1}{N_1} \neq \frac{v_2}{N_2} \neq \frac{v_3}{N_3} \neq \dots$  δεν θα υπερβαίνει την I. Στον τύπο

αυτών τα  $v_1, v_2, v_3 \dots$  είναι οι αριθμοί των κόλων για τα οποία οι αντίστοιχοι επιτρεπτέοι αριθμοί είναι τα  $N_1, N_2, N_3 \dots$  αντιστοίχως.

Σύστημα Συστολής

"Σύστημα συστολής" σημαίνει τα συστατικά στοιχεία της συσκευασίας τα οριζόμενα υπό του σχεδιαστού και προοριζόμενα να συγκρατήσουν την ραδιενεργό ύλη διαρκούςης της μεταφοράς.

Σχέδιο

"Σχέδιο" σημαίνει την περιγραφή ύλης ειδικής μορφής, ή κόλου ή συσκευασίας συγκεκριμένου είδους, η οποία παρέχει τη δυνατότητα της πλήρους αναγνωρίσεως αυτών. Η περιγραφή μπορεί να περιλαμβάνει προδιαγραφές, μηχανικά σχέδια, εκθέσεις δεικνύουσες τη συμμόρφωση προς τους κανονιστικούς (ρυθμιστικούς) όρους, και λοιπά σχετικά έγγραφα.

Διασπαστή ύλη

2700

(Συνεχίζεται)

"Διασπαστή ύλη" σημαίνει πλουτόνιο-238, πλουτόνιο-239, πλουτόνιο-241, ουράνιο-233, ουράνιο-235, και άλλες οι ύλες που περιέχουν οιαδήποτε των ραδιοπυρηνικών αυτών. Μη-ακτινοβόλον/ και εξασθενημένον ουράνιον δεν συμπεριλαμβάνονται στον ορισμόν αυτόν.

Χαμηλής-στάθμης στερεές ραδιενεργείς ύλες

"Χαμηλής-στάθμης στερεά ραδιενεργός ύλη" (LLS) σημαίνει οιαδήποτε των κατωτέρω:-

(α) Στερεά (π.χ. ενοποιημένα υπολείμματα, ενεργείς ύλες) στα οποία:-

(I) η ενέργεια κατά την συνήθη μεταφοράν είναι και παραμένει κατανεμημένη σε ολόκληρο το στερεό ή τη συλλογή στερεών ή είναι και παραμένει ομοιόμορφα κατανεμημένη σε στερεό συμπαγή άγοντα συνδέσεως (όπως σκυρόδεμα, βιτούμιον, κεραμικόν)·

(II) η ενέργεια είναι και παραμένει αδιάλυτη σε τρόπον ώστε ακόμη και επί απώλειας του κόλου η απώλεια της ραδιενεργού ύλης ανά κόλον προερχομένη εκ των επιδράσεων του ανέμου, βροχής, κλπ., ή και από ολικήν βύθισιν στο ~~υπό~~ να περιορίζεται κάτω των  $0.1 A_2$  σε χρονική περίοδο μιας εβδομάδας· και

(III) η μέση ενέργεια ολοκλήρου της ραδιενεργού ύλης δεν υπερβαίνει  $2 \times 10^{-3} A_2$ /Γραμμ.

(β) Είδη μη-ραδιενεργού ύλης τα οποία μολύνονται με ραδιενεργόν ύλην, υπό τον όρον ότι η ραδιενεργός μόλυνσις είναι μορφής μη δυναμένης ευχερώς να διασπαρεί και ότι

το μέσον επίπεδον μολύνσεως σε  $1 \mu^2$  (ή σε χώρο επιφάνειας 2700  $\mu^2$  εάν ο χώρος είναι κάτω του  $1 \mu^2$ ) δεν υπερβαίνει τα: - (Συνεχίζεται)

ναι τα: -

20  $\mu\text{Ci}/\text{cm}^2$  για πομπούς β και γ και τους χαμηλής-τοξικότητας πομπούς α τους σημειούμενους στον Πίνακα XIX της Προσθήκης Α.6\* και τα 2  $\mu\text{Ci}/\text{cm}^2$  για άλλους πομπούς α.

### Υλεις Χαμηλής Ειδικής Ενεργείας (I)

"Υλεις χαμηλής ειδικής ενεργείας (I)" (LSA) σημαίνει οιαδήποτε των κάτωθι: -

- (α) Μεταλλεύματα ουρανίου ή θορίου και φυσικά ή χημικά συμπυκνώματα των μεταλλευμάτων αυτών\*
- (β) Μη-ακτινοβόλον φυσικόν ή εξασθενημένον ουράνιον ή μη-ακτινοβόλον φυσικόν θόριον\*
- (γ) Οξείδιο του τριτίου σε υδατώδη διαλύματα, υπό τον όρον ότι το συμπύκνωμα δεν υπερβαίνει τα  $\text{Ci}/\text{LITRE}$ \*
- (δ) Υλεις στις οποίες η ενέργεια είναι ομοιόμορφα κατανεμημένη και οι οποίες εάν εμειούντο στον κατώτατο όγκο αυτών υπό συνθήκας προφανώς αντιμετωπιζόμενας κατά την μεταφορά, όπως διάλυσις στο ύδωρ και μετέπειτα επανακρυστάλλωσις, κατακρήμνισις (καθίζημα), καύσις, απόξεσις (εκτριβή) \* κλπ., θα είχαν μέσην ειδικήν ενεργειαν όχι μεγαλυτέραν των  $10^{-4} \text{A}_2/\text{G}$  (γραμμ.)\*
- (ε) Είδη μη-ραδιενεργού ύλης τα οποία μολύνονται με ραδιενεργό ύλην, υπό τον όρον ότι ή μη-καθορισμένη μόλυνσις επιφανείας δεν υπερβαίνει δέκα φορές τις τιμές του Πίνακος XIX της Προσθήκης Α.6 και ότι το μολυνθέν



αέρος ή η επ' αυτού μόλυνση, εάν εμειούτο στον  
 κενώτατο όγκο αυτής υπό συνθήκας προφανώς αντι-  
 μετωπιζόμενας κατά την μεταφορά, όπως διάλυση  
 στο ύδωρ και μετέπειτα επανακρυστάλλωση· κατα-  
 κρήμνιση (καθίζημα)· καύση· απόξεση (εκτριβή)·  
 κλπ. θα είχε μέσην ειδικήν ενέργειαν όχι μεγαλύ-  
 τεραν των  $10^{-4}$  A<sub>2</sub>/G (γραμμ.).

2700  
 (Συνεχίζε-  
 ται.)

### Υλεις Χαμηλής Ειδικής Ενέργειας (II)

"Υλεις χαμηλής ειδικής ενέργειας (II)" σημαίνει  
 οιονδήποτε των κατωτέρω:-

(α) Υλεις στις οποίες η ενέργεια κατά την συνήθη  
 μεταφοράν είναι και παραμένει ομοιόμορφα κατανεμη-  
 μένη και στις οποίες η μέση ειδική ενέργεια δεν  
 υπερβαίνει τα  $10^{-4}$  A<sub>2</sub>/G (γραμμ.).

(β) Είδη μη-ραδιενεργού ύλης που μολύνονται με  
 ραδιενεργόν ύλην, υπό τον όρον ότι η ραδιενεργός  
 μόλυνση είναι μορφής μη ευχερέως δυναμένης να δια-  
 σπαρεί και ότι το επίπεδον μέσης μόλυνσεως σε  $1 \mu^2$   
 (ή σε χώρον επιφανείας εάν ο χώρος αυτός είναι κάτω  
 του  $1 \mu^2$ ), δεν υπερβαίνει τα:

$1 \mu\text{Ci}/\text{cm}^2$  για πομπούς β και γ και χαμηλής τοξικό-  
 τητος πομπούς α αναφερομένους στον Πίνακα XIX  
 της Προσθήκης Α.6· και  $0.1 \mu\text{Ci}/\text{cm}^2$  για άλλους  
 πομπούς α.

### Ανωτάτη Πίεσις Κανονικής Λειτουργίας

"Ανωτάτη πίεσις κανονικής λειτουργίας" σημαίνει  
 την ανωτάτην πίεσιν άνω της ατμοσφαιρικής πίεσεως σε μέσον  
 επίπεδον θαλάσσης η οποία θα μπορούσε να αναπτυχθεί στο

~~από την~~ συστολής σε χρονική περίοδο ενός έτους υπό 2700  
~~από την~~ θερμότητας και ηλιακής ακτινοβολίας αντι- (Συνεχίζε-  
 ται)  
 στοιχούσες στις περιβαλλοντικές συνθήκες μεταφοράς  
 ελλείψει εξαερισμού, εξωτερικής φύξεως δι' επικουρικού  
 συστήματος, ή μοχλών λειτουργίας κατά την διάρκεια της  
 μεταφοράς.

#### Πολύπλευρος Έγκριση

"Πολύπλευρος έγκριση" σημαίνει έγκριση της αρμό-  
 διας αρχής της χώρας προελεύσεως και της αρμόδιας αρχής  
 κάθε χώρας στην επικράτεια της οποίας πρόκειται να διε-  
 ξασθεί η αποστολή.

#### Κόλον

"Κόλον Τύπου Α" σημαίνει συσκευασία Τύπου Α με το  
 περιορισμένο ραδιενεργό περιεχόμενό του. Επειδή το πε-  
 ριεχόμενο ενός κόλου Τύπου Α περιορίζεται σε  $A_1$  ή  $A_2$ ,  
 ένα τέτοιο κόλον δεν χρειάζεται την έγκριση της αρμό-  
 διας αρχής.

"Κόλον Τύπου Β(Υ)" σημαίνει συσκευασία Τύπου Β,  
 μαζί με το ραδιενεργό περιεχόμενό του, το οποίον εφ' όσον  
 έχει σχεδιασθεί σύμφωνα με καθορισμένο σχέδιο και τα κρι-  
 τήρια συστολής απαιτεί ετερόπλευρον (μονόπλευρον) έγκρι-  
 σιν μόνον του σχεδίου του κόλου και οπωσδήποτε δρων στοι-  
 βασίας που ενδέχεται να είναι απαραίτητοι για διάχυση της  
 θερμότητας.

"Κόλον Τύπου Β(Μ)" σημαίνει συσκευασία Τύπου Β,  
 μαζί με το ραδιενεργό περιεχόμενό του, εφ' όσον το σχέδιό  
 του δεν πληροί ένα ή περισσότερα ειδικά συμπληρωματικά  
 κριτήρια σχεδιάσεως για κόλα Τύπου Β(Υ) (βλέπε περιθώριο

3605 της Προσθήκης Α.6) απαιτεί πολύπλευρον έγκρισιν 2700  
 του σχεδίου του κόλου και, υπό ωρισμένες συνθήκες, (Συνεχίζεται)  
 των όρων προωθήσεως.

#### Συσκευασία

"Συσκευασία" σημαίνει την συναρμολόγησιν συστατικών μερών απαιτήτων να εξασφαλίσουν την συμμόρφωσιν προς τους όρους συσκευασίας της παρούσας Κλάσεως. Μπορεί, ειδικότερα, να αποτελείται από ένα ή περισσότερα δοχεία, απορροφητικό υλικό, χωρίσματα, προστασία (θωράξεις) κατά της ακτινοβολίας, και μηχανισμούς ψύξεως, για την απορρόφησιν μηχανικών κρούσεων (σδκ) και για θερμική μόνωσιν. Οι μηχανισμοί αυτοί περιλαμβάνουν το δχημα με το σύστημα στερεώσεως (ακινητοποιήσεως) (TIE-DOWN SYSTEM) όταν προορίζονται να αποτελέσουν αναπόσπαστον τμήμα της συσκευασίας.

"Συσκευασία Τύπου Α" σημαίνει συσκευασία η οποία κατά τη συνήθη μεταφορά είναι ικανή να εμποδίσει οιαδήποτε απώλειαν ή διασποράν του ραδιενεργού περιεχομένου και συγκρατήσει την προστατευτική του λειτουργία. Οι όροι της κανονικής μεταφοράς θα ανατυπούνται βάσει των ελέγχων των προβλεπομένων υπό του περιθωρίου 3635 και 3636 της Προσθήκης Α.6, τους οποίους ελέγχους η συσκευασία θα εικονίζει ότι διεξήλθε.

"Συσκευασία Τύπου Β" σημαίνει συσκευασία η οποία είναι ικανή να ανθέξει όχι μόνον στους όρους της κανονικής μεταφοράς, όπως η συσκευασία Τύπου Α, αλλά και (συνθήκες) και σε ατύχημα μεταφοράς. Οι όροι/ενός τέτοιου ατυχήματος

θα ανατυπούνται βάσει των των ελέγχων των προβλεπο- 2700  
μένων υπό των περιθωρίων 3635 έως 3637 της Προσθή- (Συνεχίζε-  
της Α.6, τους οποίους ελέγχους η συσκευασία, θα ει-  
ται)  
κονίζεται ότι διεξήλθε υπό τας ομοίως προβλεπομένας  
συνθήκας (όρους).

### Επίπεδον Ακτινοβολίας

"Επίπεδον Ακτινοβολίας" σημαίνει την αντίστοι-  
χον ισοδύναμον προς φαιενεργόν δόσιν τιμήν εκφραζο-  
μένην εις MILLIREM ωριαίως. Τα επίπεδα ακτινοβολίας  
μπορούν να καθορίζονται δι' οργάνων, σε συνδυασμό με  
την χρήση πινάκων μετάτροπής οσάκις απαιτείται ή με  
υπολογισμόν. Μετρημένες ή υπολογισθείσες πυκνότητες  
ροής ουδετερονίου μπορούν να μετατρέπονται σε επίπεδα  
ακτινοβολίας με την χρήση των στοιχείων των διδομένων  
στον παρακάτω πίνακα.

Πυκνότητες ροής ουδετερονίου θεωρούμενες ως

ισοδύναμες προς επίπεδο ακτινοβολίας των

1 MREM/H (ωριαίως),

Ενέργεια ουδετερονίου Πυκνότητα ροής ισοδύναμος προς  
1 MREM/H ( $N/CM^2 \cdot S$ )

Θερμική (THERMAL)	268
5 KEV	228
20 KEV	112
100 KEV	32
500 KEV	12
1 MEV	7.2
5 MEV	7.2
10 MEV	6.8

~~Σημειώσεις:~~ - Ισοδύναμες πυκνότητες ροής για ενέργειες 2700  
μεταξύ των ανωτέρω αναφερομένων θα λαμβάνονται δια γραμμικής παρεμβολής. (Συνεχίζεται)

#### Ραδιενεργόν περιεχόμενον

"Ραδιενεργόν περιεχόμενον" σημαίνει την ραδιενεργόν ύλην μαζί με οποιαδήποτε μολυνθέντα στερεά, υγρά ή αέρια του κόλου.

#### Ραδιενεργός ύλη ειδικής μορφής

"Ραδιενεργός ύλη ειδικής μορφής" σημαίνει είτε μη-δυναμένη να διασπαρεί στερεά ραδιενεργός ύλη είτε σφραγισμένη κάψουλα περιέχουσα ραδιενεργόν ύλην. Η σφραγισμένη κάψουλα θα είναι έτσι κατασκευασμένη ώστε να μπορεί να ανοιχθεί μόνον με την καταστροφήν αυτής. Η ραδιενεργός ύλη ειδικής μορφής θα πληροί τους κάτωθι όρους:-

- (α) Θα έχει τουλάχιστον μίαν διάστασιν όχι κάτω των 5 χιλ. και
- (β) Θα πληροί τους σχετικούς όρους ελέγχου τους ορισμένους υπό των περιθωρίων 3640 έως 3642 της Προσθήκης Α.6.

Γενικώς, η έννοια "Ειδικής μορφής" παρέχει την δυνατότητα στις ύλες που παρουσιάζουν υψηλότερον επίπεδον ενεργείας να συμπεριλαμβάνονται σε κόλον Τύπου Α.

#### Ειδική ενέργεια

Η "ειδική ενέργεια" ραδιοπυρηνικού σημαίνει την ενέργειαν ραδιοπυρηνικού ανά μάζαν μονάδος. Η ειδική ενέργεια ύλης στην οποία τα ραδιοπυρηνικά έχουν βασικώς ομοιομόρφως κατανεμηθεί είναι η ενέργεια της ύλης αυτής

ανά μέτρο μονάδος.

Δείκτης Μεταφοράς

2700

(Συνεχίζε-  
ται).

Ο "δείκτης μεταφοράς" ενός κόλου σημαίνει:-

- (α) Τον αριθμόν ο οποίος εκφράζει το επίπεδον της ανωτάτης ακτινοβολίας σε MILLIREM ωριαίως σε I μ. εκ της εξωτερικής επιφανείας του κόλου· ή
- (β) Προκειμένου περί κόλων της Διασπαστής Κλάσεως II ή Διασπαστής Κλάσεως III, τον ανώτερον των παρακάτω αριθμών:

ο αριθμός ο οποίος εκφράζει το επίπεδον της ανωτάτης ακτινοβολίας, ως υπό στοιχείον (α) ανωτέρω, και ο αριθμός ο λαμβανόμενος δια διαίρεσεως του 50 με τον επιτρεπόμενον αριθμόν τούτων κόλων.

Ο "δείκτης μεταφοράς" δοχείου σημαίνει είτε:

το άθροισμα των δεικτών μεταφοράς όλων των κόλων εντός του δοχείου, πλην των δοχείων των μεταφερόντων κόλα Διασπαστής Κλάσεως III, ο δείκτης μεταφοράς θα είναι 50 εκτός εάν το άθροισμα των δεικτών μεταφοράς των κόλων αναγκαστεί υψηλότερον αριθμόν.

είτε για δοχεία μη μεταφέροντα κόλα των Διασπαστών Κλάσεων II ή III και υπό πλήρες φορτίον, ο αριθμός ο οποίος εκφράζει το επίπεδον ανωτάτης ακτινοβολίας εις MREM/H (ωριαίως) σε I μ. εκ της εξωτερικής επιφανείας του δοχείου πολλαπλασιαζόμενος επί της τιμής του παρακάτω πίνακος της

κάταλληλου δια την ανωτάτην επιφάνειαν εγκάρσιας 2700  
τομής του δοχείου. (Συνεχί-  
ζεται)

### Συντελεστής Πολλαπλασιασμού

Μέγεθος φορτίου	Συντελεστής Πολλαπλα- σιασμού
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### Μέτρηση

(μετρήσεως επιφανείας εγκάρσιας  
τομής του φορτίου καθέτως προς  
την ενδιαφερομένην κατεύθυνσιν)

I μ <sup>2</sup> και κάτω	I
> I μ <sup>2</sup> έως 5 μ <sup>2</sup>	3
> 5 μ <sup>2</sup> έως 20 μ <sup>2</sup>	6
> 20 μ <sup>2</sup> έως 100 μ <sup>2</sup>	19

(γ) Ο αριθμός ο οποίος εκφράζει τον δείκτην μεταφοράς  
θα στρογγυλεύεται προς τα άνω μέχρι του πρώτου  
δεκαδικού ψηφίου.

### Μη-πεπιεσμένον αέριον

"Μη-πεπιεσμένον αέριον" σημαίνει αέριον σε πίεση  
μη υπερβαίνουσα την ατμοσφαιρική πίεση του περιβάλλοντος  
όταν το σύστημα συστολής είναι κλειστό.

### Ετερόπλευρος (μονόπλευρος) έγκρισις

"Ετερόπλευρος (μονόπλευρος) έγκρισις" σημαίνει την  
έγκρισιν της αρμόδιας αρχής της χώρας προελεύσεως και  
μόνον. Εάν η χώρα προελεύσεως δεν είναι συμβληθέν μέρος  
της ADR, η έγκρισις θα απαιτεί επικύρωσιν της αρμόδιας  
αρχής της πρώτης χώρας ADR εις την οποίαν θα φθάσει η  
αποστολή.

Μη-ακτινοβόλον ουράνιον

2700

(Συνεχίζεται)

"Μη-ακτινοβόλον ουράνιον" σημαίνει ουράνιον περιέχον όχι άνω των  $10^{-6}$  G (γραμμ.) πλουτονίου ανά G (γραμμ.) ουρανίου-235 και ενέργειαν προϊόντος διάσπασης όχι μεγαλύτεραν των 0.25 MCI ανά G (γραμμ.) ουρανίου-235.

Μη-ακτινοβόλον θόριον

"Μη-ακτινοβόλον θόριον" σημαίνει θόριον περιέχον όχι άνω των  $10^{-7}$  G (γραμμ.) ουρανίου-233 ανά G (γραμμ.) θορίου-232.

Ουράνιον\* εξασθενημένον, εμπλουτισμένον, φυσικόν

"Φυσικόν ουράνιον" σημαίνει χημικώς-διαχωρισμένον ουράνιον με την φυσικώς-προκύπτουσα κατανομήν των ισοτόπων ουρανίου (περίπου 99.28 τοις εκατόν ουρανίου-238 και 0.72 τοις εκατόν ουρανίου-235). "Εξασθενημένον ουράνιον" σημαίνει ουράνιον περιέχον κάτω των 0.72 τοις εκατόν ουρανίου-235, του υπολοίπου όντος ουρανίου-238.

"Εμπλουτισμένον ουράνιον" σημαίνει ουράνιον περιέχον άνω των 0.72 τοις εκατόν ουρανίου-235, του υπολοίπου όντος ουρανίου-238. Σε όλες τις περιπτώσεις υπάρχει μία πολύ μικρή ποσότητα ουρανίου-234.

(3) Απαγορεύσεις επί μικτής φορτώσεως

Όλες της Κλάσεως 7 περιεχόμενες σε κόλα φέροντα ετικέτα σύμφωνα προς τα μοντέλα 6A, 6B ή 6Γ δεν θα φορτώνονται στο αυτό όχημα μαζί με ύλες και είδη της Κλάσεως Ια (περιθώριο 2Ι0Ι), Ιβ (περιθώριο 2Ι3Ι) ή Ιγ (περιθώριο



~~2700~~ ~~2700~~ 2700  
 2700  
 (Συνεχίζεται)

Οι ύλες και είδη της παρούσης Κλάσεως περιέχουν ένα 2701  
 ή περισσότερα των ραδιοπυρηνικών των αναφερομένων  
 στο κεφάλαιον VI της Προσθήκης Α.6 (περιθώρια 3690  
 και 3691).

Ο κατωτέρω κατάλογος καθορίζει τους διαφόρους τύπους 2702  
 αποστολής:

- 1.- Κενά κόλα που περιείχαν ραδιενεργείς ύλες\*
- 2.- Είδη κατασκευασμένα από φυσικόν ή εξασθενημένον ουράνιον ή φυσικόν θόριον\*
- 3.- Μικρές ποσότητες ραδιενεργών υλών\*
- 4.- Όργανα και βιομηχανοποιηθέντα είδη\*
- 5.- Ύλες χαμηλής ειδικής ενεργείας LSA (I)
- 6.- Ύλες χαμηλής ειδικής ενεργείας LSA (II)
- 7.- Χαμηλής-στάθμης (επιπέδου), στερεές ραδιενεργείς ύλες\*
- 8.- Ραδιενεργείς ύλες σε κόλα Τύπου Α\*
- 9.- Ραδιενεργείς ύλες σε κόλα Τύπου Β(Υ)\*
- 10.- Ραδιενεργείς ύλες σε κόλα Τύπου Β(Μ)\*
- II.- Διασπαστές ύλες\*
- 12.- Ραδιενεργείς ύλες μεταφερόμενες υπό ειδικήν διεύθε-  
 τήσιν.

Πίναξ ΑΙ

2703

- I.- Ύλες  
Κενά κόλα: που περιείχαν ραδιε-  
 νεργείς ύλες.
- Ετικέτες κινδύνου  
επί των κολών  
 Ουδεμία

Πίνακας I

2703

(Συνεχίζεται) (Συνεχίζεται)

Σημείωση:

ται)

2.- Συσσκευασία/Κόβου

(α) Η συσκευασία θα είναι σύμφωνος με τους όρους του περιθωρίου 3600 της Προσθήκης Α.6, και θα κλείνεται ασφαλώς και σε καλή κατάσταση.

Οιαδήποτε ετικέτα σημειούσα κίνδυνον θα είναι καλυμμένη ή θα αφαιρείται

(β) Επιτρεπόμενα επίπεδα εσωτερικής μόλυνσης: όχι περισσότερο από 100 φορές τα επίπεδα αναγραφόμενα στη παράγραφο 5.

(γ) Οσείς κενή συσκευασία περιλαμβάνει φυσικόν ή εξασθενημένον ουράνιον ή φυσικόν θόριον στη κατασκευή της, η επιφάνειά της θα καλύπτεται από ουσιαστικήν, μη-ενεργόν προστασίαν από μέταλλο ή από κάποιο άλλο ανθεκτικό υλικό.

3.- Ανώτατον επίπεδον ακτινοβολίας κόβου

0.5 MR<sub>EM</sub>/H (ωριαίως) στην επιφάνεια του κόβου.

4.- Μικτή συσκευασία

Ουδεμία διάταξις.

5.- Πόσιν επί κόλων

Πίνακας I

2703

Μη-ωρισμένα όρια εξωτερικής  
μολύνσεως:

(Συνεχίζεται)

(Συνεχίζεται)

β/ γ/ χαμηλής-τοξικότητας

α, πομποί

 $10^{-4}$  ΜCi/cm<sup>2</sup>

Φυσικόν/εξασθενημένον ουρά-

νιον/φυσικόν θόριον

 $10^{-3}$  ΜCi/cm<sup>2</sup>

Άλλοι α πομποί

 $10^{-5}$  ΜCi/cm<sup>2</sup>

Για πλήρεις λεπτομέρειες, βλέπε  
περιθώριο 365I της Προσθήκης Α.6.

6.- Ένδειξεις (μαρκάρισμα) κόλων

(α) Τα κόλα θα μαρκάρονται καθαρά και  
ανεξέτηλα με το βάρος εάν τούτο  
είναι ένω των 50 KG.

(β) Πάσα ένδειξις αναφέρουσα ραδιενερ-  
γόν κίνδυνον δεν θα είναι ορατή.

7.- Έγγραφα μεταφοράς

Το έγγραφο μεταφοράς θα περιλαμβάνει την  
περιγραφήν "Ραδιενεργείς ύλες (Κενά κόλα),  
7, πίνακας I, ADR", με την ονομασίαν υπογραμ-  
μισμένην με κόκκινο.

8.- Αποθήκευσις και προώθησις

Ουδεμία διάταξις.

9.- Μεταφορά κόλων με οχήματα και δοχεία (CONTAINERS)

Ουδεμία διάταξις.

10.- Μεταφορά σε χύμα με οχήματα και δοχεία (CONTAINERS)

Δεν έχει εφαρμογήν.

Πίνακx I  
(Συνεχίζεται)

2703  
(Συνεχίζεται)

12.- Επιγραφές και ετικέτες επί οχημάτων,  
βυτιοφόρων, TANK CONTAINERS και δο-  
χείων (CONTAINERS).

Ουδεμία

13.- Απαγορεύσεις επί μικτής φορτώσεως

Ουδεμία διάταξη

14.- Απολύμανσις οχημάτων, βυτιοφόρων,  
TANK CONTAINERS και δοχείων (CONTAINERS)

Ουδεμία διάταξη

15.- Άλλες διατάξεις

Ουδεμία.

Πίνακx 2

Ετικέτες κινδύνου  
επί των κόλων

I.- Υλεις

Ουδεμία

Είδη κατασκευασθέντα

από φυσικό ή εξασθενημένο ουράνιο  
ή φυσικό θόριο.

Η εξωτερική επιφάνεια του ουρανίου  
ή θορίου θα καλύπτεται από ουσιαστι-  
κήν, ανενεργόν προστασίαν (θωράκισιν)  
από μέταλλο ή κάποιο άλλο ανθεκτικό  
υλικό.

ΣΗΜΕΙΩΣΙς:— Τέτοια είδη μπορεί π.χ. να  
είναι αχρησιμοποίητες συσκευασίες προο-

Απαιτήσεις για τη μεταφορά ραδιε-  
γενών υλών.

Πίναξ 2 2703  
(Συνεχίζεται) (Συνεχίζε-  
ται)

2.- Συσκευασία/Κόλου

Η συσκευασία θα είναι συμφώνως προς τους όρους του περιθωρίου 3600 της Προσθήκης Α.6.

3.- Επίπεδον ανωτάτης ακτινοβολίας Κόλου

0.5 MREM/H (ωριαίως) στην επιφάνεια του κόλου.

4.- Μικτή συσκευασία

Ουδεμία διάταξις.

5.- Μόλυνσις επί των κόλων

Μη-ωριαίμενα όρια εξωτερικής μόλυνσεως:

β/γ/χαμηλής-τοξικότητας α. πομποί	$10^{-4}$	MCI/CM <sup>2</sup>
φυσικόν/εξασθενημένον ουράνιον/		
φυσικόν θόριον	$10^{-3}$	MCI/CM <sup>2</sup>
Άλλοι α πομποί	$10^{-5}$	MCI/CM <sup>2</sup>

Για πλήρεις λεπτομέρειες βλέπε περιθώριο 3651 της Προσθήκης Α.6.

6.- Ενδείξεις (Μαρκόρισμα) επί των κόλων

Ουδεμία.

7.- Έγγραφα μεταφοράς

Το έγγραφο μεταφοράς θα περιλαμβάνει την περιγραφή "Ραδιενεργείς Ύλες (Βιομηχανοποιηθέντα/Κατασκευασθέντα Είδη), 7, πίναξ 2, ADR", με την ονομασίαν υπογραμμισμένην με κόκκινο.

8.- Αποθήκευσις και προώθησις

Ουδεμία διάταξις.

Πίνακας 2

2703

(Συνεχίζεται) (Συνεχίζεται)

ται)

- 9.- Μεταφορά κόλων με οχήματα και δοχεία (CONTAINERS)  
Ουδεμία διάταξις.
- 10.- Μεταφορά εις χύμα με οχήματα και δοχεία (CONTAINERS)  
Δεν έχει εφαρμογήν.
- 11.- Μεταφορά με βυτιοφόρα και TANK CONTAINERS.  
Δεν έχει εφαρμογήν.
- 12.- Επιγραφές και ετικέτες επί οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS)  
Ουδεμία.
- 13.- Απαγορεύσεις επί μικτής φορτώσεως  
Ουδεμία διάταξις.
- 14.- Απολύμανσις οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS)  
Ουδεμία διάταξις.
- 15.- Άλλες διατάξεις  
Ουδεμία.

Πίνακας 3Ετικέτες κινδύνου  
επί των κόλων

Ουδεμία (αλλά βλέπε παράγραφον 15).

I.- Υλεις

Μικρές ποσότητες ραδιενεργών υλών  
σε ποσότητες που δεν υπερβαίνουν τους αριθμούς τους διδομένους στον κατωτέρω πίνακα και οι οποίες δεν περιέχουν άνω των 15 G (γραμμάρων) ουρανίου-235.

2703

Φυσικά υλικά

Όρια Κόλου

(Συνεχίζεται)

Στερεά και αέρια

Ειδικής μορφής

 $10^{-3} A1$ 

Άλλων μορφών

 $10^{-3} A2$ 

Τρίτιον

20  $CI_{\beta}^{\beta}$ 

Υγρά

Οξείδιο Τριτίου σε υδατώδη διαλύματα

κάτω των 0.1  $CI/I$ 1000  $CI$ μεταξύ 0.1  $CI/I$  και 1.0  $CI/I$ 100  $CI$ άνω των 1.0  $CI/I$ 1  $CI$ 

Άλλα υγρά

10-4A2

Για μίγματα ραδιοπυρηνικών, βλέπε περιθώριο 369I της Προσθήκης Α.6.

β/ Οι τιμές για το τρίτιο ισχύουν επίσης για τρίτιον ενεργού φωτεινού χρώματος και τρίτιον απορροφούμενον επί στερεών μεταφορέων.

## 2.- Συσκευασία/Κόλου

(α) Η συσκευασία θα είναι συμφώνως προς τους όρους του περιθωρίου 3600 της Προσθήκης Α.6.

(β) Κατά την μεταφοράν δεν θα υπάρχει διαρροή ραδιενεργού ύλης.

## 3.- Ανώτατον επίπεδον ακτινοβολίας κόλου

0.5  $MREM/H$  στην επιφάνεια του κόλου.

## 4.- Μικτή συσκευασία

Ουδεμία διάταξη.

Πίναξ 43  
(Συνεχίζεται) 2703 (Συνεχίζεται)

5.- Μόλυνση (επί) των κόλων

Μη-ωρισμένα: δρια εξωτερικής μολύνσεως:

β/γ/χαμηλής-τοξικότητας

α πομποί

$10^{-4}$  MCI/CM<sup>2</sup>

φυσικόν/εξασθενημένον ουράνιον/

φυσικόν θόριον

$10^{-3}$  MCI/CM<sup>2</sup>

Άλλοι α πομποί

$10^{-5}$  MCI/CM<sup>2</sup>

Για πλήρεις λεπτομέρειες, βλέπε περιθώριο

365I της Προσθήκης Α.6.

6.- Ένδειξεις (μαρκάρισμα) επί των κόλων

Η εξωτερική επιφάνεια του συστήματος συστολής

θα φέρει την ένδειξιν "ΡΑΔΙΕΝΕΡΓΟΝ" ως προειδο-

ποίησην για το άνοιγμα του κόλου.

7.- Έγγραφο μεταφοράς

Το έγγραφο μεταφοράς θα περιλαμβάνει την περιγραφήν

"Ραδιενεργείς ύλες (Μικρές ποσότητες), 7, πίναξ 3,

ADR", με την ονομασίαν υπογραμμισμένην με κόκκινο.

8.- Αποθήκευση και προώθηση

Ουδεμία διάταξις.

9.- Μεταφορά κόλων με οχήματα και δοχεία (CONTAINERS)

Ουδεμία διάταξις.

10.- Μεταφορά εις χύμα με οχήματα και δοχεία (CONTAINERS)

Δεν επιτρέπεται.

11.- Μεταφορά με βυτιοφόρα και TANK CONTAINERS

Δεν επιτρέπεται.

12.- Επιγραφές και ετικέτες επί οχημάτων, βυτιοφόρων,



~~ΤΑΝΚ~~ CONTAINERS και δοχείων (CONTAINERS). Πίνακας 3

2703

(Συνεχίζεται) (Συνεχίζεται)

~~Εξοπλισμός.~~

13.- Απογορεύσεις επί μικτής φορτώσεως

Ουδεμία διάταξη.

14.- Απολύμανση οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS)

Βλέπε περιθώριο 3695 (3) της Προσθήκης Α.6.

15.- Άλλες διατάξεις

(α) Διατάξεις περί ατυχημάτων - βλέπε περιθώριο 3695 (1) της Προσθήκης Α.6.

(β) Απολύμανση εν αποθηκείσει - βλέπε περιθώριο 3695 (2) της Προσθήκης Α.6.

(γ) Ραδιενεργές ύλες που έχουν άλλες επικινδύνους ιδιότητες θα συμμορφούνται επίσης με τις διατάξεις της καταλλήλου κλάσεως.

Πίνακας 4

Επικίνδυνες κινδύνου επί των κόλων

I.- Ύλες

Όργανα και Βιομηχανοποιηθέντα Είδη

Ουδεμία

όπως, ωρολόγια τοίχου, ηλεκτρονικές λυχνίες (λυχνίες ασυρμάτου), ή συσκευαί, που έχουν ραδιενεργές ύλες ως συστατικόν μέρος αυτών, η εφέργεια των οποίων δεν υπερβαίνει τα ποσά που δίδονται στον παρακάτω πίνακα και οι οποίες δεν περιέχουν άνω των 15 G. (γραμμαρίων) ουρανίου-235.

Πίνακας 4

2703

(Συνεχίζεται)(Συνεχίζεται)

Φύσις υλών	Όρια Είδους	Όρια Κόλου
<b>Στερεά</b>		
Ειδικής μορφής	$10^{-2}A_I$	$A_I$
Άλλων μορφών	$10^{-2}A_2$	$A_2$
<b>Υγρά</b>		
	$10^{-3}A_2$	$10^{-1}A_2$
<b>Αέρια</b>		
Τρίτιον	$20 CI^{\beta}$	$200 CI^{\beta}$
Ειδικής μορφής	$10^{-3}A_I$	$10^{-2}A_I$
Άλλων μορφών	$10^{-3}A_2$	$10^{-2}A_2$

Για μίγματα ραδιοπυρηνικών, βλέπε περιθώριο 369I της Προσθήκης Α.6.

<sup>β</sup> Οι τιμές για το τρίτιο θα ισχύουν και για τρίτιο ενεργού φωτεινού χρώματος και τρίτιον απορροφούμενον επί στερεών μεταφορέων.

## 2.- Συσκευασία/Κόλου

(α) Η συσκευασία θα είναι συμφώνως προς τους όρους του περιθωρίου 3600 της Προσθήκης Α.6.

(β) Τα όργανα και είδη θα συσκευάζονται ασφαλώς.

## 3.- Ανώτατον επίπεδον ακτινοβολίας Κόλου

0.5 MREM/H στην επιφάνεια του κόλου και 10 MREM/H σε 10 CM από οποιοδήποτε σημείο επί της εξωτερικής επιφανείας οιαδήποτε μη-συσκευασμένου οργάνου ή είδους.

## 4.- Μικτή συσκευασία

Ουδεμία διάταξις.

5.- Μολυνσις κόλων

Πίναξ 4

2703

Πη-ωρισμένα δρια εξωτερικής μολύνσεως: (Συνεχίζεται) (Συνεχίζεται)

β/γ/χαμηλής-τοξικότητας α πομποί  $10^{-4}$  UCI/CM<sup>2</sup>

Φυσικόν/εξασθενημένον ουράνιον/

φυσικόν θόριον  $10^{-3}$  UCI/CM<sup>2</sup>

Άλλοι α πομποί  $10^{-5}$  UCI/CM<sup>2</sup>

Για πλήρεις λεπτομέρειες, βλέπε περιθώ-  
ριο 365I της Προσθήκης Α.6.

6.- Ενδείξεις (μαρκάρισμα) επί των κόλων

ραδιαιγνοβόλων

Κάθε όργανον ή είδος (πλήν/τεμαχίων χρονισμού ή  
συσκευών) θα φέρει την ένδειξιν "ΡΑΔΙΕΝΕΡΓΟΝ".

7.- Έγγραφα Μεταφοράς

Το έγγραφον μεταφοράς θα περιλαμβάνει την περι-  
γραφήν "Ραδιενεργείς ύλες (Όργανα) ή (Βιομηχα-  
νοποιηθέντα είδη), 7, πίναξ 4, ADR", με την ονο-  
μασίαν υπογραμμισμένην με κόκκινον.

8.- Αποθήκευσις και προώθησις

Ουδεμία διάταξις.

9.- Μεταφορά κόλων με οχήματα και δοχεία (CONTAINERS)

Ουδεμία διάταξις.

10.- Μεταφορά εις χύμα με οχήματα και δοχεία (CONTAINERS)

Δεν έχει εφαρμογήν.

11.- Μεταφορά με βυτιοφόρα και TANK CONTAINERS

Δεν έχει εφαρμογήν.

12.- Επιγραφές και Ετικέτες επί οχημάτων, βυτιοφόρων,  
TANK CONTAINERS και δοχείων (CONTAINERS).

Ουδεμία.

13.- Απαγορεύσεις επί μικτής φορτώσεως

Ουδεμία διάταξις.

14. Απολύμανση οχημάτων, βυτιοφόρων, TANK  
CONTAINERS, δοχείων (CONTAINERS)  
 Βλέπε περιθώριο 3695(3) της Προσθήκης Α.6.

Πίνακας 4 2703  
 (Συνεχίζεται) (Συνεχίζεται)

15.- Άλλες διατάξεις

(α) Διατάξεις περί ατυχημάτων - βλέπε περιθώριο 3695(I) της Προσθήκης Α.6.

(β) Απολύμανση εν αποθηκείσει - βλέπε περιθώριο 3695(2) της Προσθήκης Α.6.

Πίνακας 5

I.- Υλεις

- Υλεις χαμηλής ειδικής ενέργειας LSA(I),  
 ανήκουσες σε μία των παρακάτω ομάδων  
 ως ορίζονται πλήρως στο περιθώριο 2700(2):
- (I) μεταλλεύματα ουρανίου ή θορίου ή συμπυκνώματα (εδάφιο (α) του ορισμού)
- (II) μη-ακτινοβόλον φυσικόν ή εξασθενημένον ουράνιον ή μη-ακτινοβόλον φυσικόν θόριον (εδάφιο (β) του ορισμού)
- (III) οξείδιο του τριτίου σε υδατώδη διαλύματα - συμπύκνωμα IOCI/I και κάτω (εδάφιο (γ) του ορισμού)
- (IV) ύλεις με ομοιόμορφη ενέργειαν υπό συνθήκες κατωτάτου όγκου όχι μεγαλύτερου των IO-4 A2/G (εδάφιο (δ) του ορισμού).
- (V) Μη-ραδιενεργά είδη μολυνθέντα όχι περισσότερο από IO φορές τα όρια κλάου τα αναφερόμενα στη παρακάτω παράγραφο 5

Ετικέτες κινδύνου

επί των κλάων

(Βλέπε Προσθήκη Α.9)

Εντός εάν μεταφέρονται ως πλήρες φορτίο, ετικέτες των μοντέλων 6Α, 6Β ή 6Γ θα τοποθετούνται εξωτερικώς σε δύο αντίθετες πλευρές, βλέπε περιθώρια 3655 έως 3655 της Προσθήκης Α6 για κατηγορία κλάου. Το περιεχόμενο θα περιγράφεται επί των ετικετών ως "Ραδιενεργόν LSA". Δευτερεύουσες ετικέτες:

(I) για νιτρικόν θόριον και νιτρικόν ουράνιον - απαιτούνται ετικέτες μοντέλου Νο.3.

(II) για φθοριούχο ουράνιο - απαι-

Πίνακας 2703  
(Συνεχίζεται) (Συνεχίζεται)

(V)... και κατά τρόπον ώστε η ειδική εξέφραση υπό συνθήκες κατωτάτου δγ-  
κου ουδέποτε να υπερβαίνει τα IO-4  
A2/G (βδάφιο (ε) του ορισμού).

Εάν υπάρχουν διασπαστές ύλες οι όροι του πίνακος II θα τηρούνται επιπροσθέτως των όρων του παρόντος πίνακος.

#### 2.- Συσκευασία/Κόλον

Κόλα μεταφερόμενα όχι, ως συσκευασία πλήρους φορτίου θα είναι συμφώνως προς το περιθώριο 3600, περιθώριο 3650 έως 2655 και περιθώριο 3656(I), έως (4) της Προσθήκης A.6.

Υλες της ανωτέρω παραγράφου I(II) υπό μαζική στερεά μορφή θα συσκευάζονται κατά τρόπον ώστε να αποφεύγεται η απόξεσις (εκτριβή), και υπό άλλες στερεές μορφές θα περιέχονται σε ουσιαστική θωράκιση.

#### 3.- Ανώτατο επίπεδο ακτινοβολίας Κόλου

200 MREM/H στην επιφάνεια του κόλου και IO MREM/H σε I μέτρο από την επιφάνεια αυτή (βλέπε περιθώρια 3653 έως 3655 της Προσθήκης A.6).

εκτός της περίπτωσης πλήρους φορτίου οπότε το όριον είναι I,000 MREM/H στην επιφάνεια του κόλου και μπορεί να υπερβεί τα IO MREM/H σε I μέτρο από την επιφάνεια αυτή (βλέπε περιθώριο 3659(7) της Προσθήκης A.6).

#### 4.- Μικτή συσκευασία

Βλέπε περιθώριο 3650 της Προσθήκης A.6.

5.- Μολύνσεις επί των κόλων

Πίναξ 5

2703

(α) Μη-υφιστάμενα όρια εξωτερικής μόλυν-

(Συνεχίζεται) (Συνεχίζεται)

σεως για κόλα μεταφερόμενα όχι ως πλήρες φορτίο.

β/γ/χαμηλής-τοξικότητας α πομποί  $10^{-4}$  UCI/CM<sup>2</sup>  
 Φυσικόν/εξασθενημένον ουράνιον/

φυσικόν θόριον

$10^{-3}$  UCI/CM<sup>2</sup>

Άλλοι α πομποί

$10^{-5}$  UCI/CM<sup>2</sup>

Για πλήρεις λεπτομέρειες, βλέπε περιθώριο 365I της Προσθήκης Α.6.

(β) Για κόλα μεταφερόμενα ως πλήρες φορτίο - ουδεμία διάταξις.

6.- Ενδείξεις (μαρκάρισμα) επί των κόλων

Κόλα μεταφερόμενα ως πλήρες φορτίο - πολυγραφημένη ή άλλως σημειουμένη ένδειξις "ΡΑΔΙΕΝΕΡΓΟΝ LSA".

Κόλα μεταφερόμενα όχι ως πλήρες φορτίο - θα μαρκάτεται καθαρά και ανεξίτηλα το βάρος εάν υπερβαίνει τα 50 KG.

7.- Έγγραφα μεταφοράς

Το έγγραφο μεταφοράς θα περιλαμβάνει την επιγραφήν "Ραδιενεργείς ύλες (Χαμηλής ειδικής ενεργείας LSA(I)), 7, πίναξ 5, ADR", με την ονομασίαν υπογραμμισμένην με κόκκινο, και τις λεπτομέρειες τις οριζόμενες στα περιθώρια 3680 και 368I της Προσθήκης Α.6.

8.- Αποθήκευσις και προώθησις

(α) Αποθήκευσις και διαχωρισμός από άλλα επικίνδυνα εμπορεύματα - βλέπε περιθώριο 3658(I) της Προσθήκης Α.6.

Πίνακας 5 2703

(β) Αποθήκευση και διαχωρισμός από κόλα (Συνεχίζεται)(Συνεχίζεται)  
φέροντα ετικέτα "FOTO" - βλέπε περιθώριο 240 001  
της Προσθήκης Β.4 για τον πίνακα διαχωρισμού.

(γ) Όριο δείκτη ολικής μεταφοράς για αποθήκευση,  
ουδέν όριον εκτός της περιπτώσεως κόλων Δια-  
σπαστής Κλάσεως II ή III, βλέπε περιθώριο 3658(2),  
έως (5), της Προσθήκης Α.6.

9.- Μεταφορά κόλων με οχήματα και δοχεία (CONTAINERS)

(α) Διαχωρισμός από κόλα φέροντα ετικέτα "FOTO" -  
βλέπε περιθώριο 240 001 της Προσθήκης Β.4 για  
τον Πίνακα διαχωρισμού.

(β) Όριο δείκτη ολικής μεταφοράς - 50. Το όριο  
αυτό δεν ισχύει για πλήρες φορτίο, υπό τον όρον  
ότι εάν υπάρχουν κόλα Διασπαστής Κλάσεως II ή  
III δεν θα υπερβαίνεται ο επιτρεπόμενος αριθ-  
μός, (βλέπε περιθώριον 3659(5) της Προσθήκης Α.6).

(γ) Ανώτατα επίπεδα ακτινοβολίας για οχήματα και μεγά-  
λα δοχεία (CONTAINERS) προκειμένου περί πλήρους  
φορτίου

200 MREM/H στην επιφάνεια.

10 MREM/H σε 2 μέτρα από την επιφάνεια.

(βλέπε περιθώριο 3659(I) της Προσθήκης Α.6)

Επίσης, για οχήματα - 2 MREM/H σε οποιαδήποτε κανο-  
νικώς καταληφθείσα θέση - βλέπε περιθώριο 3659(8)  
της Προσθήκης Α.6.

(δ) Κόλα μη συμμορφούμενα προς τους όρους του περιθωρί-  
ου 3600 θα μεταφέρονται ως πλήρες φορτίο, και δεν θα  
υπερβαίνονται τα όρια του παρακάτω πίνακος:-

Πίνακας 2703  
(Συνεχίζεται) (Συνεχίζεται)

Φύσες Υλών

Όριο Ενεργείας  
Οχήματος ή μεγάλου δο-  
χείου (CONTAINER)

Στερεά

Ουδέν όριον

Οξείδιο του Τριτίου σε υδατώδη

διαλύματα

50,000 CI

Άλλα υγρά και αέρια

100 X A<sub>2</sub>

ΙΟ.- Μεταφορά εις χύμα με οχήματα και δοχεία (CONTAINERS)

Επιτρέπεται υπό πλήρες φορτίο υπό τον όρον ότι, μετά την φόρτωση, οι εξωτερικές επιφάνειες των οχημάτων θα έχουν προσεκτικώς καθαρισθεί υπό του αποστολέως και εφ' όσον ουδεμία διαρροή μπορεί να προκύψει υπό κανονικήν μεταφοράν. Ποσοτικά όρια ως εις τον πίνακα της ανωτέρω παραγράφου 9.

ΙΙ.- Μεταφορά με βυτιοφόρα και TANK CONTAINERS

Επιτρέπεται υπό ωρισμένης συνθήκας (όρους) ως η ανωτέρω παράγραφος ΙΟ, και υπό τους όρους των περιθωρίων 3660 και 3661, εκτός για ύλες που έχουν κριτικήν θερμοκρασίαν κάτω των 50°C ή, στη θερμοκρασία αυτή, πίεση ατμού άνω των 3 KG/CM<sup>2</sup>, ή οι οποίες υπόκεινται σε στιγμιαία καύση.

Μόνον στερεές ή υγρές χαμηλής ειδικής ενεργείας ύλες, συμπεριλαμβανομένου κατά παρέκκλισιν του περιθωρίου 212 ΙΟΟ, φυσικού ή εξασθενημένου εξαφθοριούχου ουρα-



Οχήματα μπορούν να μεταφέρονται σε Πίνακας 2703  
TANK CONTAINERS (Δεξαμενοδοχεία). (Συνεχίζε- (Συνεχίζε-  
 ται) ται)

12.- Επιγραφές και ετικέτες επί οχημάτων,  
βυτιοφόρων, TANK CONTAINERS και δοχείων  
(CONTAINERS), (βλέπε Προσθήκες Α.9 και Β.4)

Δοχεία (CONTAINERS) - ετικέτες μοντέλων 6Α,  
 6Β ή 6Γ επί όλων των τεσσάρων πλευρών. Οχή-  
 ματα και μεγάλα δοχεία (CONTAINERS) - επιγρα-  
 φές συμφώνως προς το μοντέλο της Προσθήκης  
 Β.4 περιθώριον 240 ΟΙΟ σε κάθε πλευρά και  
 οπίσθιο τοίχωμα του οχήματος (βλέπε περιθώ-  
 ρια 3659(6) και 7Ι 500).

Δευτερεύουσες ετικέτες

(Ι) για νιτρικό θόριο και νιτρικό ουράνιο -  
 απαιτούνται ετικέτες μοντέλου Νο.3

(ΙΙ) για εξαφθοριούχο ουράνιο - απαιτούνται  
 ετικέτες μοντέλου Νο. 4.

-----  
 Ι/ Για εμπλουτισμένο εξαφθοριούχο ουράνιο, βλέπε  
 πίνακα ΙΙ.

13.- Απαγορεύσεις επί μικτής φορτώσεως

Βλέπε περιθώριω 2700(3).

14.- Απολύμανση οχημάτων, βυτιοφόρων, TANK CONTAINERS  
και δοχείων (CONTAINERS)

(α) Για αποστολές πλήρους φορτίου, μετά την εκφόρτω-  
 σιν, τα οχήματα θα απολυμαίνονται υπό του παρα-  
 λήπτου στα επίπεδα του Πίνακος ΧΙΧ της Προσθή-  
 κης Α.6 εκτός εάν χρησιμοποιηθούν για τη μετα-

φορμά των ίδιων υλών. Βλέπε επίσης πε- Πίνακας 5 2703  
 αριθμό 3695(4) της Προσθήκης Α.6. (Συνεχίζε- (Συνεχί-  
 ται) ζεται.)

β)) Για αποστολές δχι-πλήρους φορτίου, βλέπε  
 περιθώριο 3695(3) της Προσθήκης Α.6.

#### 15.- Άλλες διατάξεις

(α) Διατάξεις περί ατυχημάτων - βλέπε περιθώριο  
 3695(I), της Προσθήκης Α.6.

(β) Απολύμανση εν αποθηκείσει - βλέπε περιθώ-  
 ριο 3695(2), της Προσθήκης Α.6.

#### Πίνακας 6

#### 1.- Υλεις

##### Υλεις χαμηλής ειδικής ενεργείας LSA(II)

ανήκουσαι σε οποιαδήποτε των παρακάτω  
 ομάδων ως ορίζονται πλήρως στο περιθώ-  
 ριο 2700(2):

(I) ύλεις με ομοιόμορφον ενέργειαν δχι  
 μεγαλύτεραν των  $10^{-4}$  A2/G. (εδάφιον

(α) του ορισμού).

(II) μη-ραδιενεργά είδη μολυνθέντα σε επί-  
 πεδο μη υπερβαίνον το I MCI/CM<sup>2</sup> για  
 β και γ πομπούς και χαμηλής τοξικότη-  
 τος α πομπούς, ή 0.1 MCI/CM<sup>2</sup> για άλλους  
 α πομπούς (εδάφιον (β) του ορισμού).

Εάν υπάρχουν διασπαστές ύλεις οι όροι του  
 πίνακος II θα τηρούνται επιπροσθέτως των  
 όρων του παρόντος πίνακος.

#### 2.- Συσκευασία/Κόλον

Η συσκευασία θα είναι συμφώνως προς τους ό-  
 ρους του περιθωρίου 3600, περιθωρίου 3650

#### Επικέτες κινδύνου επί των κόλων

Ουδεμία απαιτείται  
 εκτός εάν υπάρχουν  
 διασπαστές ύλεις.  
 (βλέπε Πίνακα II)

- για περιθώριου 365I της Προσθήκης Α.6. Πίνακας 2703
- 3.- Ανώτατον επίπεδον ακτινοβολίας Κόλου (Συνεχί- (Συνεχί-  
 κλειστά οχήματα υπό τούς όρους του περι- ται) ται);  
 θωρίου 3659(7)(α) της Προσθήκης Α.6 -  
 1000 MREM/H στην επιφάνεια του κόλου και  
 μπορούν να υπερβούν τα 10 MREM/H σε ένα  
 μέτρο από της επιφάνειας αυτής. Όλα τα  
 άλλα οχήματα που δεν υπόκεινται στους ό-  
 ρους του περιθωρίου 3659 (7) (α) της Προ-  
 σθήκης Α.6 - 200 MREM/H στην επιφάνεια του  
 κόλου και 10 MREM/H σε ένα μέτρο από της  
 επιφάνειας αυτής.
- 4.- Μικτή συσκευασία  
 Βλέπε περιθώριο 3650 της Προσθήκης Α.6.
- 5.- Μόλυνση επί των κόλων  
 Μη-ωρισμένα όρια εξωτερικής μόλυνσεως:
- |   |           |                     |
|---|-----------|---------------------|
| β/γ/χαμηλής τοξικότητας α πομποί                  | $10^{-4}$ | UCI/CM <sup>2</sup> |
| Φυσικόν/εξασθενημένον ουράνιον/<br>φυσικόν θόριον | $10^{-3}$ | UCI/CM <sup>2</sup> |
| Άλλοι α πομποί                                    | $10^{-5}$ | UCI/CM <sup>2</sup> |
- Για πλήρεις λεπτομέρειες, βλέπε περιθώριο  
 365I της Προσθήκης Α.6.
- 6.- Ενδείξεις (μαρκάρισμα) κόλων  
 Τα κόλα θα μαρκάρονται "ΡΑΔΙΕΝΕΡΓΟΝ ΙSA".
- 7.- Έγγραφο μεταφοράς  
 Το έγγραφο μεταφοράς θα περιλαμβάνει την περιγραφήν  
 "Ραδιενεργείς ύλες (χαμηλής ειδικής ενεργείας ΙSA (II), 7,

Πίνακας 2703  
(Συνεχίζεται) (Συνεχίζεται)

Πίνακας 6, ADR," με την ονομασία υπογραμμισμένη με κόκκινο, και τις λεπτομέρειες τις οριζόμενες στα περιθώρια 3680 και 368I της Προσθήκης Α.6.

8.- Αποθήκευση και προώθηση

Μόνον υπό πλήρες φορτίον

9.- Μεταφορά κόλων με οχήματα και δοχεία

(α) Μεταφορά μόνον με πλήρες φορτίον

(β) Εάν η αποστολή περιλαμβάνει κόλα Διασπαστής Κλάσης II ή III, δεν θα υπερβαίνεται ο επιτρεπόμενος αριθμός (βλέπε Πίνακα ΙΙ).

(γ) Ανώτατα επίπεδα ακτινοβολίας για οχήματα και μεγάλα δοχεία (CONTAINERS) -

200 MREM/H στην επιφάνεια

10 MREM/H σε 2 μέτρα από την επιφάνεια (βλέπε περιθώριο 3659(7) της Προσθήκης Α.6).

Επίσης, για οχήματα - 2 MREM/H για οποιαδήποτε κανονικώς καταληφθείσα θέση - (βλέπε περιθώριο 3659(8) της Προσθήκης Α.6)

(δ) Δεν θα υπερβαίνονται τα όρια του παρακάτω πίνακος:

Φύσις Υλών	Όριο ενεργείας Οχήματος ή μεγάλου δοχείου
Στερεά	Ουδέν όριον
Οξείδιο του τριτίου σε υδατώδη διαλύματα	50,000 CI
Άλλα υγρά και αέρια	100 X A <sub>2</sub>

10.- Μεταφορά εις χύμα σε οχήματα και δοχεία  
(CONTAINERS)

Πίνακας 2703  
(Συνεχίζεται) (Συνεχίζεται)

Δεν επιτρέπεται.

11.- Μεταφορά με βυτιοφόρα και TANK CONTAINERS

Δεν επιτρέπεται.

12.- Επιγραφές και ετικέτες επί οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS) (βλέπε Προσθήκες Α.9 και Β.4)

Δοχεία (CONTAINERS) - ετικέτες των 6Α, 6Β ή 6Γ και στις τέσσερες πλευρές.

Οχήματα και μεγάλα δοχεία (CONTAINERS) - επιγραφές σύμφωνα με το μοντέλο της Προσθήκης Β.4, περιθώριο 240.010 σε κάθε πλευρά και οπίσθιο τοίχωμα του οχήματος (βλέπε περιθώρια 3659(6) και 71 500).

13.- Απαγορεύσεις επί μικτής φορτώσεως

Βλέπε περιθώριο 2700(3).

14.- Απολύμανση οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS)

Βλέπε περιθώριο 3695(3) και (4) της Προσθήκης Α.6.

15.- Άλλες διατάξεις

Διατάξεις περί ατυχημάτων - βλέπε περιθώριο 3695(I) της Προσθήκης Α.6.

I.- Υλεις

Πίνακας 2707

Χαμηλού επιπέδου στερεές ραδιενεργείς υλεις LLS, ανήκουσες σε οποιαδήποτε των παρακάτω ομάδων ως ορίζονται πλήρως στο περιθώριο 2700(2):-

Ετικέτες κινδύνου επί των κόλων

Ουδεμία απαιτείται εκτός εάν υπάρχουν

Πίνακας 7

2703

(συνεχίζεται) (Συνεχίζεται)

(I) Ύλες με ομοιομορφον ενεργειαν δχι διασπαστές ύλες. (Βλέπε πίνακα II)  
 μεγαλύτερων των  $2 \times 10^{-3} \text{ A}_2/\text{G}$ .  
 (εδάφιο (α) του ορισμού).

(II) μη-ραδιενεργά είδη μολυνθέντα σε επίπεδο μη υπερβαίνον τα  $20 \mu\text{Ci}/\text{CM}^2$  για β και γ πομπούς και χαμηλής τοξικότητας α πομπούς ή τα  $2 \mu\text{Ci}/\text{CM}^2$  για άλλους α πομπούς. (εδάφιο (β) του ορισμού).

Εάν υπάρχουν διασπαστές ύλες οι όροι του πίνακος II θα τηρούνται επιπροσθέτως των όρων του παρόντος πίνακος.

## 2.- Συσκευασία/Κόλον

(α) Η συσκευασία θα είναι συμφώνως προς τους όρους των περιθωρίων 3600 και 3650 της Προσθήκης Α.6 και θα είναι σε θέση να αντέξει στους ελέγχους του περιθωρίου 3635(4) και (5) της Προσθήκης Α.6.

(β) Υπό τους όρους των εν (α) αναφερομένων ελέγχων δεν θα υπάρχει

(I) απώλεια ή διασπορά του ραδιενεργού περιεχομένου

(II) αύξηση του ανωτάτου επιπέδου ακτινοβολίας του καταχωρηθέντος ή υπολογισθέντος στην εξωτερική επιφάνεια για την προ του ελέγχου κατάσταση.

## 3.- Ανώτατον επίπεδον ακτινοβολίας Κόλου

Κλειστά οχήματα υπό τους όρους του περιθωρίου

3659(7)(α), της Προσθήκης Α.6 -  
 1000 MREM/Η στην επιφάνεια του κόλου  
 και μπορεί να υπερβεί τα 10 MREM/Η σε  
 ένα μέτρο από την επιφάνειαν αυτήν.

Πίνακας 7 (Συνεχίζεται)	2703 (Συνεχίζεται)
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Όλα τα άλλα οχήματα που δεν υπόκεινται  
 στους όρους του περιθωρίου 3659(7)(α)  
 της Προσθήκης Α.6 - 200 MREM/Η στην επι-  
 φάνεια του κόλου και 10 MREM/Η σε ένα  
 μέτρο από την επιφάνεια αυτή.

4.- Μικτή συσκευασία

Βλέπε περιθώριο 3650 της Προσθήκης Α.6.

5.- Μόλυβδος επί των κόλων

Ουδεμία διάταξη.

6.- Ενδείξεις (μαρκάρισμα) επί κόλων

Τα κόλα θα μαρκάρονται "ΡΑΔΙΕΝΕΡΓΟΝ ILS".

7.- Έγγραφο μεταφοράς

Το έγγραφο μεταφοράς θα περιλαμβάνει την περιγραφήν  
 "Ραδιενεργείς ύλες (Χαμηλού-επιπέδου στερεόν (ILS), 7,  
 πίναξ 7, ADR," με την ονομασίαν υπογραμμισμένην με  
 κόκκινο, και τις λεπτομέρειες τις οριζόμενες στα  
 περιθώρια 3680 και 368I της Προσθήκης Α.6.

8.- Αποθήκευσις και προώθησις

Μόνον υπό πλήρες φορτίον.

9.- Μεταφορά κόλων σε οχήματα και δοχεία (CONTAINERS)

(α) Μεταφορά μόνον πλήρους φορτίου

(β) Εάν η αποστολή περιέχει κόλα Διασπαστής Κλάσεως II  
 ή III ο επιτρεπόμενος αριθμός δεν θα υπερβαίνεται  
 (βλέπε πίνακα II).

Πίνακας 7 2703  
(Συνεχίζεται) (Συνεχίζεται)

(γ) Ανώτατα επίπεδα ακτινοβολίας για οχήματα και μεγάλα δοχεία (CONTAINERS) -

200 MREM/H στην επιφάνεια

10 MREM/H σε 2 μέτρα από την επιφάνεια -

βλέπε περιθώριο 3659(7) της Προσθήκης Α.6.

10.- Μεταφορά είς χύμα σε οχήματα και δοχεία (CONTAINERS)

Δεν επιτρέπεται.

11.- Μεταφορά με βυτιοφόρα και TANK CONTAINERS

Δεν έχει εφαρμογή.

12.- Επιγραφές και ετικέτες επί οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS)

(βλέπε Προσθήκες Α.9 και Β.4)

Δοχεία (CONTAINERS) - ετικέτες σύμφωνες προς τα μοντέλα 6Α, 6Β ή 6Γ σε όλες και στις τέσσερες πλευρές.

Οχήματα και μεγάλα δοχεία - επιγραφές σύμφωνες προς το μοντέλο της Προσθήκης Β.4, περιθώριο 240 ΟΙΟ σε κάθε πλευρά και στο οπίσθιο τοίχωμα του οχήματος (βλέπε περιθώρια 3659(6) και 7Ι 500).

13.- Απαγορεύσεις επί μικτής φορτώσεως

βλέπε περιθώριο 2700(3).

14.- Απολύμανση οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS)

Μετά την εκφόρτωση, τα οχήματα θα απολυμαίνονται υπό του παραλήπτη στο επίπεδο το αναγραφόμενο στον πίνακα XIX της Προσθήκης Α.6 εκτός εάν χρησιμοποιηθούν για τη μεταφορά υδρών υλών. Βλέπε επίσης περιθώριο



3695(3) και (4) της Προσθήκης Α.6.

Πίνακας 7 2703  
(Συνεχίζεται) (Συνεχίζεται)

15. Άλλες διατάξεις

Διατάξεις περί ατυχημάτων - βλέπε περιθώριο 3695(I) της Προσθήκης Α.6.

Πίνακας 8

Ετικέτες κινδύνου  
επί των κόλων

(βλέπε Προσθήκη Α.9)

1.- Ύλες

Ραδιενεργές ύλες σε κόλα Τύπου Α

ενεργείας ανά κόλον  $A_2$  ή  $A_1$  εάν πρόκειται περί ειδικής μορφής.

Εάν υπάρχουν διασπαστές ύλες οι όροι του πίνακος II θα τηρούνται επιπροσθέτως των όρων του παρόντος πίνακος.

Ετικέτες συμφώνως προς τα μοντέλα 6A, 6B ή 6Γ θα τοποθετούνται εξωτερικώς σε δύο αντίθετες πλευρές, βλέπε περιθώρια 3653 έως 3655 της Προσθήκης Α.6 για κατηγορία κόλου.

2.- Συσπυκνωσία/Κόλον

Τύπου Α, συμφώνως προς τους όρους του σχεδίου τους διδομένους στα περιθώρια 3600 και 360I της Προσθήκης Α.6.

3.- Ανώτατον επίπεδον ακτινοβολίας Κόλου

200 MREM/H στην επιφάνεια του κόλου και

10 MREM/H σε 1 μέτρο από την επιφάνεια αυτή

(βλέπε περιθώρια 3653 έως 3655 της Προσθήκης Α.6).

(οπότε) εκτός της περιπτώσεως πλήρους φορτίου, όταν/το όριον είναι 1000 MREM/H στην επιφάνεια του κόλου και μπορεί να υπερβεί τα 10 MREM/H σε 1 μέτρο από της επιφανείας αυτής (βλέπε περιθώριο 3659(7) της Προσθήκης Α.6)).

4.- Μείξη συσκευασία

Πίνακας 8 2703

(Βλέπε περιθώριο 3650 της Προσθήκης Α.6. (Συνεχίζε- (συνεχί-  
ται)) ζεται))

5.- Μόλυνση επί των κόλων

Μη-ωρισμένα δρια εξωτερικής μόλυνσεως:-

β/γ/χαμηλής τοξικότητας α. πομποί  $10^{-4}$  / UCI/CM<sup>2</sup>

Φυσικόν/εξασθενημένον ουράνιον/

φυσικόν θόριον  $10^{-3}$  / UCI/CM<sup>2</sup>

Άλλοι α. πομποί  $10^{-5}$  / UCI/CM<sup>2</sup>

Για πλήρεις λεπτομέρειες, βλέπε περιθώριο  
365I της Προσθήκης Α.6.

6.- Ενδείξεις (μαρκάρισμα) κόλων

Τα κόλα θα είναι καθαρά και ανεξίτηλα μαρκάρι-  
σμένα εξωτερικώς με

(I) "Τύπος Α"

(II) το βάρος του κόλου, εάν άνω των 50 KG.

7.- Έγγραφα μεταφοράς

(α) Για ανακεφαλαίωση των δρων εγκρίσεως και κοι-  
νοποιήσεως - βλέπε περιθώριο 2704.

(β) Το έγγραφο μεταφοράς πρέπει να περιλαμβάνει  
την περιγραφή "Ραδιενεργείς ύλες κόλων Τύπου Α,  
πίνακος 8, ADR", με την ονομασίαν υπογραμμισμέ-  
νην με κόκκινο, και τις λεπτομέρειες τις οριζό-  
μενες στα περιθώρια 3680 και 368I της Προσθή-  
κης Α.6.

(γ) Οσάκις επωφελούμεθα της επιτρεπομένης ηυξημένης  
ενεργείας ανά κόλον εάν η ύλη είναι ειδικής μορ-  
φής, το πιστοποιητικόν της ετεροπλεύρου εγκρίσεως

του σχεδίου ειδικής μορφής θα είναι στη Πίνακας 2703  
 κατοχή του αποστολέως προ της πρώτης φορ- (Συνεχίζε- (Συνεχί-  
 τώσεως (βλέπε περιθώριο 367I της Προσθή- ται) ζεται)  
 κης Α.6).

### 8.- Αποθήκευσις και προώθησις

(α) Αποθήκευσις και διαχωρισμός από τα άλλα  
 επικίνδυνα εμπορεύματα

- βλέπε περιθώριο 3658(I) της Προσθήκης Α.6.

(β) Αποθήκευσις και διαχωρισμός από κόλα φέροντα  
 ετικέτες "FOTO"

- βλέπε περιθώριο 240 00I της Προσθήκης Β.4  
 για τον πίνακα διαχωρισμού.

(γ) Όριο δεικτού ολικής μεταφοράς για αποθήκευση-  
 50 ανά ομάδα με 6 μέτρα μεταξύ ομάδων- βλέπε  
 περιθώριο 3658(2) έως (5) της Προσθήκης Α.6.

### 9.- Μεταφορά κόλων με οχήματα και δοχεία (CONTAINERS)

(α) Διαχωρισμός από κόλα φέροντα ετικέτα "FOTO" -  
 βλέπε περιθώριο 240 00I της Προσθήκης Β.4 για  
 πίνακες διαχωρισμού.

(β) Όριο δεικτού ολικής μεταφοράς - 50. Το όριο αυτό  
 δεν ισχύει για πλήρες φορτίο, εφ' όσον εάν υπάρχουν  
 κόλα Διασπαστής Κλάσεως II ή III δεν υπερβαίνεται  
 ο επιτρεπόμενος αριθμός. Βλέπε περιθώριο 3659(5)  
 της Προσθήκης Α.6.

(γ) Ανώτατον επίπεδον ακτινοβολίας για οχήματα και με-  
 γάλα δοχεία προκειμένου περί πλήρους φορτίου

200 MREM/H στην επιφάνεια

10 MREM/H σε 2 μέτρα από την επιφάνεια

(βλέπε περιθώριο 3659(7) της Προσθήκης Πίνακας 2703  
 Α.6) (Συνεχίζε- (Συνεχίζε-  
 ται) ζεται)

Επίσης, για οχήματα - 2 MREM/H σε οποια-  
 δήποτε κανονικώς καταληφθείσα θέση - βλέ-  
 πε περιθώριο 3659(8) της Προσθήκης Α.6.

Ι0.- Μεταφορά εις χύμα σε οχήματα και δοχεία

Δεν έχει εφαρμογήν.

ΙΙ.- Μεταφορά με βυτία και TANK CONTAINERS

Δεν έχει εφαρμογήν.

Ι2.- Επιγραφές και ετικέτες επί οχημάτων, βυτιοφόρων,  
 TANK CONTAINERS και δοχείων (CONTAINERS)

(βλέπε Προσθήκες Α.9 και Β.4)

Δοχεία - ετικέτες συμφώνως προς μοντέλα 6Α, 6Β ή  
 6Γ και στις τέσσερες πλευρές.

Οχήματα και μεγάλα δοχεία - επιγραφές σύμφωνα με  
 το μοντέλο της Προσθήκης Β.4, περιθώριο 240 ΙΟΙΟ,  
 σε κάθε πλευρά και επί του οπισθίου τοιχώματος του  
 οχήματος (βλέπε περιθώρια 3659(6) και 7Ι 500).

Ι3.- Απαγόρευσις επί μικτής φορτώσεως

Βλέπε περιθώριο 2700(3).

Ι4.- Απολύμανσις οχημάτων, βυτιοφόρων, TANK CONTAINERS  
 και δοχείων (CONTAINERS)

Βλέπε περιθώριο 3695(3) της Προσθήκης Α.6.

Ι5.- Άλλες διατάξεις

(α) Διατάξεις περί ατυχημάτων - βλέπε περιθώριο  
 3695(Ι) της Προσθήκης Α.6.

(β) Απολύμανσις εν αποθηκείσει - βλέπε περιθώριο  
 3695(2) της Προσθήκης Α.6.

- 1.- Υλές Πίνακας 2703 (Συνεχίζεται)
- Ραδιενεργείς ύλες σε κόλα Τύπου Β(Υ)  
 Ουδέν όριον επί της ποσότητας ανά κέλον εκτός ως προβλέπεται υπό των πιστοποιητικών εγκρίσεως. Εάν υπάρχουν διασπαστές ύλες, οι όροι του πίνακος ΙΙ θα τηρούνται επιπροσθέτως των όρων του παρόντος πίνακος.
- Ετικέτες κινδύνου επί των κόλων  
 (Βλέπε Προσθήκη Α.9)  
 Ετικέτες των μοντέλων 6Α, 6Β ή 6Γ θα τοποθετούνται εξωτερικώς στις αντίθετες πλευρές, βλέπε περιθώρια 3653 έως 3655 της Προσθήκης Α.6 για κατηγορία κόλου.
- 2.- Συσκευασία/Κόλου  
 Τύπος Β(Υ), συμφώνως προς τους όρους του σχεδίου τους διδομένους στα περιθώρια 3600 έως 3603 της Προσθήκης Α.6, τους απαιτούντας την μονόπλευρον έγκρισιν της αρμοδίας αρχής, βλέπε περιθώριο 3672 της Προσθήκης Α.6.
- 3.- Ανώτατον επίπεδον ακτινοβολίας Κόλου  
 200 MREM/H στην επιφάνεια του κόλου και 10 MREM/H σε 1 μέτρο από την επιφάνεια αυτή. (βλέπε περιθώρια 3653 έως 3655 της Προσθήκης Α.6).  
 εκτός της περιπτώσεως πλήρους φορτίου, οπότε το όριον είναι 1000 MREM/H στην επιφάνεια του κόλου και μπορεί να υπερβεί τα 10 MREM/H σε 1 μέτρο από της επιφανείας αυτής. (Βλέπε περιθώριο 3659(7) της Προσθήκης Α.6)
- 4.- Μικτή συσκευασία  
 Βλέπε περιθώριο 3650 της Προσθήκης Α.6.

- Πίνακας 9 2703  
(Συνεχίζεται) (Συνεχίζεται)
- 5.- Μολύνσεις επί κόλων
- Μη-ωρισμένα δρια εξωτερικής μόλυνσης:
- β/γ/χαμηλής τοξικότητας α πομποί  $10^{-4}$  UCI/CM<sup>2</sup>
- Φυσικόν/εξασθενημένον ουράνιον/  
φυσικόν θόριον  $10^{-3}$  UCI/CM<sup>2</sup>
- Για πλήρεις λεπτομέρειες, βλέπε περιθώριο 365I της Προσθήκης Α.6.
- 6.- Ένδειξεις (μαρκάρισμα) κόλων
- Τα κόλα θα μαρκάρονται εξωτερικώς καθαρά και ανεξίτηλα μέ:-
- (I) "ΤΥΠΟΣ Β(Υ)".
- (II) ένδειξης αναγνώρισεως της αρμοδίας αρχής
- (III) το βάρος εάν άνω των 50 KG.
- (IV) το τρίφυλλο σύμβολο ενσωματωμένο ή σταμπαρισμένο επί του εξωτερικού του ανθεκτικού εις το πύρ και ύδωρ δοχείου.
- 7.- Έγγραφα Μεταφοράς
- (α) Για ανακεφαλαίωση των δρων της εγκρίσεως και κοινοποιήσεως, βλέπε περιθώριο 2704.
- (β) Το έγγραφο μεταφοράς θα περιλαμβάνει την περιγραφήν "Ραδιενεργείς ύλες κόλων Τύπου Β(Υ), 7, πίνακος 9, ADR", με την ονομασίαν υπογραμμισμένην με κόκκινο, και τις λεπτομέρειες τις οριζόμενες στα περιθώρια 3680 και 368I της Προσθήκης Α.6.
- (γ) Πιστοποιητικόν μονοπλεύρου εγκρίσεως του σχε-

δύο του κόλου απαιτείται, βλέπε περι- Πίνακας 9 2703  
 θώριο 3672 της Προσθήκης Α.6. (Συνεχίζεται) (Συνεχίζεται)

- (δ) Προ της φορτώσεως οποιουδήποτε κόλου ο αποστολεύς θα έχει στη κατοχή του όλα τα σχετικά πιστοποιητικά εγκρίσεως.
- (ε) Προ της πρώτης φορτώσεως συγκεκριμένου σχεδίου κόλου, εάν η ενέργεια είναι μεγαλύτερη των  $3 \times 10^3 A_2$  ή  $3 \times 10^3 A_I$  ως ενδείκνυται, ή  $3 \times 10^4 CI$ , οποιουδήποτε τούτων όντος χαμηλωτέρου, ο αποστολεύς θα εξασφαλίζει όπως αντιγραφα των πιστοποιητικών εγκρίσεως της αρμόδιας αρχής παρασχεθούν στις αρμόδιες αρχές τις θιγόμενες εκ της μετακινήσεως, βλέπε περιθώριο 3682(I) της Προσθήκης Α.6.
- (στ) Προ κάθε φορτώσεως όταν η ενέργεια είναι μεγαλύτερη των  $3 \times 10^3 A_2$  ή  $3 \times 10^3 A_I$  ως ενδείκνυται, ή  $3 \times 10^4 CI$ , οποιουδήποτε τούτων όντος χαμηλωτέρου, ο αποστολεύς οφείλει να γνωστοποιήσει τούτο στις αρμόδιες αρχές όλων των χωρών των θιγομένων εκ της κινήσεως, κατά προτίμησιν προ δεκαπέντε ημερών ως λεπτομερώς αναφέρεται στο περιθώριο 3682 της Προσθήκης Α.6.
- (ζ) Οσάντις επωφελούμεθα της επιτρεπομένης ηυξημένης ενεργείας ανά κόλον διότι η ύλη είναι ειδικής μορφής, βλέπε παραγράφους (α) και (στ) ανωτέρω, απαιτείται μονόπλευρον πιστοποιητικόν εγκρίσεως σχεδίου ειδικής μορφής (βλέπε περιθώριο 367I της Προσθήκης Α.6).

8. - ~~Αποθήκευση~~ και προώθησις

Πίνακας 9

2703

- (α) Οποιοσδήποτε οδηγίες του πιστοποιητικού εγκρίσεως της αρμοδίας αρχής θα τηρούνται. (Συνεχίζεται) (Συνεχίζεται)
- (β) Αποθήκευσις και διαχωρισμός από άλλα επικίνδυνα εμπορεύματα - βλέπε περιθώριο 3658(I) της Προσθήκης Α.6.
- (γ) Αποθήκευσις και διαχωρισμός από κόλα φέροντα τον τίτλον "FOTO" - βλέπε περιθώριο 240 00I της Προσθήκης Β.4 για πίνακα διαχωρισμού.
- (δ) Οριο δείκτου ολικής μεταφοράς για αποθήκευση - 50 ανά ομάδα με 6 μέτρα μεταξύ των ομάδων - βλέπε περιθώριο 3658(2), έως (5), της Προσθήκης Α.6.
- (ε) Ο αποστολεύς θα έχει τηρήσει τους προ της χρήσεως και προ της φορτώσεως όρους των περιθωρίων 3643 και 3644 της Προσθήκης Α.6.
- (στ) Η θερμοκρασία των προσιτών επιφανειών του κόλου δεν θα υπερβαίνει τους 50°C υπό σκιάν εκτός εάν η μεταφορά τελεί υπό συνθήκας (όρους) πλήρους φορτίου, οπότε το όριο είναι 82°C (βλέπε περιθώρια 3602(3)(β) και 3603(8), της Προσθήκης Α.6).
- (ζ) Εάν η μέση/ροή <sup>επιφανειακή</sup> θερμότητας από κόλον υπερβαίνει τα 15 W/M<sup>2</sup>, τότε το κόλον θα μεταφέρεται ως πλήρες φορτίο.

9. - Μεταφορά κόλων με οχήματα και δοχεία (CONTAINERS)

- (α) Διαχωρισμός από κόλα φέροντα τον τίτλον "FOTO"-



βλέπε περιθώριο 240 001 της Προσθήκης Πίνακας 9 2703  
 4 για πίνακα διαχωρισμού. (Συνεχί- (Συνεχι-  
 ζεται) ζεται)  
 (β) Όριο δείκτη ολικής μεταφοράς - 50.

Το όριο αυτό δεν ισχύει για πλήρες φορτίο  
 εφ' όσον εάν υπάρχουν κβλα Διασπαστής Κλάσεως  
 II ή III δεν υπερβαίνεται ο επιτρεπόμενος α-  
 ριθμός. Βλέπε περιθώριο 3659(5) της Προσθήκης  
 Α.6.

(γ) Ανώτατα επίπεδα ακτινοβολίας για οχήματα και  
 μεγάλα δοχεία προκειμένου περί πλήρους φορτίου  
 200 MREM/H στην επιφάνεια.

10 MREM/H σε 2 μέτρα από την επιφάνεια  
 Βλέπε περιθώριο 3659(7) της Προσθήκης Α.6.  
 Επίσης για οχήματα - 2 MREM/H σε οποιαδήποτε  
 κανονικώς καταληφθείσα θέση - βλέπε περιθώριο  
 3659(8) της Προσθήκης Α.6.

Ι0.- Μεταφορά εις χύμα με οχήματα και δοχεία (CONTAINERS)

Δεν έχει εφαρμογήν.

ΙΙ.- Μεταφορά με βυτιοφόρα και TANK CONTAINERS

Δεν έχει εφαρμογήν.

Ι2.- Επιγραφές και ετικέτες επί οχημάτων, βυτιοφόρων,  
 TANK CONTAINERS και δοχείων (CONTAINERS)

(Βλέπε Προσθήκες Α.9 και Β.4).

Δοχεία - ετικέτες μοντέλων 6Α, 6Β ή 6Γ και στις τεσ-  
 σερες πλευρές.

Οχήματα και μεγάλα δοχεία - επιγραφές συμφώνως προς  
 το μοντέλο της Προσθήκης Β.4 περιθώριο 240 010 σε κάθε  
 πλευρά και στο οπίσθιο τοίχωμα του οχήματος (βλέπε

περιθώρια 3659(6) και 7I 500).

~~I3.- Απαγόρευση επί μικτής φορτώσεως~~

Βλέπε περιθώριο 2700(3).

Πίνακας 9 2703  
(Συνεχίζεται) (Συνεχίζεται)

I4.- Απολύμανση οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS).

Βλέπε περιθώριο 3695(3) της Προσθήκης Α.6.

I5.- Άλλες διατάξεις

(α) Διατάξεις περί Ατυχημάτων - βλέπε περιθώριο 3695(I) της Προσθήκης Α.6.

(β) Απολύμανση εν αποθηκείσει - βλέπε περιθώριο 3695(2) της Προσθήκης Α.6.

I.- Υλεις

Ραδιενεργείς ύλεις Τύπου Β(M) κδλων

ήτοι σχέδιον κδλου Τύπου Β το οποίον δεν πληροί έναν ή περισσότερους των ειδικών προσθέτων όρων για κδλα Τύπου Β(U), (βλέπε περιθώριο 3603 της Προσθήκης Α.6). Ουδέν όριον επί της ποσότητος ανά κδλον εκτός ως προβλέπεται υπό του πιστοποιητικού εγκρίσεως. Εάν υπάρχουν διασπαστές ύλεις οι όροι του πίνακος II θα τηρούνται επιπροσθέτως των όρων του παρόντος πίνακος.

Πίναξ ΙΟ

Ετικέτες κινδύνου επί των κδλων  
(βλέπε Προσθήκη Α.9)

Ετικέτες των μοντέλων 6Α, 6Β ή 6Γ θα τοποθετούνται εξωτερικώς σε δύο αντίθετες πλευρές, βλέπε περιθώρια 3653 έως 3655 της Προσθήκης Α.6 για κατηγορία κδλου.

2.- Συσκευασία/Κδλον

Τύπος Β(M), συμφώνως προς τους όρους σχεδίου τους διδομένους στο περιθώριο 3604 της Προσθήκης Α.6 απαιτούντας πολύπλευρον έγ-

κρίσει αρμόδιας αρχής, βλέπε περιθώριο  
3673 της Προσθήκης Α.6.

Πίνακας 10 2703

(Συνεχίζεται) (Συνεχίζεται)

3.- Ανώτατον επίπεδον ακτινοβολίας κόλου

200 MREM/H στην επιφάνεια του κόλου και  
10 MREM/H σε 1 μέτρο από την επιφάνεια  
αυτή (βλέπε περιθώρια 3653 έως 3655 της  
Προσθήκης Α.6), εκτός της περιπτώσεως  
πλήρους φορτίου οπότε το όριο είναι  
1000 MREM/H στην επιφάνεια του κόλου και  
μπορεί να υπερβεί τα 10 MREM/H σε 1 μέτρο  
από την επιφάνειαν αυτήν (βλέπε περιθώριο  
3659(7) της Προσθήκης Α.6).

4.- Μικτή Συσκευασία

Βλέπε περιθώριο 3650 της Προσθήκης Α.6.

5.- Μόλυνσις επί κόλων

Μη-ωρισμένα όρια εξωτερικής μόλυνσεως:-

β/γ/χαμηλής τοξικότητας α πομποί	$10^{-4}$ UCI/CM <sup>2</sup>
Φυσικόν/εξασθενημένον ουράνιον/ φυσικόν θόριον	$10^{-3}$ UCI/CM <sup>2</sup>
Άλλοι α πομποί	$10^{-5}$ UCI/CM <sup>2</sup>

Για πλήρεις λεπτομέρειες, βλέπε περιθώριο  
3651 της Προσθήκης Α.6.

6.- Ένδειξεις (μαρκάρισμα) κόλων

Τα κόλα θα μαρκάρονται εξωτερικώς καθαρά και  
ανεξίτηλα με τον:-

(I) "Τύπον Β(Μ)"

(II) την ένδειξιν αναγνωρίσεως της αρμόδιας αρχής  
(III) Το βάρος του κόλου αν είναι πάνω από 50 χιλιόγραμμα.

- (IV) ~~το~~ ~~φύλλο~~ σύμβολο ενσωματωμένο ή Πίναξ IO 2703  
~~υπο~~αμπαρισμένο στο εξωτερικό του ανθε- (Συνεχίζεται) (Συνεχί-  
 κτικού στο πύρ και το ύδωρ δοχείου. ζεται).

### 7.- Έγγραφα μεταφοράς

- (α) Για ανακεφαλαίωση των όρων εγκρίσεως και γνωστοποιήσεως - βλέπε περιθώριο 2704.
- (β) Το έγγραφο μεταφοράς θα περιλαμβάνει την περιγραφήν "Ραδιενεργείς ύλες κόλων Τύπου B(M), 7, πίναξ IO, ADR", με την ονομασία υπογραμμισμένη με κόκκινο, και τις λεπτομέρειες τις οριζόμενες στα περιθώρια 3680 και 368I της Προσθήκης A.6.
- (γ) Απαιτούνται πιστοποιητικά πολυπλεύρου εγκρίσεως σχεδίου κόλου, βλέπε περιθώριο 3673 της Προσθήκης A.6.
- (δ) Εάν το κόλον είναι σχεδιασμένο κατά τρόπον ώστε να παρέχεται συνεχής εξαερισμός ή εάν το ολικόν περιεχόμενον υπερβαίνει τα  $3 \times 10^3 A_2$  ή  $3 \times 10^3 A_I$ , ως ενδεικνυται ή τα  $3 \times 10^4 CI$ , οποιουδήποτε τούτων όντος χαμηλότερου, πολύπλευρα πιστοποιητικά φορτώσεως απαιτούνται εκτός εάν η αρμόδια αρχή εξουσιοδοτήσει την μεταφορά με ειδικήν διάταξιν στο πιστοποιητικό της σχεδίου κόλου, βλέπε περιθώριο 3675 της Προσθήκης A.6.
- (ε) Οσάκις επωφελούμεθα της ηυξημένης ενεργείας ανά κόλον της επιτρεπομένης εάν η ύλη είναι ειδικής μορφής, βλέπε παράγραφον (δ) ανωτέρω,

~~αποτέλει~~ μονόπλευρον πιστοποιητικόν Πίνακιο 2703  
 εγκρίσεως σχεδίου ειδικής μορφής (Συνεχίζε- (Συνεχί-  
 (βλέπε περιθώριο 367I της Προσθήκης Α.6.) ται). ζεται)

(στ). Προ κάθε φορτώσεως ο αποστολέας οφείλει να γνωρίζει στις αρμόδιες αρχές όλων των χωρών των διγγομένων ελ της μεταφοράς κατά προτίμησιν προ δέκαπέντε ημερών ως λεπτομερώς αναφέρεται στο περιθώριο 3682(2) έως (4) της Προσθήκης Α.6.

(ζ). Προ της φορτώσεως οιοιδήποτε κόλου, ο αποστολέας θα έχει στην κατοχή του όλα τα σχετικά πιστοποιητικά εγκρίσεως.

#### 8.- Αποθήκευσις και προώθησις

- (α) Θα τηρούνται οιοσδήποτε οδηγίες των πιστοποιητικών εγκρίσεως της αρμόδιας αρχής.
- (β) Αποθήκευσις και διαχωρισμός από άλλα επικίνδυνα εμπορεύματα - βλέπε περιθώριον 3658(I) της Προσθήκης Α.6.
- (γ) Αποθήκευσις και διαχωρισμός από κόλα φέροντα ετικέτα "FOTO" - βλέπε περιθώριο 240 00I της Προσθήκης Β4 για πίνακα διαχωρισμού.
- (δ) Όριο δείκτου ολικής μεταφοράς για αποθήκευση- 50 ανά ομάδα με 6 μέτρα μεταξύ των ομάδων- βλέπε περιθώριο 3658(2) έως (5) της Προσθήκης Α.6.
- (ε). Ο αποστολέας θα έχει τηρήσει τους προ της χρήσεως και προ της φορτώσεως όρους των περιθωρίων 3643 και 3644 της Προσθήκης Α.6.

(στ) Εάν η θερμοκρασία επιφανείας του κόλου Πίνακας ΙΟ 2703 υπερβαίνει τους 50°C υπό σκιάν το (Συνεχίζεται) (Συνεχίζεται) κόλον θα μεταφέρεται ως πλήρες φορτίο - βλέπε περιθώριο 3602(4)(β) της Προσθήκης Α.6.

(ζ) Εάν η μέση ροή επιφανειακής θερμότητας από ένα κόλον υπερβαίνει τα 15 W/M<sup>2</sup>, τότε το κόλο ν θα μεταφέρεται ως πλήρες φορτίο.

(η) Κόλα ειδικώς προοριζόμενα να επιτρέπουν συνεχή εξαερισμόν - βλέπε περιθώριον 3604(2) της Προσθήκης Α.6 - θα μεταφέρονται μόνον υπό πλήρες φορτίο.

#### 9.- Μεταφορά κόλων με οχήματα και δοχεία

(α) Διαχωρισμός από κόλα φέροντα ετικέτα "FOTO"- βλέπε περιθώριο 240 001 της Προσθήκης Β4 για των πλανάνα διαχωρισμού.

(β) Όριο δείκτη ολικής μεταφοράς - 50. Το όριο αυτό δεν ισχύει για πλήρες φορτίο, εφ'όσον εάν υπάρχουν κόλα Διασπαστής Κλάσεως II ή III δεν υπερβαίνεται ο επιτρεπόμενος αριθμός - βλέπε περιθώριον 3659(5) της Προσθήκης Α.6.

(γ) Ανώτατα επίπεδα ακτινοβολίας για οχήματα και μεγάλα δοχεία προκειμένου περί πλήρους φορτίου

200 MREM/H στην επιφάνεια

10 MREM/H σε 2 μέτρα από την επιφάνεια

βλέπε περιθώριο 3659(7) της Προσθήκης Α.6.

Επίσης, για οχήματα 2 MREM/H σε οποιαδήποτε κανονικώς καταληφθείσα θέση - βλέπε περιθώριο

3659(8) της Προσθήκης Α.6.

Πίνακας 10 2703

Ι0.- Μεταφορά εις χύμα με οχήματα και δοχεία (Συνεχί- (Συνεχί-  
Δεν έχει εφαρμογήν. ται)) ζεται)

ΙΙ.- Μεταφορά με βυτιοφόρα και TANK CONTAINERS

Δεν έχει εφαρμογήν.

Ι2.- Επιγραφές και ετικέτες επί οχημάτων, βυτιο-  
φόρων, TANK CONTAINERS και δοχείων (CONTAINERS)

(βλέπε Προσθήκη Α9 και Β4)

Δοχεία - ετικέτες των μοντέλων 6Α, 6Β ή 6Γ

και στις τέσσερες πλευρές.

Οχήματα και μεγάλα δοχεία - επιγραφές συμφώνως

προς το μοντέλο της Προσθήκης Β4, περιθώριο

240 ΟΙΟ σε κάθε πλευρά και στο οπίσθιο τοίχωμα

του οχήματος (βλέπε περιθώρια 3659(6) και 7Ι 500).

Ι3.- Απαγόρευση επί μικτής φορτώσεως

Βλέπε περιθώριο 2700(3).

Ι4.- Απολύμανση οχημάτων, βυτιοφόρων, TANK CONTAINERS  
και δοχείων (CONTAINERS)

Βλέπε περιθώριο 3695(3) της Προσθήκης Α.6.

Ι5.- Άλλες διατάξεις

(α) Διατάξεις περί ατυχημάτων - βλέπε περιθώριο

3695(Ι) της Προσθήκης Α.6.

(β) Απολύμανση εν αποθηκείσει - βλέπε περιθώριο

3695(2) της Προσθήκης Α.6.

I.- Ύλες

Διασπαστές Ύλες ήτοι:-

ουράνιον - 233, ουράνιον - 235,  
πλουτόνιον - 238, πλουτόνιον - 239,  
πλουτόνιον - 241, ή ή οιαδήποτε ύλη  
περιέχουσα οιαδήποτε των ανωτέρω,  
εκτός από μη-ακτινοβόλον φυσικόν και  
εξασθενημένον ουράνιον.

Οι διασπαστές ύλες θα αποστέλλονται επί-  
σης με πλήρη τήρησιν των όρων του ενός  
εκ των άλλων πινάκων, ως ενδείκνυται  
για την ραδιενέργειαν.

2.- Συσκευασία/Κόλον

(α) Οι κατωτέρω ύλες οι οριζόμενες πλη-  
ρωσ στο περιθώριο 3610 της Προσθήκης  
Α6 εξαίρούνται των όρων ειδικής συ-  
σκευασίας του παρόντος πίνακος:-

(I) Διασπαστές ύλες σε ποσότητα μη υπερ-  
βαίνουσα τα 15 G.

(II) Φυσικόν ή εξασθενημένον ουράνιον  
ακτινοβολούσιν (IRRADIATED) σε θερμικόν  
αντιστάτην.

(III) Αραιωμένα διαλύματα υδρογόνου σε πε-  
ριορισμένα συμπυκνώματα και ποσότητες.

(IV) Εμπλουτισμένον ουράνιον με όχι άνω του  
1 τοις εκατόν ουρανίου-235, το οποίον  
δεν πρέπει να σχηματίζει διάταξιν πλέγ-  
ματος εάν μέταλλον ή οξειδίου.

Πίνακας II 2703

(Συνεχίζε-  
Ετικέτες κινδύνου τα)  
επί των κόλων

(Βλέπε Προσθήκη A9)

Διασπαστή Κλάσις I -  
ετικέτες σύμφωνα προς  
τα μοντέλα 6A, 6B ή  
6Γ.

Διασπαστή Κλάσις II -  
ετικέτες σύμφωνα προς  
τα μοντέλα 6B ή 6Γ.

Διασπαστή Κλάσις III -  
ετικέτες συμφώνως προς  
το μοντέλο 6Γ μόνον.  
Ετικέτες θα τοποθετούν-  
ται εξωτερικώς σε δύο  
αντίθετες πλευρές, βλέ-  
πε περιθώρια 3653 έως  
3655 της Προσθήκης Α6  
για κατηγορία κόλου.



(V) Υλεις διανεμημένες όχι άνω των 5 G (Γραμ- Πίνακας II 2703  
μαριων) ανά όγκον 10 λιτρών. (Συνεχί- (Συνεχί-  
ζεται) ζεται)

(VI) Πλουτόνιον όταν είναι ολιγώτερο του 1 KG  
ανά κδλον και όταν όχι άνω του 20 τοις ε-  
κατόν της μάζης περιλαμβάνει πλουτόνιον-  
239 ή 241.

(VII) Εμπλουτισμένον διάλυμα νιτρικού ουρανυλίου  
περιέχον ουράνιον με όχι άνω του 2 τοις ε-  
κατόν ουράνιον-235.

(β), άλλως, τα κδλα θα είναι σύμφωνα με τους όρους  
του σχεδίου της Διασπαστής Κλάσεως I, II ή III  
τους διδομένους στα περιθώρια 3611 έως 3624 της  
Προσθήκης Α6 και θα έχουν την έγκρισιν της αρμό-  
διας αρχής, οσάνκις απαιτείται, ως λεπτομερώς ανα-  
φέρεται στο περιθώριο 3674 της Προσθήκης Α6.

3.- Ανώτατο επίπεδο ακτινοβολίας κδλου

Βλέπε κατάλληλον πίνακα.

4.- Μικτή συσκευασία

Βλέπε περιθώριο 3650 της Προσθήκης Α6.

5.- Πόλυνοι, επί κδλων

Βλέπε κατάλληλον πίνακα.

6.- Ενδείξεις (μαρμάρισμα), κδλων

Βλέπε κατάλληλον πίνακα.

7.- Έγγραφα μεταφοράς

(α) Για άνακεφαλαίωση των όρων της έγκρίσεως και  
κοινοποιήσεως - βλέπε περιθώριον 2704.

(β) Το έγγραφον μεταφοράς θα περιλαμβάνει τις λεπτο-

- μέρειες τρισυριζόμενες στον κατάλληλο πί- (Συνεχίζεται)  
νακιά για τη φύση του περιεχομένου με την  
λέξι "Διασπαστή" προτασσομένην της περι-  
γραφής και υπογραμμισμένην με κόκκινο.
- (γ) Μπορούν να απαιτηθούν πιστοποιητικά μονο-  
πλεύρου ή πολυπλεύρου εγκρίσεως σχεδίου κό-  
λου, βλέπε περιθώριο 3674 της Προσθήκης Α6.
- (δ) Τα σχέδια κόλων Διασπαστής Κλάσεως II συμμορ-  
φούμενα προς το περιθώριο 3620 της Προσθήκης  
Α6 θα έχουν πιστοποιητικά πολυπλεύρου εγκρί-  
σεως της φορτώσεως. Ένα τέτοιο σχέδιο κόλου  
δεν απαιτεί προηγούμενη γνωστοποίησην εκτός  
εάν ειδικώς ορίζεται στην έγκριση φορτώσεως  
της αρμόδιας αρχής.
- (ε) Τα σχέδια κόλων Διασπαστής Κλάσεως III θα έχουν  
πιστοποιητικά πολυπλεύρου εγκρίσεως της φορτώ-  
σεως εκτός εάν αρμόδια αρχή εξουσιοδοτεί την  
μεταφορά δι' ειδικής διατάξεως στο πιστοποιητικό  
της σχεδίου κόλου, βλέπε περιθώριο 3675 της Προ-  
σθήκης Α6.
- (στ) Προ κάθε φορτώσεως κόλου Διασπαστής Κλάσεως III  
το οποίον απαιτεί πολύπλευρον έγκρισιν του σχε-  
δίου του κόλου, βλέπε περιθώριο 3674 της Προσθήκης  
Α6, ο αποστολέας οφείλει να ενημερώσει τις αρμόδιες  
αρχές όλων των χωρών των θιγομένων εκ της μετακι-  
νήσεως κατά προτίμησιν προ δέκαπέντε ημερών ως λε-  
πτομερώς αναφέρεται στο περιθώριο 3682(2), έως (4),  
της Προσθήκης Α6.

Π(ναβ)ΙΙ

2703

(C) ~~Πρό~~ της φορτώσεως οιοδήποτε κόλου ο αποστολέας θα έχει στη κατοχή του οιαδήποτε σχετικά πιστοποιητικά εγκρίσεως. (Συνεχίζεται) (Συνεχίζεται)

### 8.- Αποθήκευσις και προώθησις

(α) Πρέπει να τηρούνται οιοεσδήποτε οδηγίες των πιστοποιητικών εγκρίσεως της αρμόδιας αρχής.

(β) Όριο δείκτου ολικής μεταφοράς για αποθήκευση - 50 ανά ομάδα με 6 μέτρα μεταξύ των ομάδων - βλέπε περιθώριο 3658(2) έως (5) της Προσθήκης Α6.

(γ) Ο αποστολέας θα έχει συμμορφωθεί με τους προ της χρήσεως όρους του περιθωρίου 3643 της Προσθήκης Α6.

### 9.- Μεταφορά κώλων με οχήματα και δοχεία

(α) Θα τηρούνται οιοεσδήποτε οδηγίες των πιστοποιητικών εγκρίσεως της αρμόδιας αρχής.

(β) Όριο δείκτου ολικής μεταφοράς - 50.

Το όριο αυτό δεν ισχύει για πλήρες φορτίο, εφ' όσον, εάν υπάρχουν κώλα Διασπαστής Κλάσεως II ή III, ο επιτρεπόμενος αριθμός δεν υπερβαίνεται. Βλέπε περιθώριον 3659(5) της Προσθήκης Α6.

### 10.- Μεταφορά εις χύμα με οχήματα και δοχεία

(α) Ουδείς περιορισμός για διασπαστό υλικό μέχρι συνολικά 15G (γραμμάρια) ή για διαλύματα εντός των ορίων ωρισμένου συμπυκνώματος και ποσότητας, βλέπε παράγραφον 2(α)(I), (III) και (VII) και περιθώριο 3610 της Προσθήκης Α6.

(β) Δεν έχει εφαρμογήν για κώλα Διασπαστής Κλάσεως I ή II.

Επιβάλλεται κατά την Διασπαστήν Κλάσιν Πίναξ II 2703  
 III μόνον εάν καθορίζεται στο πιστοποιη- (Συνεχίζε- (Συνεχίζε-  
 τικό της αρμόδιας αρχής. ται) ζετα)

II.- Μεταφορά με βυτιοφόρα και TANK CONTAINERS

Βλέπε παράγραφο 10(α), (β) και (γ), ανωτέρω.

I2.- Επιγραφές και ετικέτες επί των οχημάτων, βυτιο-  
 φόρων, TANK CONTAINERS και δοχείων (CONTAINERS)  
 (βλέπε Προσθήκες A9 και B4)

Δοχεία - ετικέτες των μοντέλων 6A, 6B ή 6Γ και στις τέσσερες πλευρές.

Οχήματα και μεγάλα δοχεία - επιγραφές συμφώνως προς το μοντέλο της Προσθήκης B4, περιθώριο 240 ΟΙΟ, σε κάθε πλευρά και στο οπίσθιο τοίχωμα του οχήματος (βλέπε περιθώρια 3659(6), και 7I 500).

I3.- Απαγορεύσεις επί μικτής φορτώσεως

Βλέπε περιθώριο 2700(3)

I4.- Απολύμανση οχημάτων, βυτιοφόρων, TANK CONTAINERS  
 και δοχείων

Βλέπε κατάλληλο πίνακα.

I5.- Άλλες διατάξεις

Διατάξεις περι ατυχημάτων - βλέπε περιθώριο 3695(I) της Προσθήκης A6.

I.- Υλεις

Πίναξ I2

Ραδιενεργείς ύλεις μεταφερόμενες υπό ει-  
 δικήν διεύθυνσιν

Ετικέτες κινδύνου  
 επί κόλων

Εάν δεν είναι δυνατόν να τηρηθούν οι όροι του σχεδίου κόλου ή της φορτώσεως

(Βλέπε Προσθήκη A9)

Ετικέτες συμφώνως προς το μοντέλο 6Γ

Οι επιπρόσθετες θα μεταφέρονται υπό ειδικήν  
 επιθεώρηση η οποία θα εξασφαλίζει ότι το  
 γενικόν επίπεδον ασφαλείας δεν θα είναι μι-  
 κρότερον από ό,τι θα ήτο εάν ετηρούντο όλοι  
 οι ισχύοντες όροι. Βλέπε περιθώριο 3676 της  
 Προσθήκης Α6.

ΣΗΜΕΙΩΣΗ.- Για ανακεφαλαίωση των όρων της  
 εγκρίσεως και γνωστοποιήσεως, βλέπε περι-  
 θώριο 2704.

Πίνακας I2 2703  
 (Συνεχίζεται) (Συνεχι-  
 ζεται)  
 θα τοποθετούνται  
 εξωτερικώς σε δύο  
 αντίθετες πλευρές  
 εκτός εάν άλλως προ-  
 βλέπεται υπό του πι-  
 σταποιητικού της  
 αρμόδιας αρχής.  
 Βλέπε περιθώριο  
 3655(I) της Προσθή-  
 κης Α6.

Ανακεφαλαίωση όρων εγκρίσεως και προειδοποιήσεως

2704

(α) Έγκριση υλών ειδικής μορφής, και σχεδίων κόλων

	Αντικείμενον εγκρίσεως	Αρμόδια Αρχή της οποίας απαιτείται η έγκριση
I	Ύλη ειδικής μορφής εκτός των ειδών εκείνων που ορίζονται στους Πίνακες 3 και 4.	Χώρα προελεύσεως
2	Τύπος Α, LSA και LLS.	Ουδεμία εκτός εάν το περιεχόμενο είναι διασπαστό και δεν εξαιρείται των κατά το περιθώριο 3610 της Προσθήκης Α6 όρων περί διασπαστού: Χώρα προελεύσεως
3	Τύπος Β (U)	Χώρα προελεύσεως
4	Τύπος Β (M)	Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες
5	Διασπαστά κόλα Σχέδια κόλου συμμορφούμενα προς το περιθώριο 3620, 3623 ή 3624 της Προσθήκης Α6	Ουδεμία

Αντικείμενον Εγκρίσεως

Αρμόδια Αρχή της οποίας  
απαιτείται η έγκρισις

( Σ υ ν έ χ ε ι α )

Σχέδια κδλου συμμορφούμενα προς  
το περιθώριο 3616 ή 3622 της  
Προσθήκης Α6

Χώρα προελεύσεως

Όλα τα άλλα σχέδια κδλων

Χώρα προελεύσεως και  
όλες οι καθ' οδόν χώρες

Σημείωση:- "Χώρα προελεύσεως" αναφέρεται στη χώρα από την οποία προήλθε το σχέδιο.

Κόλα των διασπαστών κλάσεων εμπέτουν επίσης σε μία ή άλλην των ανωτέρω κατηγοριών 2, 3 ή 4 σχεδίων κδλων και οι σχετικές διατάξεις ισχύουν επίσης για αυτά.

(β) Έγκριση Φορτώσεων και Προειδοποίησης .--

Κόλον

Αρμόδια Αρχή της Προειδοποίησης κέθε φορ-  
οποίας απαιτείται η τώσεως  
έγκριση για κάθε  
φορτωση1.- Τύπος Α, LSA και Ουδεμία  
LLS

Ουδεμία

2.- Τύπος Β(Υ) Ουδεμία

Χώρα προελεύσεως και όλες  
οι καθ' οδόν χώρες όταν το  
περιεχόμενον υπερβαίνει  
τα  $3 \times 10^3 A_1$  ή τα  $3 \times$   
 $10^3 A_2$ , ως ενδείκνυται ή  
τα  $3 \times 10^4 CI$ , οιοιδήποτε  
τούτων όντος χαμηλωτέρου.

2704

(Συνεχίζεται)

Κόλον	Αρμόδια Αρχής της οποίας απαιτείται η έγκρισή για κάθε φόρτωση	Προειδοποιήσεις κάθε φορτώσεως
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( Σ υ ν έ χ ε ι α )

3.- Τύπος Β(Μ) - Συνεχώς εξαεριζόμενος	Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες.	Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες.
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4.- Τύπος Β(Μ) - Μη-συνεχώς εξαερισζόμενος	Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες όταν το περιεχόμενο υπερβαίνει τα $3 \times 10^3 A_1$ ή $3 \times 10^3 A_2$ , ως ενδεικνύεται ή τα $3 \times 10^4 CI$ , οιοδήποτε τούτων όντος χαμηλότερου.	Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες.
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5.- Διασπαστά Κόλα.

Διασπαστή Κλάσις I	Ουδεμία	Ουδεμία
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Διασπαστή Κλάσις II	Κόλα συμμορφούμενα προς περιθώριο 3620 της Προσθήκης Α6 μόνον: Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες.	Ουδεμία εκτός εάν ορίζεται στην έγκριση φορτώσεως της αρμόδιας αρχής.
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Διασπαστή Κλάσις III	Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες.	Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες.
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6.- Κόλα υπό την επιφύλαξη της μεταφοράς βάρει ειδικής διευθετήσεως.	Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες.	Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες.
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 Εξηγήσεις:- Προ της φορτώσεως κόλου Τύπου Β(Υ) το πε- 2704  
 ριεχόμενο του οποίου υπερβαίνει τα (Συνεχίζεται)  
 $3 \times 10^3 A_1$  ή  $3 \times 10^3 A_2$ , ως ενδείκνυται, ή  
 τα  $3 \times 10^4 CI$ , οιοδήποτε τούτων όντος χα-  
 μηλωτέρου, για πρώτη φορά, ο αποστολέας  
 οφείλει να εξασφαλίζει ότι αντιγραφα κάθε  
 ισχύοντος πιστοποιητικού αρμόδιας αρχής  
 αφορώντος το σχέδιο έχουν υποβληθεί στην  
 αρμόδια αρχή των χωρών εκείνων εις την ε-  
 दाφικήν περιφέρειαν των οποίων πρόκειται  
 το κόλον να μεταφερθεί. Ως χώρα προελεύσε-  
 ως αναφέρεται η χώρα από την οποίαν προήλθε  
 η φόρτωση.

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 Κόλα των διασπαστών κλάσεων εμπέτουν επίσης  
 εις την μίαν ή την άλλην επικεφαλίδα του πα-  
 ρόντος Πίνακος και οι σχετικές διατάξεις έ-  
 χουν επίσης εφαρμογήν εις αυτά.



## ΚΛΑΣΗ 8.- ΔΙΑΒΡΩΤΙΚΕΣ ΥΛΕΣ

I.- Κατάλογος υλών

Μεταξύ των υλών και ειδών των καλυπτομένων υπό 2800 τον τίτλον της Κλάσεως 8 εκείνες και εκείνα που αναγράφονται στο περιθώριο 280I ή που καλύπτονται υπό συλλογικού τίτλου του περιθωρίου αυτού υπόκεινται στις διατάξεις του παρόντος Παραρτήματος και του Παραρτήματος Β. Οι ύλες αυτές και τα είδη που γίνονται δεκτά για μεταφορά υπό ωρισμένους όρους θα θεωρούνται ως ύλες και είδη της ADR.

A.- ΟΞΙΝΕΣ ΥΛΕΣ

280I

(α) Ανόργανα οξέα

I<sup>ο</sup> Θειϊκόν οξύ

(α) Θειϊκόν οξύ περιέχον άνω του 85 τοις εκατόν καθαρόν οξύ ( $H_2SO_4$ ), και OLCUM (ατμίζον θειϊκόν οξύ).

(β) θειϊκόν οξύ περιέχον άνω του 75 τοις εκατόν αλλά όχι άνω του 85 τοις εκατόν καθαρόν οξύ ( $H_2SO_4$ ).

(γ) θειϊκόν οξύ περιέχον όχι άνω του 75 τοις εκατόν καθαρόν οξύ ( $H_2SO_4$ ).

(δ) θειϊκόν οξύ υπολειμμάτων, εξ ολοκλήρου απονιτρομένο.

Σημείωσις:— Ατελώς απονιτρομένο θειϊκόν οξύ υπολειμμάτων δεν γίνεται δεκτόν για μεταφορά.

(ε) ιλύς μολύβδου περιέχουσα θειϊκόν οξύ.

Σημείωσις:— Ιλύς μολύβδου περιέχουσα κάτω του 3 τοις εκατόν ελεύθερον οξύ είναι ύλη της Κλάσεως 6.I (βλέπε περιθώριο 260I, 73<sup>ο</sup>).

(στ) συσσωρευτές γεμισμένοι με θειϊκόν οξύ.

280Ι

Για (α) έως (δ), βλέπε επίσης περιθώριο

(Συνεχίζεται)

280Ια, υπό στοιχείον (α).

2° Νιτρικών οξεί:

(α) νιτρικών οξεί περιέχον όχι άνω του 70 τοις εκατόν καθαρόν οξεί ( $\text{HNO}_3$ ).

(β) νιτρικών οξεί περιέχον άνω του 55 τοις εκατόν αλλά όχι άνω του 70 τοις εκατόν καθαρόν οξεί ( $\text{HNO}_3$ ).

(γ) νιτρικών οξεί περιέχον όχι άνω του 55 τοις εκατόν καθαρόν οξεί ( $\text{HNO}_3$ ).

Για (α), έως (γ), βλέπε επίσης περιθώριον 250Ια, υπό στοιχείον (α) και (β).

3° Μικτά οξεία νιτρώσεως (θειϊκόν και νιτρικών οξεί):-

(α) μικτά οξεία νιτρώσεως περιέχοντα άνω του 30 τοις εκατόν καθαρόν νιτρικών οξεί ( $\text{HNO}_3$ ).

(β) μικτά οξεία νιτρώσεως περιέχοντα όχι άνω του 30 τοις εκατόν καθαρόν νιτρικών οξεί ( $\text{HNO}_3$ ).

Σημείωση:- Για μικτά οξεία νιτρώσεως υπολειμμάτων, βλέπε I°(δ).

Για (α) και (β), βλέπε επίσης περιθώριο 280Ια, υπό στοιχείον (α), και (β).

4° Υπερχλωρικών οξεί σε υδατοειδή διαλύματα περιέχοντα όχι άνω του 50 τοις εκατόν καθαρόν οξεί ( $\text{HClO}_4$ ). Βλέπε επίσης περιθώριο 280Ια υπό στοιχείον (α).

Σημείωση:- Υδατοειδή διαλύματα υπερχλωρικού οξείος περιέχοντα άνω του 50 τοις εκατόν αλλά όχι άνω του 72.5 τοις εκατόν καθαρόν οξεί ( $\text{HClO}_4$ ), είναι ύλες της κλάσεως

5.1. (βλέπε περιθώριο 250I, 3<sup>ο</sup>). Διαλύματα περιέ- 280I  
χοντα άνω του 72,5 ποις εκατόν καθαρού οξέος δεν (Συνεχίζεται)  
γίνονται δεκτά για μεταφορά· το αυτό ισχύει για  
μίγματα υπερχλωρικού οξέος με οποιοδήποτε υγρό πλήν  
του ύδατος.

5<sup>ο</sup> Διαλύματα υδροχλωρικού οξέος, διαλύματα υδροβρωμικού  
οξέος, διαλύματα υδροϊώδλου, και μίγματα θειϊκού οξέος  
και υδροχλωρικού οξέος. Βλέπε επίσης περιθώριο 280Iα,  
υπό στοιχείον (α).

Σημειώσεις:- 1.- Μίγματα νιτρικού οξέος με υδροχλωρικό  
οξύ δεν γίνονται δεκτά για μεταφορά.

2.- Υγροποιημένον άνυδρο υδροβρωμικό οξύ  
και υγροποιημένον υδροχλωρικό οξύ είναι ύλες της Κλάσε-  
ως 2 (βλέπε περιθώριο 220I, 5<sup>ο</sup> και 10<sup>ο</sup>).

6<sup>ο</sup> Υδροφθορικό οξύ (άνυδρο υδροφθορικό οξύ) και υδατοειδή διαλύ-  
ματα υδροφθορικού οξέως:

α) Υδροφθορικό οξύ (άνυδρο υδροφθορικό οξύ).

β) Υδατοειδή διαλύματα υδροφθορικού οξέως περιέχοντα άνω του 85 στα  
εκατό καθαρό οξύ.

γ) Υδατοειδή διαλύματα υδροφθορικού οξέως περιέχοντα άνω του 60 στα  
εκατό αλλά όχι περισσότερο από 85 στα εκατό καθαρό οξύ.

δ) Υδατοειδή διαλύματα υδροφθορικού οξέως περιέχοντα όχι περισσότερο  
από 60 στα εκατό καθαρό οξύ.

Για (γ) και (δ), βλέπε επίσης περιθώριον 280Iα, υπό στοιχείον (α).

7° Υδροβοριοφθορικό οξύ (υδατοειδή διαλύματα περιέχον- 280I  
τα όχι άνω του 78 τοις εκατόν καθαρών οξέος (HBF)). (Συνεχίζε-  
ται)  
Βλέπε επίσης περιθώριον 280Iα υπό στοιχείον (α).

Σημείωσις: - Διαλύματα υδροβοριοφθορικού οξέος περιέ-  
χοντα άνω του 78 τοις εκατόν καθαρών οξέος (HBF) δεν  
γίνονται δεκτά για μεταφοράν.

8° Φθοριοπυριτικόν οξύ (υδροφθοριοπυριτικόν οξύ ( $H_2SiF_6$ )).  
Βλέπε επίσης περιθώριον 280Iα, υπό στοιχείον (α).

9° Σταθεροποιημένο τριοξείδιο του θείου. Βλέπε επίσης πε-  
ριθώριον 280Iα, υπό στοιχεία (α) και (γ).

Σημείωσις: - Μη σταθεροποιημένο τριοξείδιον του θείου  
δεν γίνεται δεκτόν για μεταφορά.

(β) Ανόργανα αλογονίδια, δξίνα άλατα και παρεμφερείς αλογο-  
ποιημένες ύλες.

II° Υγρά αλογονίδια και παρεμφερείς αλογοποιημένες ύλες  
(εκτός των ενώσεων FLOURINE) οι οποίες, σε επαφή με  
υγρασία, αέρα ή ύδωρ, αναδύουν αναθυμιάσεις οξέων, όπως:-

(α) Πενταχλωριούχον αντιμόνιον ( $SbCl_5$ ), χλωροσουλφονικό οξύ ( $SO_2(OH)Cl$ ), διχλωριούχον διθειόν (σταθεροποιη-  
μένο) ( $S_2Cl_2$ ), χλωριούχον χρομύλιον (οξυχλωριούχον  
χρομύλιον) ( $CrO_2Cl_2$ ), χλωριούχον φωσφορύλιον (οξυχλωρι-  
ούχος φωσφόρος) ( $POCl_3$ ), τριχλωριούχος φωσφόρος ( $PCl_3$ ),  
τετραχλωροπυρίτιο ( $SiCl_4$ ), χλωριούχον SULPHURYL ( $SO_2Cl_2$ ),  
χλωριούχον θειονύλιον ( $SOCl_2$ ), τετραχλωριούχον τιτάνιον  
( $TiCl_4$ ) και υπερχλωριούχος κασσίτερος ( $SnCl_4$ ).

Σημείωσις: - Μη σταθεροποιημένον διχλωριούχον διθειόν (DI-  
SULPHUR DICHLORIDE) δεν γίνεται δεκτόν για μεταφορά.

~~Σελ. 2801~~ Βρωμιούχος φωσφόρος (PBR<sub>3</sub>), χλωριούχον PYRO- 2801  
SULPHURYL (S<sub>2</sub>O<sub>5</sub>CL<sub>2</sub>), και χλωριούχον THIOPHOSHORYL (Συνεχίζεται)  
(PSCL<sub>3</sub>).

Για (α) και (β), βλέπε επίσης περιθώριο 2801α, υπό στοιχείον (α).

12<sup>ο</sup> Στερεά αλογονίδια και παρεμφερείς αλογοποιημένες ύλες (εκτός των ενώσεων FLUORINE), που, σε επαφή με υγρόν αέρα ή ύδωρ, αναδύουν δεινούς αναθυμιάσεις, όπως:-

χλωριούχον αργέλλιον (άνυδρον) (ALCL<sub>3</sub>), τριχλωριούχον αντιμόνιον (τεχνικό) (SbCL<sub>3</sub>), πενταχλωριούχος φωσφόρος (PCL<sub>5</sub>), και χλωριούχος ψευδάργυρος (ZNCL<sub>2</sub>).

Βλέπε επίσης περιθώριο 2801α, υπό στοιχεία (α) και (δ).

Σημείωση:- Μη-άνυδρον χλωριούχον αργέλλιον δεν γίνεται δεκτόν για μεταφορά.

13<sup>ο</sup> Διθειϊκά. Βλέπε επίσης περιθώριο 2801α, υπό στοιχείον (α).

Σημείωση:- Τα διθειϊκά δεν υπόκεινται στις διατάξεις της ADR εάν ο αποστολέας πιστοποιεί στο έγγραφο μεταφοράς ότι τα προϊόντα είναι απηλλαγμένα από ελεύθερο θειϊκό οξύ και είναι ξηρά.

14<sup>ο</sup> Βρώμιον. Βλέπε επίσης περιθώριο 2801α, υπό στοιχείον (α).

15<sup>ο</sup> Οι παρακάτω ενώσεις φθορίου:-

(α) Άλατα δι-υδροφθορικού οξέος

(β) Φθοριούχον αμμώνιον, φθοριούχον χρώμιον, πενταφθοριούχον αντιμόνιον

(γ) σύνθετον τριφθοριούχον βόριον-οξικόν οξύ, σύνθετον τριφθοριούχον βόριον-προπιονικόν οξύ

(δ) τριφθοριούχον βρώμιον (BRF<sub>3</sub>), πενταφθοριούχον βρώμιον (BRF<sub>5</sub>).

Για (α) έως (δ), βλέπε επίσης περιθώριο 280Ια υπό  
στοιχείον (α).

280Ι  
(Συνεχίζεται)

(γ) Οργανικές ύλες·

21<sup>ο</sup> Τα παρακάτω οξέα:-

(α) χλωροακετινικά(οξικά) οξέα:-

1.- μονοχλωριούχα και τριχλωριούχα οξύλια (στερεά)·

2.- διχλωριούχο οξύλιο (υγρό), και μίγματα χλωριούχων οξυλίων·

(β) μυρμηκικό οξύ περιέχον όχι κάτω του 70 τοις εκατόν καθαρό οξύ·

(γ) καθαρό οξείκό οξύ και τα υδατοειδή της διαλύματα περιέχοντα άνω του 80 τοις εκατόν καθαρό οξύ·

(δ) προπιονικό οξύ περιέχον άνω του 80 τοις εκατόν καθαρό οξύ·

(ε) Για (α), έως (ε), βλέπε επίσης περιθώριον 280Ια, υπό  
στοιχείον (α).

22<sup>ο</sup> Αλογονίδια υγρού οξέος, όπως:-

ακετυλδωχλωρίδιο και χλωριούχο βενζούλιο. Βλέπε επίσης  
περιθώριο 280Ια, υπό στοιχείον (α).

23<sup>ο</sup> Χλωροσιλάνια αλκυλίου και αρυλίου

(α) Χλωροσιλάνια αλκυλίου και χλωροσιλάνια αρυλίου έχον-  
τα σημείον αναφλέξεως κάτω των 21<sup>ο</sup> C·

(β) Χλωροσιλάνια αλκυλίου και χλωροσιλάνια αρυλίου έχον-  
τα σημείον αναφλέξεως 21<sup>ο</sup> C και άνω·

Σημείωση:- Ύλες του του παρόντος αριθμού είδους οι ο-  
ποίες βγάζουν εύφλεκτα αέρια σε επαφή με το ύδωρ δεν γίνονται δεκτές για μεταφορά.

~~31~~ (α) και (β), βλέπε επίσης περιθώριον 280Iα,  
 υπό στοιχείον (α).

280I  
 (Συνεχίζεται)

B. - Υλεις βασικού χαρακτήρος

31<sup>ο</sup> (α) Υδροξείδιον νατρίου και υδροξείδιον καλίου  
 (καυστική σόδα, καυστική ποτάσα), σε σβώλους,  
 νιφάδες ή υπό μορφήν κόνωσης.

Βλέπε επίσης περιθώριον 280Iα, υπό στοιχείον (α).

(β) Υδροξείδιο νατρίου που γεμίσθηκε σε κατάσταση  
αργή (MOLTEN STATE).

32<sup>ο</sup> Υδροξείδιο νατρίου και υδροξείδιο καλίου σε διαλύ-  
 ματα (διάλυμα καυστικής σόδας, διάλυμα καυστικής πο-  
τάσας), επίσης σε μίγματα (καυστικά διαλύματα), αλκα-  
λικά διαλύματα φαινόλης, κρεζόλαι και ξυλόλια, αλκα-  
 λικά εξήματα από διύλιστήρια πετρελαίου.

Βλέπε επίσης περιθώριο 280Iα, υπό στοιχείον (α).

33<sup>ο</sup> Συσσωρευταί γεμιζόμενοι με αλκαλικά διαλύματα. Βλέπε  
 επίσης περιθώριον 280Iα, υπό στοιχείον (ε).

34<sup>ο</sup> Υδραζίνη σε υδατοειδή διαλύματα περιέχοντα όχι άνω  
 του 72 τοις εκατόν υδραζίνην ( $N_2H_4$ ). Βλέπε επίσης  
 περιθώριο 280Iα, υπό στοιχείον (α).

Σημείωσις: - Υδατοειδή διαλύματα περιέχοντα όχι άνω  
 του 72 τοις εκατόν υδραζίνην ( $N_2H_4$ ) δεν γίνονται δε-  
 κτά για μεταφορά.

35<sup>ο</sup> Αμίναι και πολυαμίναι αλκυλίου και αρυλίου, όπως  
1,2 -DIAMINOETHANE (ETHYLENEDIAMINE), HEXAMETHYLENE-  
DIAMINE, TRIETHYLENETETRAMINE.

Βλέπε επίσης περιθώριο 280Iα, υπό στοιχείον (α).

36° Πρωτοθειούχο νάτριο περιέχον όχι περισσότερο από  
— από 70 τοις εκατόν  $\text{Na}_2\text{S}$ .

280I  
(Συνεχίζεται)

Σημείωση:— Πρωτοθειούχο νάτριο περιέχον άνω του  
70 τοις εκατόν  $\text{Na}_2\text{S}$  δεν γίνεται δεκτό για μεταφορά.

37° Διαλύματα υποχλωριώδους οξέος:—

(α) διαλύματα υποχλωριώδους οξέος περιέχοντα άνω  
των 50 G (γραμμ.) διαθεσίμου χλωρίου ανά λίτρο·

(β) διαλύματα υποχλωριώδους οξέος περιέχοντα όχι άνω  
των 50 G (γραμμ.) διαθεσίμου χλωρίου ανά λίτρο.

Για (α) και (β), βλέπε επίσης περιθώριο 280Iα, υπό  
στοιχείον (α).

Γ.— Άλλες διαβρωτικές ύλες

4I° Διαλύματα υπεροξειδίου του υδρογόνου:—

(α) υδατοειδή διαλύματα υπεροξειδίου του υδρογόνου πε-  
ριέχοντα άνω των 40 τοις εκατόν αλλά όχι άνω των  
60 τοις εκατόν υπεροξειδίου του υδρογόνου·

(β) υδατοειδή διαλύματα υπεροξειδίου του υδρογόνου πε-  
ριέχοντα άνω του 6 τοις εκατόν αλλά όχι άνω του  
40 τοις εκατόν υπεροξειδίου του υδρογόνου.

Για (α) και (β), βλέπε επίσης περιθώριο 280Iα, υπό στοι-  
χείον (α).

Σημείωση:— Υπεροξείδιο του υδρογόνου και τα υδατοειδή  
αυτού διαλύματα περιέχοντα άνω του 60 τοις εκατόν υπερο-  
ξειδίου του υδρογόνου είναι ύλες της Κλάσεως 5.I (βλέπε  
περιθώριο 250I, I°).

Δ.— Κενά δοχεία και κενές δεξαμενές

5I° Κενές συσκευασίες, ακαθάριστες, και κενές δεξαμενές, ακα-



~~θέρμους~~, εκτός εκείνων που περιείχαν ύλες των  
15<sup>ο</sup> και 36<sup>ο</sup>.

280Ι  
(Συνεχίζεται)

Ύλες παραδοθείσες για μεταφορά σύμφωνα με 280Ια τις παρακάτω διατάξεις δεν υπόκεινται στους όρους της παρούσης Κλάσεως τους περιεχομένους εις το παρόν Παράρτημα ή Παράρτημα Β:

- (α) ύλες των Ι<sup>ο</sup>(α), έως (δ), 2<sup>ο</sup>(β), και (γ), 3<sup>ο</sup>(β), 4<sup>ο</sup> έως 9<sup>ο</sup>, ΙΙ<sup>ο</sup> έως Ι5<sup>ο</sup>, 2Ι<sup>ο</sup> έως 23<sup>ο</sup>, 3Ι<sup>ο</sup>(α), 32<sup>ο</sup>, 34<sup>ο</sup>, 35<sup>ο</sup>, 37<sup>ο</sup> και 4Ι<sup>ο</sup> σε ποσότητες μη υπερβαίνουσες το Ι ΚG για κάθε ύλη, υπό τον όρον ότι έχουν συσκευασθεί σε στεγανά δοχεία ανίκανα να προσβληθούν από το περιεχόμενο και ότι τα δοχεία αυτά έχουν συσκευασθεί επιμελώς μέσα σε γερές, στεγανές ξύλινες συσκευασίες με στεγανά κλεισίματα.
- (β) ύλες των 2<sup>ο</sup>(α) και 3<sup>ο</sup>(α), σε ποσότητες μη υπερβαίνουσες τα 200 G (γραμμ.) για κάθε ύλη, υπό τον όρον ότι έχουν συσκευασθεί σε στεγανά δοχεία ανίκανα να προσβληθούν από το περιεχόμενο και ότι τα δοχεία αυτά έχουν στερεωθεί, όχι περισσότερα των Ι0 ανά κιβώτιο, σε ξύλινα κιβώτια με αδρανές απορροφητικό αποσβεστικό υλικό.
- (γ) τριξείδιο του θείου (9<sup>ο</sup>), μεμιγμένο ή μη με μικρή ποσότητα φωσφορικού οξέος, υπό τον όρον ότι είναι συσκευασμένον σε γερά μεταλλικά κυτία ζυγίζοντα όχι άνω των Ι5 ΚG, ερμητικώς κλεισμένα και εφοδιασμένα με χειρολαβές.
- (δ) πενταχλωριούχος φωσφόρος (Ι2<sup>ο</sup>), συμπιεσμένος σε μπλόκ ζυγίζοντα όχι άνω των Ι0 ΚG το καθένα, υπό τον όρον

Ότι τα μπλόκ αυτά έχουν συσκευασθεί σε συγκολλημένα και αερο-στεγανά μεταλλικά κυτία τοποθετημένα, είτε ένα-ένα είτε ομαδικά, σε σκελετοκιβώτιο, κιβώτιο ή δοχείο (CONTAINER).

2801α  
(Συνεχίζεται)

(ε) συσσωρευτεί σε μεταλλική θήκη γεμισμένοι με αλκαλικό διάλυμα (33°), υπό τον όρον ότι έχουν έτσι κλεισθεί ώστε να αποφεύγεται η διαρροή του διαλύματος και να προστατεύονται κατά των βραχυκυκλωμάτων.

## 2.- Διατάξεις

### A.- Κόλα

#### I.- Γενικοί όροι συσκευασίας

(1) Οι συσκευασίες θα έχουν έτσι κλεισθεί και διευθετη-2802 θεί ώστε να αποφεύγεται οποιαδήποτε απώλεια του περιεχομένου. Για την ειδική διάταξη την αφορώσα τους συσσωρευτές (I° (στ), και 33°), βλέπε περιθώρια 2804 και 2816° για διαλύματα υποχλωριώδους οξέος της 37° και υπεροξειδίου του υδρογόνου της 4I°, βλέπε περιθώρια 2820 και 282I αντιστοίχως.

(2) Το υλικό από το οποίο κατασκευάζονται οι συσκευασίες και τα κλεισίματά τους δεν πρέπει να κινδυνεύει να προσβληθεί από το περιεχόμενο, ή να προκαλεί την αποσύνθεση του περιεχομένου, ή να σχηματίζει επιβλαβείς ή επικινδύνους με αυτό ενώσεις.

(3) Οι συσκευασίες, συμπεριλαμβανομένων των κλεισιμάτων αυτών, πρέπει να είναι επαρκώς άκαμπτες και στερεές σε όλα τα μέρη τους προς αποφυγήν οποιασδήποτε χαλαρώσεως κατά την μεταφορά και να πληρούν τους συνηθεις όρους μεταφορής. Ειδικότερα, οσάκις οι ύλες είναι σε υγρά κατάσταση ή σε δια-

2802  
(Συνεχίζεται)

αυτά, τα δοχεία και τα κλεισίματά τους πρέπει, εκτός  
από το άρθρον το τιτλοφορούμενον "Συσκευασία μιάς ύ-  
λης ή εμπορευμάτων του αυτού είδους" προβλέπει άλλως,  
να είναι σε θέση να αντέχουν σε οποιαδήποτε πίεση η ο-  
ποία, λαμβανομένης υπόφει της παρουσίας του αέρος,  
μπορεί να να εγερθεί εσωτερικώς των δοχείων κατά τη  
συνήθη μεταφορά. Για τον σκοπόν αυτόν ελεύθερος χώρος  
πρέπει να αφήνεται, λαμβανομένης υπ' όφει της διαφοράς  
μεταξύ της θερμοκρασίας των υλών κατά τον χρόνον της  
πληρώσεως (γεμισματος) και της ανωτάτης μέσης θερμοκρα-  
σίας την οποίαν ενδέχεται να φθάσουν διαρκούσης της με-  
ταφοράς. Εσωτερικές συσκευασίες θα ασφαρίζονται σταθερά  
σε εξωτερικές συσκευασίες. Εκτός εάν άλλως ορίζεται στο  
άρθρο το τιτλοφορούμενο "Συσκευασία μιάς ύλης ή εμπορευ-  
μάτων του αυτού είδους", οι εσωτερικές συσκευασίες μπο-  
ρούν να εγκλείονται σε εξωτερικές συσκευασίες, είτε μβα-  
μβα είτε κατά ομάδες.

(4) Φιάλες και άλλα γυάλινα δοχεία πρέπει να είναι  
απαλλαγμένα από βλάβες που θα μπορούσαν να εξασθενήσουν την  
αντοχήν τους· ειδικώτερα, πρέπει να απαλλαγούν κατάλληλα  
από τις εσωτερικές τάσεις. Τα τοιχώματα δεν πρέπει να είναι  
πάχους μικροτέρου των 3 MM (χιλ.) στη περίπτωση δοχείων που  
ζυγίζουν, μαζί με το περιεχόμενό τους, άνω των 35 KG, και  
όχι άνω των 2 MM (χιλ.) στη περίπτωση άλλων δοχείων.

Η στεγανότητα του συστήματος κλεισίματος πρέ-  
πει να εξασφαλίζεται με πρόσθετον μηχανισμόν (κυάθιο, κορώ-  
να, σφραγίδα, συναρμογή, κλπ.) ικανόν να εμποδίζει οποιαδή-  
ποτε χαλάρωση του συστήματος κλεισίματος διαρκούσης της

μεταφοράς.

(5) Οσάνεις προβλέπονται ή επιτρέπονται δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρεμφερή υλικά ή από κατάλληλο πλαστικό υλικό, πρέπει, ελλείψει οιασδήποτε περί του αντιθέτου διατάξεως, να εφοδιάζονται με προστατευτικές συσκευασίες. Δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρεμφερή υλικά θα ασφαρίζονται προσεκτικά με αποσβεστικό υλικό. Το αποσβεστικό υλικό θα ταιριάζει με τη φύση του περιεχομένου.

2802

(Συνεχίζεται)

2.- Συσκευασία μιάς ύλης ή εμπορευμάτων του αυτού είδους

2803

(I) Οι ύλες των I<sup>ο</sup> (α), έως (ε) και 2<sup>ο</sup> έως 5<sup>ο</sup> θα συσκευάζονται:-

(α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρεμφερές υλικό, ή από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαινούσης τα 5 λίτρα. Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή άλλη εξωτερική συσκευασία καταλλήλου αντοχής. Τα δοχεία δεν θα γεμίζονται πέραν του 95% εκατόν της χωρητικότητός των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG. Κόλα ζυγίζονται πάνω από 30 KG, πλην των αποστελλομένων ως πλήρες φορτίον, θα είναι εφοδιασμένα με χειρολαβές ή

(β) σε ερμητικώς κλεισμένα κυλινδρικά δοχεία κατασκευα-

2803  
(Συνεχίζεται)

από ύαλο, πορσελάνη, είδη κεραμεικής ή πα-  
ροσφεύς υλικό. Τα δοχεία αυτά θα ασφαρίζονται με  
απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο  
ή άλλη εξωτερική συσκευασία καταλλήλου αντοχής.

Τα δοχεία δεν θα γεμίζονται πέραν του 95% εκα-  
τόν της χωρητικότητάς των. Ένα τέτοιο κόλον δεν  
πρέπει να ζυγίζει περισσότερο από 75 KG· ή

(γ) σε ερμητικώς κλεισμένες γυάλινες νταμιζάνες, οι  
οποίες θα ασφαρίζονται με απορροφητικό αποσβεστικό  
υλικό σε ξύλινο κιβώτιο ή άλλη εξωτερική συσκευασία  
καταλλήλου αντοχής, ή σταθερά τοποθετημένες σε σι-  
δηρούς ή φαινωτούς καλάθους. Οι νταμιζάνες δεν θα  
γεμίζονται πέραν του 95% εκατόν της χωρητικότη-  
τάς τους. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει  
πάνω από 75 KG.

(2) Οι ύλες των I<sup>ο</sup> (α) έως (ε), 2<sup>ο</sup> και 3<sup>ο</sup> μπορούν  
επίσης να συσκευάζονται σε ερμητικώς κλεισμένα μεταλλι-  
κά βαρέλια έχοντα κατάλληλον επένδυσιν προκειμένου περι-  
των υλών της I<sup>ο</sup> (β), (γ), (δ) και (ε) και επένδυσιν μόνον  
εάν χρειασθεί προκειμένου για τις ύλες των 2<sup>ο</sup> και 3<sup>ο</sup>.  
Τα βαρέλια δεν θα γεμίζονται πέραν του 95% εκατόν  
της χωρητικότητάς των. Εάν, μαζί με το περιεχόμενόν τους,  
ζυγίζουν περισσότερο από 275 KG θα είναι εφοδιασμένα με  
κυλιόμενες στεφάνες (ROLLING HOOPS).

(3) Οι ύλες των I<sup>ο</sup> (α) έως (ε), 2<sup>ο</sup> και 5<sup>ο</sup> μπορούν  
επίσης να συσκευάζονται σε ερμητικώς κλεισμένα δοχεία,  
κατασκευασμένα από κατάλληλη πλαστική ύλη, χωρητικότητας

μη υπερβαίνουσας τα 60 λίτρα. Τα δοχεία αυτά θα τοπο- 2803.  
θετούνται ένα-ένα και σφιχτά σε προστατευτική συσκευή (Συνεχίζεται)  
σία με πλήρεις πλευρές, κατασκευασμένη από χαρτοσανίδα  
ή από κάποια ύλη καταλλήλου αντοχής. Ένα τέτοιο κδλον  
δεν πρέπει να ζυγίζει περισσότερο από 100 KG. Τα δοχεία  
δεν θα γεμίζονται πέραν του 95 τους εκατόν της χωρητικότη-  
τητός τους.

(4) Οι ύλες της 5<sup>ο</sup> μπορούν επίσης να συσκευάζονται  
ερμητικώς σε δοχεία, κατασκευασμένα από κατάλληλη  
πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τα 60 λίτρα,  
με τοιχώματα καταλλήλου πάχους, το οποίο δεν θα είναι μι-  
κρότερο των 4 MM (χιλ.), προκειμένου περί δοχείων των 50  
λιτρών και άνω τα ανοίγματα θα κλείνονται με δύο πώματα,  
τοποθετημένα το ένα πάνω στο άλλο, το ένα δε από αυτά θα  
είναι κοχλιωτό. Τα δοχεία αυτά δεν είναι ανάγκη να έχουν  
προστατευτική συσκευασία εάν επιτρέπει τούτο η αρμόδια  
αρχή της χώρας της αναχωρήσεως. Τα δοχεία δεν θα γεμίζονται  
πέραν του 95 του εκατόν της χωρητικότητάς τους. Ένα  
τέτοιο κδλον δεν πρέπει να ζυγίζει πάνω από 100 KG.

(5) Προκειμένου περί των υλών 2<sup>ο</sup>(α), 3<sup>ο</sup>(α) και  
4<sup>ο</sup>, το απορροφητικό αποσβεστικό υλικό πρέπει να είναι ά-  
καυστον· προκειμένου περί των υλών της 2<sup>ο</sup>(β), θα είναι  
ανθεκτικόν στο πύρ.

Συσσωρευτές γεμισμένοι με θειϊκό οξύ (I<sup>ο</sup>(στ))  
θα ασφαρίζονται σε θήκες συσσωρευτών. Οι συσσωρευτές θα  
προστατεύονται κατά των βραχυκυκλωμάτων και θα ασφαρίζονται  
με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο συ-

σιμίας. Τα κιβώτια συσκευασίας θα είναι εφοδιασμένα με χειρολαβές.

2804  
(Συνεχίζεται)

Εν τούτοις, εάν οι συσσωρευτές είναι κατασκευασμένοι από ανθεκτικό στις κρούσεις υλικό και το άνω μέρος αυτών είναι έτσι σχεδιασμένο ώστε το οξύ να μη μπορεί να τριναχθεί σε επικινδύνους ποσότητες, οι συσσωρευτές δεν χρειάζεται να συσκευασθούν, αλλά πρέπει να προστατεύονται κατά οποιασδήποτε ολισθήσεως, πτώσεως ή βλάβης βραχυκυκλωμάτων και να είναι εφοδιασμένοι με χειρολαβές. Ουδεμία επικίνδυνος ποσότητα οξέος πρέπει να εμφανίζεται στο εξωτερικό των κελών.

Ομοίως, οι συσσωρευτές οι αποτελούντες τμήμα του εξοπλισμού των οχημάτων δεν χρειάζεται να έχουν ειδικήν συσκευασία εάν τα οχήματα φορτώνονται όρθια στους τροχούς των και στερεώνονται κατά της πτώσεως.

(1) Οι ύλες των 6<sup>ο</sup>, 7<sup>ο</sup> και 8<sup>ο</sup> θα συσκευάζονται:— 2805

- (α) σε ερμητικώς κλεισμένα μεταλλικά δοχεία, με κατάλληλον επένδυσιν εάν χρειασθεί, χωρητικότητος μη υπερβαινούσης τα 15 λίτρα. Τα δοχεία αυτά θα ασφαλίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία καταλλήλου αντοχής. Τα δοχεία δεν θα γεμίζονται πέραν του 90<sup>ου</sup> εκατόν της χωρητικότητός των. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει πάνω από 100 KG. ή
- (β) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια, με κατάλληλον επένδυσιν εάν χρειασθεί. Τα βαρέλια δεν θα γεμίζονται πέραν του 90<sup>ου</sup> εκατόν της χωρητικότητάς

των. Εάν, μαζί με το περιεχόμενό τους, ζυγίζονται πάνω από 275 KG θα εφοδιάζονται με κυλιόμενες στεφάνες (ROLLING HOOPS) ή (γ) Σε ερμητικώς κλεισμένα δοχεία, κατασκευασμένα από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τα 60 λίτρα. Τα δοχεία αυτά θα τοποθετούνται ένα-ένα και σφιχτά σε προστατευτική συσκευασία με πλήρεις πλευρές, κατασκευασμένη από χαρτοσανίδα ή κάποια άλλη ύλη καταλλήλου αντοχής. Τα δοχεία δεν θα γεμίζονται πέραν του 90 στα εκατόν της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 100 KG.

(2) Οι ύλες των 6<sup>ο</sup>, (α) και (β) θα συσκευάζονται σε δοχεία κατασκευασμένα από ανθρακούχο χάλυβα από κατάλληλο κράμα χάλυβος. Τα δοχεία πρέπει να μπορούν ν'αντέχουν σε μία δοκιμή πίεσεως των 10 KG/CM<sup>2</sup>. Θα είναι αποδεκτά τ'ακόλουθα είδη δοχείου.

(α) Κύλινδροι χωρητικότητας μη υπερβαίνουσας τα 150 λίτρα.

(β) Κυλινδρικά δοχεία εξοπλισμένα με κυλιόμενες στεφάνες και χωρητικότητας όχι μικρότερης από 100 λίτρα και όχι περισσότερης από 1000 λίτρα.

Κατά τη δοκιμή πίεσεως, η δύναμη στο μέταλλο στο πιο σοβαρά πιεζόμενο σημείο του δοχείου δεν θα υπερβαίνει τα τρία τέταρτα της δυνάμεως αποδόσεως. Υπό τον όρο "δύναμη αποδόσεως" νοείται η δύναμη με την οποία έχει παραχθεί μία μόνιμη επιμήκυνση των 2% (π.χ. 0.2 τοις εκατό) του μήκους μετρήσεως στο δοκιμαζόμενο κομμάτι. Επιπρόσθετα, το υλικό που χρησιμοποιείται για τα δοχεία πρέπει να έχει επαρκή αντοχή σε κρούση κάτω από μία θερμοκρασία των -20<sup>ο</sup> C.

Τα δοχεία πρέπει να μην έχουν ραφή ή συγκόλληση. Για δοχεία με συγκόλληση πρέπει να χρησιμοποιείται χάλυβας ικανοποιητικής συγκολλητικότητας. Δοχεία με συγκόλληση μπορούν να γίνονται αποδεκτά μόνο με την προϋπόθεση ότι ο κατασκευαστής εγγυάται για την επεξεργασία της συγκόλλησης και ότι η αρμόδια αρχή της χώρας προελεύσεως έχει δώσει την έγκρισή της.



Το πάχος του τοιχώματος των δοχείων δεν πρέπει να είναι λιγότερο από 3 ΜΜ.

Τα ανοίγματα για την πλήρωση και την εκκένωση των δοχείων πρέπει να είναι εφοδιασμένα με αρθρωτές βαλβίδες ή βελονοειδείς βαλβίδες. Οστόσο μπορούν να γίνουν αποδεκτές βαλβίδες (στρόφιγγες) άλλων τύπων αν παρουσιάζουν ισότιμες εγγυήσεις ασφαλείας και έχουν εγκριθεί στη χώρα προελεύσεως. Παρά ταύτα, οποιοσδήποτε τύπος βαλβίδας υιοθετηθεί, το σύστημα προσαρμογής του θα πρέπει να είναι δυνατό και τέτοιο ώστε η ικανοποιητική κατάστασή του να μπορεί να επιβεβαιώνεται εύκολα πριν από κάθε πλήρωση.

Εκτός από μία τρύπα, η οποία αν προβλέπεται θα είναι κλειστή με ένα πραγματικό κλείσιμο, τα δοχεία δεν θα είναι εφοδιασμένα με περισσότερο από δύο ανοίγματα για πλήρωση και εκκένωση.

Οι βαλβίδες (στρόφιγγες) θα προστατεύονται από πώματα που θα έχουν οπές αερισμού. Οι βαλβίδες που τοποθετούνται μέσα στο λαιμό των δοχείων και προστατεύονται από σπειρωματοειδές πώμα και τα δοχεία που μεταφέρονται συσκευασμένα σε προστατευτικά κιβώτια, δεν χρειάζονται πώμα.

Τα δοχεία θα υποβάλλονται υπό την επίβλεψη ενός εμπειρογνώμονα που έχει εξουσιοδοτηθεί από την αρμόδια αρχή, σε μία δοκιμή υδραυλικής πίεσεως σε μία εσωτερική πίεση όχι μικρότερη από 10 KG/CM<sup>2</sup> πριν τεθούν σε λειτουργία και στη συνέχεια στις ακόλουθες περιόδους δοκιμής.

Η δοκιμή πίεσεως θα επαναλαμβάνεται κάθε οκτώ χρόνια και θα συνοδεύεται από μία εσωτερική επιθεώρηση των δοχείων και έναν έλεγχο του εξοπλισμού τους. Επίσης η αντίσταση των δοχείων στην οξειδωση θα ελέγχεται με κατάλληλα όργανα (π.χ. με υπέρηχα), και η κατάσταση του εξοπλισμού θα επιβεβαιώνεται κάθε δύο χρόνια.

Τα δοχεία θα φέρουν με καθαρά ευανάγνωστους και ανθεκτικούς χαρακτήρες:

(α) το όνομα της ύλης πλήρως, το όνομα ή την ένδειξη του κατασκευαστού και τον αριθμό ταυτότητας του κατασκευαστού του δοχείου.

(β) Το καθαρό βάρος του δοχείου, συμπεριλαμβανομένων και εξαρτημάτων διαφορετικών από το προστατευτικό πώμα.

(γ) Τη δοκιμή πιέσεως, την ημερομηνία (μήνας, έτος) της πιο πρόσφατης δοκιμής που έγινε και τη σφραγίδα του εμπειρογνώμονα ο οποίος πραγματοποίησε τον έλεγχο και τις επιθεωρήσεις.

(δ) Τη χωρητικότητα και το μέγιστο επιτρεπόμενο φορτίο του δοχείου. Το μέγιστο επιτρεπόμενο βάρος θα είναι 0.84 KG ανά λίτρο χωρητικότητας.

(I) Το τριοξειδίο του θείου ( $9^{\circ}$ ) θα συσκευάζεται:

2806

(α) σε συγκολλημένα δοχεία κατασκευασμένα από μαύρο φύλλο-σιδήρου ή πλάκα-κασσιτέρου, ή σε ερμητικώς κλεισμένες φιάλες κατασκευασμένες από μαύρο φύλλο-σιδήρου, πλάκα-κασσιτέρου ή χαλκό· ή

(β) σε φλογο-στεγανά γυάλινα δοχεία, ή σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από πορσελάνη, είδη κεραμεικής ή παρεμφερή υλικά· ή

(γ) σε χαλύβδινα βαρέλια τα οποία έχουν υποστεί δοκιμήν-πιέσεως σε  $1.5 \text{ KG/CM}^2$ .

(2) Τα δοχεία τα αναφερόμενα στα (α) και (β) ανωτέρω θα ασφαρίζονται με άκαυστο και απορροφητικό αποσβεστικό υλικό σε συσκευασίες κατασκευασμένες από ξύλο, μαύρο φύλλο-σιδήρου ή πλάκα-κασσιτέρου.

Οι ύλες της  $II^{\circ}$  θα συσκευάζονται:

2807

(α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύαλο,

- πορσελάνη, είδη κεραμεικής ή παρεμφερές υλικό, ή από 2807  
κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας (Συνεχίζεται)  
τα 5 λίτρα. Τα δοχεία αυτά θα ασφαρίζονται με  
απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε  
κάποια άλλη εξωτερική συσκευασία καταλλήλου αντοχής.  
Τα δοχεία δεν θα γεμίζονται πέραν του 95% εκατόν  
της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέπει να  
ζυγίζει πάνω από 75 KG. Κόλα ζυγίζονται πάνω από 30 KG,  
πλην των αποστελλομένων ως πλήρες φορτίον, θα εφοδιά-  
ζονται με χειρολαβές ή
- (β) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια, με κατάλληλη  
επένδυση εάν χρειασθεί. Τα βαρέλια δεν πρέπει να γεμί-  
ζονται πέραν του 95% εκατόν της χωρητικότητάς των.  
Εάν, μαζί με το περιεχόμενόν των, ζυγίζουν πάνω από  
275 KG, θα εφοδιάζονται με κυλιόμενες στεφάνες (ROLLING  
HOOPS) ή
- (γ) σε ερμητικώς κλεισμένα δοχεία, κατασκευασμένα από κατά-  
λληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τα 60  
λίτρα. Τα δοχεία αυτά θα τοποθετούνται ένα-ένα και σφιχτά  
σε προστατευτική συσκευασία με πλήρεις πλευρές, κατασκευα-  
σμένα από χαρτοσανίδα ή από κάποια άλλη ύλη καταλλήλου  
αντοχής. Τα δοχεία δεν θα γεμίζονται πέραν του 95% ε-  
κατόν της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέπει  
να ζυγίζει πάνω από 100 KG ή
- (δ) σε ερμητικώς κλεισμένες γυάλινες νταμιζάνες, οι οποίες θα  
ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο  
κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία καταλλήλου

~~αντοχεία~~ Οι νταμιζάνες δεν θα πρέπει να γεμίζονται 2807  
~~πάνω~~ του 95 λίτρα εκατόν της χωρητικότητός των. Ένα (Συνεχίζεται)  
 τέτοιο κόλον δεν πρέπει να ζυγίζει περισσότερο από  
 75 KG.

Οι ύλες της I2<sup>ο</sup> θα συσκευάζονται:- 2808

- (α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύα-  
 λο, πορσελάνη, είδη κεραμεικής ή παρεμφερές υλικό, ή  
 από κατάλληλη πλαστική ύλη, τα οποία δεν πρέπει να πε-  
 ριέχουν άνω των 5 KG ύλης το καθένα. Τα δοχεία αυτά θα  
 ασφαλίζονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο ή  
 σε κάποια άλλη εξωτερική συσκευασία καταλλήλου αντοχής.  
 Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 75 KG· ή
- (β) σε ερμητικώς κλεισμένα μεταλλικά δοχεία, με κατάλληλη  
 επένδυση εάν χρειασθεί, τα οποία δεν πρέπει να περιέχουν  
 άνω των 15 KG ύλης το καθένα. Τα δοχεία αυτά θα ασφαλί-  
 ζονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια  
 άλλη εξωτερική συσκευασία καταλλήλου αντοχής. Ένα τέτοιο  
 κόλον δεν πρέπει να ζυγίζει πάνω από 100 KG· ή
- (γ) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια, με κατάλληλη  
 επένδυση εάν χρειασθεί. Εάν τα βαρέλια, μαζί με το περιε-  
 χόμενό τους, ζυγίζουν πάνω από 275 KG, θα εφοδιάζονται με  
 κυλιόμενες στεφάνες (ROLLING HOOPS),· ή
- (δ) σε ερμητικώς κλεισμένα δοχεία, κατασκευασμένα από κατάλ-  
 ληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τα 60  
 λίτρα. Τα δοχεία αυτά θα τοποθετούνται ένα-ένα και σφιχτά  
 σε προστατευτική συσκευασία με πλήρεις πλευρές, κατασκευα-  
 σμένα από χαρτοσανίδα ή από κάποια άλλη ύλη καταλλήλου  
 αντοχής. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω

από 100 KG· ή

2808

(Συνεχίζε-  
ται).

(ε) σε ερμητικώς κλεισμένους ξύλινους κάρδους (βυτία) καταλλήλου αντοχής, με κατάλληλη επένδυση. Ένα τέτοιο κάρδον δεν πρέπει να ζυγίζει πάνω από 250 KG·

(στ) χλωριούχος ψευδάργυρος μπορεί επίσης να συσκευάζεται σε ερμητικώς κλεισμένους σάκκους, κατασκευασμένους από κατάλληλο πλαστικό υλικό, οι οποίοι θα τοποθετούνται σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία καταλλήλου αντοχής. Ένα τέτοιο κάρδον δεν πρέπει να ζυγίζει πάνω από 75 KG.

Οι ύλες των 13<sup>ο</sup> και 15<sup>ο</sup> θα συσκευάζονται:-

2809

(α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρεμφερές υλικό, ή από κατάλληλη πλαστική ύλη, τα οποία δεν πρέπει να περιέχουν πάνω από 5 KG ύλης το καθένα. Έν τούτοις, γυάλινα δοχεία δεν γίνονται δεκτά για FLOURIDES της 15<sup>ο</sup>. Τα δοχεία αυτά θα ασφαρίζονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία καταλλήλου αντοχής. Ένα τέτοιο κάρδον δεν πρέπει να ζυγίζει πάνω από 75 KG· ή

(β) σε ερμητικώς κλεισμένα μεταλλικά δοχεία, με επένδυσιν μολύβδου εάν χρειασθεί, τα οποία δεν πρέπει να περιέχουν πάνω από 15 KG ύλης το καθένα. Τα δοχεία αυτά θα ασφαρίζονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία καταλλήλου αντοχής. Ένα τέτοιο κάρδον δεν πρέπει να ζυγίζει πάνω από 100 KG· ή

(γ) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια, με επένδυσιν

κυλίνδρου, εάν χρεασθεί. Εάν τα βαρέλια, μαζί με το 2809 περιεχόμενό τους, ζυγίζονται άνω των 275 KG, πρέπει να (Συνεχίζε-  
ται)  
εφοδιάζονται με κυλιόμενες στεφάνες (ROLLING HOOPS)· ή

(δ) σε ερμητικώς κλεισμένα δοχεία, κατασκευασμένα από κα-  
τάλληλο πλαστικό υλικό, χωρητικότητας μη υπερβαίνουσας τα 60  
λίτρα. Τα δοχεία αυτά θα τοποθετούνται ένα-ένα και σφικτά  
σε προστατευτική συσκευασία με πλήρεις πλευρές, κατα-  
σκευασμένη από χαρτοσανίδα ή από κάποια άλλο υλικό επαρ-  
κούς αντοχής. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει  
πάνω από 100 KG· ή

(ε) σε ερμητικώς κλεισμένους σάκκους, κατασκευασμένους από  
κατάλληλη πλαστική ύλη, οι οποίοι θα τοποθετούνται σε  
ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία κα-  
τάλληλου αντοχής. Ένα τέτοιο κόλον δεν πρέπει να ζυγί-  
ζει πάνω από 75 KG· ή

(στ) σε ερμητικώς κλεισμένους ξύλινους κάδους (βυτία, βαρέ-  
λια) κατάλληλου αντοχής με κατάλληλη επένδυση. Ένα τέ-  
τοιο κόλον δεν πρέπει να ζυγίζει πάνω από 250 KG· ή

(ζ) σε γερούς χαρτινούς τετράφυλλους σάκκους, επενδεδυμέ-  
νους με ερμητικά κλειόμενον σάκκον κατασκευασμένον από  
κατάλληλο πλαστικό υλικό. Ένα τέτοιο κόλον δεν πρέπει  
να ζυγίζει πάνω από 55 KG.

(1) Το βρώμιον (I4<sup>0</sup>), θα συσκευάζεται σε κατάλληλα 2810  
δοχεία περιέχοντα όχι άνω των 7.5 KG ύλης ανά δοχείον.

(2) Βρώμιον περιέχον ολιγώτερο των 0.005 τοις εκατόν  
ύδωρ, ή μεταξύ 0.005 τοις εκατόν και 0.2 τοις εκατόν ύδωρ  
υπό τον όρον ότι στη δεύτερη περίπτωση λαμβάνονται μέτρα

προς αποφυγήν της διαβρώσεως της επενδύσεως των δοχείων, 2810  
 Πρέπει επίσης να μεταφερθεί σε δοχεία πληρούντα τους παρα- (Συνεχίζεται)  
 κάτω δρους:-

- (α) τα δοχεία θα είναι κατασκευασμένα από χάλυβα και εφοδιασμένα με στεγανήν επένδυση κατασκευασμένην από μολυβδο ή κάποιο άλλο υλικό παρέχον ισοδύναμον προστασίαν, και με ερμητικά κλεισίματα· δοχεία κατασκευασμένα από μέταλλο μονέλ ((κράμα νικελίου (68,41) χαλκού (29,14)), ή νικέλιο, ή εφοδιασμένα με επένδυση νικελίου θα επιτρέπονται επίσης·
- (β) η χωρητικότητάς τους δεν πρέπει να υπερβαίνει τις 1250 λίτρες·
- (γ) τα δοχεία δεν θα γεμίζονται πέραν του 92 τοις εκατόν της χωρητικότητάς των ή πέραν των 2.86 KG ανά λίτρον χωρητικότητας·
- (δ) τα δοχεία θα είναι συγκολλημένα και σχεδιασμένα για πίεση όχι μικρότερη των 21 KG/CM<sup>2</sup>.

Τα υλικά και η εργασία πρέπει από άλλες απόψεις να πληρούν τους δρους των περιθωρίων 2211 (1) και (2) (β). Ο αρχικός έλεγχος των μη επενδεδυμένων χαλυβδίνων δοχείων θα υπόκειται στις διατάξεις 2215 (1) και 2216 (1), Α και Β.

- (ε) οι μηχανισμοί κλεισίματος πρέπει να προεξέχουν όσο το δυνατόν λιγώτερο από το δοχείο και να είναι εφοδιασμένοι με προστατευτικό κάλυμμα. Οι μηχανισμοί κλεισίματος και το κάλυμμα θα φέρουν παρεμβύσματα από υλικό μη δυνάμενο να προσβληθεί από το βρώμιο. Οι μηχανισμοί κλεισίματος

πρέπει να ευρίσκονται στο άνω μέρος των δοχείων, ~~πρέπει~~ σε καμιά περίπτωση να μπορούν να είναι σε μόνιμη επαφή με το υγρό.

2810  
(Συνεχίζε-  
ται)

(στ) η επένδυση μολύβδου πρέπει να είναι στεγανή και πάχους όχι μικροτέρου των 3 MM (χιλ.). Εάν κάποιο άλλο υλικό χρησιμοποιηθεί, πρέπει να παρέχει προστασίαν ισοδύναμον με την παρεχομένην υπό του μολύβδου.

(ζ) τα δοχεία πρέπει να είναι εφοδιασμένα με εξαρτήματα παρέχοντα σάυτά τη δυνατότητα να στέκονται σταθερά όρθια, και με εξαρτήματα ανυψώσεως (ελατήρια, φλάντζες, κλπ.) στο άνω μέρος, τα οποία θα δοκιμάζονται με το διπλάσιο του ωφελίμου φορτίου.

(3) Δοχεία συμφώνως προς την (2) ανωτέρω, προτού τεθούν εν λειτουργία, θα υπόκεινται (υποβάλλονται) σε έλεγχο στεγανότητας σε πίεση 2 KG/CM<sup>2</sup>. Ο έλεγχος στεγανότητος θα επαναλαμβάνεται κάθε δύο χρόνια και θα συνοδεύεται από εσωτερική επιθεώρηση του δοχείου και έλεγχο του απόβαρου αυτού. Ο έλεγχος αυτός και η επιθεώρηση θα εποπτεύονται από εμπειρογνώμονα εγκεκριμένον από την αρμόδια αρχή.

(4) Τα δοχεία πρέπει να φέρουν, με ευανάγνωστα και ανεξίτηλα γράμματα:

- (α) το όνομα ή ένδειξη του κατασκευαστού και τον αριθμόν του δοχείου.
- (β) την λέξιν "Βρώμιον".
- (γ) το απόβαρο του δοχείου και το ανώτατο βάρος του όταν γεμισθεί.



(δ) την ημερομηνία (μήνα και έτος) του τελευταίου ε-  
 λυίου εις τον οποίον υποβλήθηκαν·

28ΙΟ

(Συνεχίζε-  
 ται).

(ε) την σφρα-γίδα του εμπειρογνώμονος που διεξήγαγε  
 τον έλεγχο και τις επιθεωρήσεις.

(Ι) Οι ύλες της 21<sup>ο</sup> (α) Ι θα συσκευάζονται:

28ΙΙ

(α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από  
 ύαλο, πορσελάνη, είδη κεραμεικής, ή παρεμφερές υλι-  
 κό, ή από κατάλληλη πλαστική ύλη, τα οποία δεν πρέ-  
 πει να περιέχουν πάνω από 5 ΚΓ ύλης το καθένα. Τα  
 δοχεία αυτά θα ασφαρίζονται με αποσβεστικό υλικό  
 σε ξύλινο κιβώτιο ή κάποια άλλη εξωτερική συσκευασία  
 καταλλήλου αντοχής. Ένα τέτοιο κέλον δεν πρέπει να  
 ζυγίζει πάνω από 75 ΚΓ· ή

(β) σε ερμητικώς κλεισμένα μεταλλικά δοχεία, με κατάλληλον  
 επένδυσιν εάν χρειασθεί, τα οποία δεν πρέπει να πε-  
 ριέχουν πάνω από 15 ΚΓ ύλης το καθένα. Τα δοχεία αυτά  
 θα ασφαρίζονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο  
 ή σε κάποια άλλη εξωτερική συσκευασία καταλλήλου αντο-  
 χής. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει πάνω από  
 100 ΚΓ· ή

(γ) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια, με κατάλληλη  
 επένδυση, εάν χρειασθεί. Εάν τα βαρέλια, μαζί με το πε-  
 ριεχόμενό τους, ζυγίζουν πάνω από 275 ΚΓ, πρέπει να εί-  
 ναι εφοδιασμένα με κυλιόμενες στεφάνες (ROLLING HOOPS)· ή

(δ) σε ερμητικώς κλεισμένους σάκκους, κατασκευασμένους από  
 κατάλληλο πλαστικό υλικό, οι οποίοι θα τοποθετούνται  
 σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία  
 καταλλήλου αντοχής. Ένα τέτοιο κέλον δεν πρέπει να ζυ-

ζυγίζει πάνω από 100 KG. ή  
 (στ) ερμητικώς κλεισμένους ξύλινους κάδους (βυτρία, βαρέλια) καταλλήλου αντοχής, με κατάλληλη επένδυση. Ένα τέτοιο κάδον δεν πρέπει να ζυγίζει πάνω από 250 KG. ή

2811  
 (Συνεχίζεται)

- (ζ) σε γερούς χάρτινους τετράφυλλους σάκκους, επενδυμένους με ερμητικώς κλειδόμενον σάκκον από κατάλληλη πλαστική ύλη. Ένα τέτοιο κάδον δεν πρέπει να ζυγίζει πάνω από 55 KG. ή
- (η) σε σάκκους γιούτας που θα γίνονται υγρο-στεγανοί με επένδυση από κατάλληλο υλικό, θα επιχρύνονται με βιτούμιον, ή σε σάκκους γιούτας επενδυμένους με ερμητικώς κλειδόμενον σάκκον από κατάλληλη πλαστική ύλη. Ένα τέτοιο κάδον δεν πρέπει να ζυγίζει πάνω από 55KG.

(2) Οι ύλες της 21<sup>ο</sup> (α), 2., (β), (γ), (δ) και

(ε) θα συσκευάζονται:-

- (α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρεμφερές υλικό, ή από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαινούσης τα 5 λίτρα. Τα δοχεία αυτά θα ασφαρίζονται από απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία καταλλήλου αντοχής. Τα δοχεία δεν θα γεμίζονται πέραν του 95 τοις εκατόν της χωρητικότητός των. Ένα τέτοιο κάδον δεν πρέπει να ζυγίζει πάνω από 75 KG. Κάδα ζυγίζοντα πάνω από 30 KG, πλην των αποστελλομένων ως πλήρες φορτίο, θα εφοδιάζονται με χειρολαβές. ή

- (β) σε ερμητικώς κλεισμένες γυάλινες νταμιζάνες, οι οποίες θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία καταλλήλου αντοχής. Οι νταμιζάνες δεν θα γεμίζονται πέραν του 95% εκατόν της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 75 KG· ή
- (γ) σε ερμητικώς κλεισμένα μεταλλικά δοχεία, με κατάλληλη επένδυση εάν χρειασθεί, χωρητικότητάς μη υπερβαίνουσας τα 15 λίτρα. Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία καταλλήλου αντοχής. Τα δοχεία/θα γεμίζονται πέραν του 95% εκατόν της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 100 KG· ή
- (δ) σε ερμητικώς κλεισμένα κάνιστρα κατασκευασμένα από κατάλληλο μέταλλο, με μαλακή ή σκληρή συγκόλληση, χωρητικότητας μη υπερβαίνουσας τα 60 λίτρα, και εφοδιασμένα με χειρολαβήν. Τα κάνιστρα δεν θα γεμίζονται πέραν του 95% εκατόν της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 75 KG· ή
- (ε) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια, με κατάλληλη επένδυση εάν χρειασθεί. Τα βαρέλια δεν θα γεμίζονται πέραν του 95% εκατόν της χωρητικότητάς των. Εάν, μαζί με το περιεχόμενό τους, ζυγίζουν πάνω από 275 KG, θα είναι εφοδιασμένα με κυλιόμενες στεφάνες· ή
- (στ) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από κατάλ-

2811

(Συνεχίζεται)

Άλλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας 2811  
 τα 60 λίτρα. Τα δοχεία αυτά θα τοποθετούνται ένα- (Συνεχίζεται)  
 ένα και σφικτά σε προστατευτική συσκευασία με πλή-  
 ρεις πλευρές, κατασκευασμένη από χαρτοσανίδα ή από  
 κάποια άλλη ύλη καταλλήλου αντοχής. Τα δοχεία δεν  
 θα γεμίζονται πέραν του 95<sup>6</sup>του εκατόν της χωρητι-  
 κότητάς των. Ένα τέτοιο κόνον δεν πρέπει να ζυγίζει  
 πάνω από 100 KG. ή

- (ζ) σε ερμητικώς κλεισμένα δοχεία, κατασκευασμένα από  
 κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνου-  
 σας τα 60 λίτρα, με τοιχώματα καταλλήλου πάχους, τα  
 οποία δεν θα είναι μικρότερο των 4 MM (χιλ.) προκει-  
 μένου περί δοχείων των 50 λιτρών και άνω· τα ανοίγ-  
 ματα θα κλείνονται με δύο πώματα, το ένα επάνω στο  
 άλλο, και ένα από αυτά θα είναι κοχλιωτό. Τα δοχεία  
 αυτά δεν χρειάζεται να έχουν προστατευτικές συσκευα-  
 σίες εάν η αρμόδια αρχή της χώρας αναχωρήσεως το επι-  
 τρέπει. Τα δοχεία δεν θα γεμίζονται πέραν του 95<sup>6</sup>του  
 εκατόν της χωρητικότητάς τους. Ένα τέτοιο κόνον δεν  
 πρέπει να ζυγίζει πάνω από 100 KG.

Οι ύλες της 22<sup>ο</sup> θα συσκευάζονται:

2812

- (α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύαλο,  
 πορσελάνη, είδη κεραμεικής ή παρεμφερές υλικό, ή από  
 κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνου-  
 σας τα 5 λίτρα. Τα δοχεία αυτά θα ασφαρίζονται με απορ-  
 ροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια  
 άλλη εξωτερική συσκευασία κατάλληλης αντοχής. Τα δοχεία

- αυτά δεν θα γεμίζονται πέραν του 95 βτόα εκατόν 2812  
της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέ- (Συνεχάζε-  
πει να ζυγίζει πάνω από 75 KG. Κόλα ζυγίζοντα πάνω ται)
- από 30 KG, πλή εκείνων που αποστέλονται ως πλήρες φορτίον, θα είναι εφοδιασμένα με χειρολαβές· ή
- (β) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια, με κατάλληλη επένδυση εάν χρειασθεί. Τα βαρέλια δεν θα γεμίζονται πέραν του 95 βτόα εκατόν της χωρητικότητάς των. Εάν, μαζί με το περιεχόμενό τους, ζυγίζουν πάνω από 275 KG, θα εφοδιάζονται με κυλιόμενες στεφάνες (ROLLING HOOPS)· ή
- (γ) σε ερμητικώς κλεισμένα δοχεία, κατασκευασμένα από κατάλληλη πλαστική ύλη· χωρητικότητας μη υπερβαίνουσής τις 60 λίτρες. Τα δοχεία αυτά θα τοποθετούνται ένα-ένα και σφιχτά σε προστατευτική συσκευασία με πλήρεις πλευρές, κατασκευασμένη από χαρτοσανίδα ή από κάποια άλλη ύλη καταλλήλου αντοχής. Τα δοχεία δεν θα γεμίζονται πέραν του 95 βτόα εκατόν της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 100 KG· ή
- (δ) σε ερμητικώς κλεισμένες γυάλινες νταμιζάνες, οι οποίες θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία καταλλήλου αντοχής. Οι νταμιζάνες δεν θα γεμίζονται πέραν του 95 βτόα εκατόν της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 75 KG.

(I) Οι ύλες της 23<sup>ο</sup> θα συσκευάζονται:-

2813

- (α) ~~σε~~ ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρεμφερές υλικό, ή από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τα 5 λίτρα. Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία καταλλήλου αντοχής. Τα δοχεία δεν θα γεμίζονται πέραν του 95~~6~~ εκατόν της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 75 KG. Κόλα ζυγίζοντα πάνω από 30 KG, εκτός εκείνων που αποστέλλονται ως πλήρες φορτίο, θα εφοδιάζονται με χειρολαβές, ή
- (β) σε ερμητικώς κλεισμένα μεταλλικά δοχεία, με κατάλληλη επένδυση εάν χρειασθεί, χωρητικότητας μη υπερβαίνουσας τα 15 λίτρα. Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία καταλλήλου αντοχής. Τα δοχεία δεν θα γεμίζονται πέραν του 95~~6~~ εκατόν της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 100 KG· ή
- (γ) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια, με κατάλληλη επένδυση εάν χρειασθεί. Βαρέλια προοριζόμενα για ύλες της 23<sup>ο</sup>(α) πρέπει να πληρούν τους όρους της Προσθήκης Α.5. Τα βαρέλια δεν θα γεμίζονται πέραν του 95~~6~~ εκατόν της χωρητικότητάς των. Εάν, μαζί με το περιεχόμενό τους, ζυγίζουν πάνω από 275 KG, θα εφοδιάζονται με κυλιόμενες στεφάνες (ROLLING HOOPS).

2) Οι ύλες της 23<sup>ο</sup> (β) μπορούν επίσης να συσκευάζονται:-

2813  
(Συνεχίζεται)

- (α) σε ερμητικώς κλεισμένα κάνιστρα κατασκευασμένα από κατάλληλο μέταλλο, με μαλακή ή σκληρή συγκόλληση, χωρητικότητας μη υπερβαινούσης ~~πικύβικπικύβικπικύβικ~~ τα 60 λίτρα και εφοδιασμένα με χειρολαβές. Τα κάνιστρα δεν θα γεμίζονται πέραν του 95~~6~~ εκατόν της χωρητικότητός των. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει πάνω από 75 KG. ή
- (β) σε ερμητικώς κλεισμένα δοχεία, κατασκευασμένα από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τα 60 λίτρα, με τοιχώματα καταλλήλου πάχους, το οποίο δεν θα είναι λιγώτερο από 4 MM (χιλ.) προκειμένου περί δοχείων των 50 λιτρών και άνω τα ανοίγματα θα κλείονται με δύο πώματα, το ένα τοποθετημένο επάνω στο άλλο, και το ένα από αυτά κοχλιωτό. Τα δοχεία αυτά δεν χρειάζεται να έχουν προστατευτική συσκευασία εάν η αρμόδια αρχή της χώρας της αναχωρήσεως το επιτρέπει. Τα δοχεία δεν θα γεμίζονται πέραν του 95~~6~~ εκατόν της χωρητικότητάς των. Ένα τέτοιο κέλον δεν θα ζυγίζει περισσότερο από 100 KG.

(I) Οι ύλες της 31<sup>ο</sup> (α) θα συσκευάζονται:-

2814

- (α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρεμφερές υλικό, ή από κατάλληλη πλαστική ύλη, και δεν θα περιέχουν πάνω από 5 KG ύλης το καθένα. Τα δοχεία αυτά θα ασφαλιζονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο ή

(ε) κάποια άλλη εξωτερική συσκευασία καταλλήλου αντοχής. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει πάνω από 75 KG· ή

2814  
(Συνεχίζεται)

- (β) σε ερμητικώς κλεισμένα μεταλλικά δοχεία, με κατάλληλη επένδυση εάν χρειασθεί, τα οποία δεν πρέπει να περιέχουν πάνω από 15 KG ύλης το καθένα. Τα δοχεία αυτά θα ασφαρίζονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία καταλλήλου αντοχής. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει πάνω από 100 KG· ή
- (γ) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια, με κατάλληλη επένδυση εάν χρειασθεί. Εάν τα βαρέλια, μαζί με το περιεχόμενό τους, ζυγίζουν πάνω από 275 KG, θα εφοδιάζονται με κυλιόμενες στεφάνες (ROLLING HOOPS)· ή
- (δ) σε ερμητικώς κλεισμένα δοχεία, κατασκευασμένα από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τα 60 λίτρα. Τα δοχεία αυτά θα τοποθετούνται ένα-ένα και σφικτά σε προστατευτική συσκευασία με πλήρεις πλευρές, κατασκευασμένη από χαρτοσανίδα ή από κάποιο άλλο υλικό καταλλήλου αντοχής. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει πάνω από 100 KG· ή
- (ε) σε ερμητικώς κλεισμένους σάκκους, κατασκευασμένους από κατάλληλη πλαστική ύλη, οι οποίοι θα τοποθετούνται σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία καταλλήλου αντοχής. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει πάνω από 75 KG· ή



(στ) σε σάκκους από γιούτα καθισταμένους υγροστεγανούς 28Ι4 με επένδυση κατασκευασμένη από κατάλληλο υλικό, (Συνεχίζεται) επιχρισμένους με βιτούμιον, ή σε σάκκους από γιούτα επενδεδυμένους με ερμητικώς κλειόμενον σάκκον κατασκευασμένον από κατάλληλη πλαστική ύλη. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 55 KG.

(2) Οι ύλες της 3Ι<sup>ο</sup>(α) σε νιφάδες ή υπό μορφήν κόνους μπορούν επίσης να συσκευάζονται σε γερούς χάρτινους τετράφυλλους σάκκους, επενδεδυμένους με ερμητικώς κλειόμενον σάκκον κατασκευασμένον από/κατάλληλη πλαστική ύλη. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 55 KG.

(3) Υδροξειδίο νατρίου της 3Ι<sup>ο</sup>(β) γεμισθέν στην αργή κατάσταση (MOLTEN STATE) θα περιέχεται σε χαλύβδινα βαρέλια με τοιχώματα πάχους όχι μικροτέρου των 0.5 MM (χιλ.). Τα βαρέλια, μαζί με το περιεχόμενό τους, δεν πρέπει να ζυγίζουν πάνω από 450 KG.

Οι ύλες της 32<sup>ο</sup> θα συσκευάζονται:-

28Ι5

(α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρεμφερές υλικό, ή από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τα 5 λίτρα. Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία καταλλήλου αντοχής. Τα δοχεία δεν θα γεμίζονται πέραν του 95% εκάτον της χωρητικότητάς των, Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 75 KG. Κόλα ζυγίζοντα περισσότερο από 30 KG, πλην των αποστελλομένων ως πλήρες

- φορτίο, θα είναι εφοδιασμένα με χειρολαβές· ή 2815  
 (Συνεχίζεται)
- (β) σε ερμητικώς κλεισμένα μεταλλικά δοχεία, με κατάλληλη επένδυση εάν χρειασθεί, χωρητικότητας μη υπερβαίνουσας τα 15 λίτρα. Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία κατάλληλης αντοχής. Τα δοχεία δεν θα γεμίζονται πέραν του 95% εκατόν της χωρητικότητός των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 100 KG· ή
- (γ) σε ερμητικώς κλεισμένα κάνιστρα κατασκευασμένα από κατάλληλο μέταλλο, με μαλακή ή σκληρή συγκόλληση, χωρητικότητας μη υπερβαίνουσας τα 60 λίτρα, και εφοδιασμένα με χειρολαβές. Τα κάνιστρα δεν θα γεμίζονται πέραν του 95% εκατόν της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 75 KG· ή
- (δ) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια, με κατάλληλη επένδυση εάν χρειασθεί. Τα βαρέλια δεν θα γεμίζονται πέραν του 95% εκατόν της χωρητικότητάς των. Εάν, μαζί με το περιεχόμενό τους, ζυγίζουν πάνω από 275KG, θα είναι εφοδιασμένα με κυλιόμενες στεφάνες· ή
- (ε) σε ερμητικώς κλεισμένα δοχεία, κατασκευασμένα από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τα 60 λίτρα. Τα δοχεία αυτά θα τοποθετούνται ένα-ένα και σφιχτά σε προστατευτική συσκευασία με πλήρεις πλευρές, κατασκευασμένη από χαρτοσανίδα ή από κάποια άλλη ύλη καταλλήλου αντοχής. Τα δοχεία δεν θα γεμίζονται πέραν του 95% εκατόν της χωρητικότητός των.

2815

(Συνεχίζεται)

Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 100 KG· ή

(στ) σε ερμητικώς κλεισμένα δοχεία, κατασκευασμένα από καταλληλή πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τα 60 λίτρα και με τοιχώματα επαρκούς πάχους, το οποίο δεν θα είναι μικρότερο των 4 MM (χιλ.) προκειμένου περί δοχείων των 50 λιτρών και άνω· τα ανοίγματα θα κλείνονται με δύο πώματα, το ένα τοποθετημένο επάνω στο άλλο, και το ένα από αυτά κοχλιωτό. Τα δοχεία αυτά δεν χρειάζεται να έχουν προστατευτική συσκευασία εάν η αρμόδια αρχή της χώρας της αναχωρήσεως το επιτρέπει. Τα δοχεία δεν θα γεμίζονται πέραν του 95 τοις εκατόν της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 100 KG· ή

(ζ) σε ερμητικώς κλεισμένα κυλινδρικά δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμικής ή παρεμφερές υλικό, χωρητικότητας μη υπερβαίνουσας τα 20 λίτρα. Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία καταλλήλου αντοχής. Τα δοχεία δεν θα γεμίζονται πέραν του 95 τοις εκατόν της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 75 KG· ή

(η) σε ερμητικώς κλεισμένες γυάλινες νταμιζάνες, οι οποίες θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία

αλληλίας αντοχής, ή θα τοποθετούνται σταθερά σε 2815  
 σιδηρούς ή φαιωτούς καλάρους. Οι νταμιζάνες δεν (Συνεχίζε-  
 θα γεμίζονται πέραν του 95 τοις εκατόν της χωρη-  
 τικότητάς των. Ένα τέτοιο κόλον δεν πρέπει να ζυ-  
 γίζει πάνω από 75 KG.

Συσσωρευτές που γεμίζονται με αλκαλικά δια- 2816  
 λύματα (33°) θα είναι κατασκευασμένοι από μέταλλο και το  
 άνω τμήμα θα είναι έτσι σχεδιασμένο ώστε το αλκαλικό διά-  
 λυμα να μη μπορεί να τινάχθει σε επικίνδυνες ποσότητες.  
 Οι συσσωρευτές θα προστατεύονται κατά των βραχυκυκλωμάτων  
 και θα συσκευάζονται σε ξύλινο κιβώτιο συσκευασίας.

(I) Η υδραζίνη (34°) θα συσκευάζεται: 2817

- (α) σε ερμητικώς κλεισμένα γυάλινα δοχεία, χωρητικότητας  
 μη υπερβαίνουσας τα 5 λίτρα, στα οποία θα ασφαρίζονται  
 με κατάλληλο αποσβεστικό υλικό σε κυτία τοποθετημένα  
 σε ξύλινο κιβώτιο ή
- (β) σε δοχεία κατασκευασμένα από αργίλλιο (αλουμίνιο) όχι  
 κάτω του 99.5 τοις εκατόν καθαρών ή από ανοξείδωτο χα-  
 λυβα ή επενδεδυμένον με μόλυβδον σίδηρον ή
- (γ) σε δοχεία, κατασκευασμένα από κατάλληλη πλαστική ύλη,  
 εφοδιασμένα με κοχλιωτό κλείσιμο και έχοντα χωρητικό-  
 τητα μη υπερβαίνουσα τα 65 λίτρα, τοποθετημένα ένα-  
 ένα σε κατάλληλες προστατευτικές συσκευασίες ή ασφα-  
 λισμένα κατά ομάδες με κατάλληλο αποσβεστικό υλικό  
 σε κατάλληλες προστατευτικές συσκευασίες· το κόλον  
 δεν πρέπει να ζυγίζει πάνω από 100 KG, ή πάνω από  
 50 KG εάν η προστατευτική συσκευασία αποτελείται από  
 κιβώτιο από ινοσανίδα ή

- (δ) ~~σε βαρέλια~~ ~~έλια~~, κατασκευασμένα από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τα 220 λίτρα και με τοιχώματα πάχους όχι μικρότερου των 1.5 MM (χιλ.), τοποθετημένα ένα-ένα σε βαρέλια εφοδιασμένα με κυλιόμενες στεφάνες. 2817  
(Συνεχίζεται)

(2) Κανένα δοχείο θα γεμίζεται πέραν του 93% εκατόν της χωρητικότητός του. Τα δοχεία υπό στοιχεία (β) (γ) και (δ) θα υποβάλλονται σε έλεγχο της πίεσεως σε 1 KG/CM<sup>2</sup>.

Οι ύλες της 35<sup>ο</sup> θα συσκευάζονται:-

2818

- (α) σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρεμφερές υλικό, ή από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τα 5 λίτρα. Τα δοχεία θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία κατάλληλου αντοχής. Τα δοχεία δεν θα γεμίζονται πέραν του 95% εκατόν της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 75 KG. Κόλα ζυγίζοντα πάνω από 30KG, πλην εκείνων που αποστέλλονται ως πλήρες φορτίο, θα είναι εφοδιασμένα με χειρολαβές ή
- (β) σε ερμητικώς κλεισμένα μεταλλικά δοχεία, με κατάλληλη επένδυση εάν χρειασθεί, χωρητικότητας μη υπερβαίνουσας τα 15 λίτρα. Τα δοχεία αυτά θα ασφαρίζονται με απορροφητικό αποσβεστικό υλικό σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία κατάλληλης αντοχής. Τα δοχεία δεν θα γεμίζονται πέραν του 95% ε-

χωρητικότητάς των. Ένα τέτοιο κέλον δεν 2818  
 πρέπει να ζυγίζει πάνω από 100 KG· ή

- (γ) σε ερμητικώς κλεισμένα κάνιστρα κατασκευασμένα από μέταλλο, με μαλακή ή σκληρή συγκόλληση, χωρητικότητας μη υπερβαίνουσας τα 60 λίτρα, και εφοδιασμένα με χειρολαβές. Τα κάνιστρα δεν θα γεμίζονται πέραν του 95<sup>του</sup> εκατόν της χωρητικότητάς των. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει πάνω από 75 KG· ή
- (δ) σε ερμητικώς κλεισμένα μεταλλικά βαρέλια, με κατάλληλη επένδυση εάν χρειασθεί. Τα βαρέλια δεν θα γεμίζονται πέραν του 95<sup>του</sup> εκατόν της χωρητικότητάς των. Εάν μαζί με τό περιεχόμενό τους, ζυγίζουν πάνω από 275 KG, θα είναι εφοδιασμένα με κυλιόμενες στεφάνες (ROLLING HOOPS)· ή
- (ε) σε ερμητικώς κλεισμένα δοχεία, κατασκευασμένα από κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαίνουσας τα 60 λίτρα. Τα δοχεία αυτά θα τοποθετούνται ένα-ένα και σφιχτά σε προστατευτική συσκευασία με πλήρεις πλευρές, κατασκευασμένη από χαρτοσανίδα ή από κάποια άλλη ύλη καταλλήλου αντοχής. Τα δοχεία δεν θα γεμίζονται πέραν του 95<sup>του</sup> εκατόν της χωρητικότητάς των. Ένα τέτοιο κέλον δεν πρέπει να ζυγίζει πάνω από 100KG· ή
- (στ) σε ερμητικώς κλεισμένα δοχεία, κατασκευασμένα από/πλαστική <sup>κατάλληλη</sup> ύλη, χωρητικότητας μη υπερβαίνουσας τα 60 λίτρα, με τοιχώματα καταλλήλου πάχους, το οποίο δεν θα είναι μικρότερο των 4 MM (χιλ.) προκειμένου περί δοχείων των 50 λιτρών και άνω· τα ανώγυα θα κλείνονται με δύο

~~πρόκειται~~, ~~ή~~ ένα τοποθετημένο επάνω στο άλλο, και το 2818  
~~ένα από~~ αυτά κοχλιωτό. Τα δοχεία αυτά δεν χρειάζε- (Συνεχίζεται)  
 ται να έχουν προστατευτική συσκευασία εάν η αρμό-  
 δια αρχή της χώρας της αναχωρήσεως το επιτρέπει. Τα  
 δοχεία δεν θα γεμίζονται πέραν του 95% του εμβαδόν  
 της χωρητικότητάς των. Ένα τέτοιο κόλον δεν πρέπει  
 να ζυγίζει πάνω από 100 KG.

(I) Το πρωτοθιούχο νάτριο (36°) θα συσκευά- 2819

ζεπαι:-

- (α) σε στεγανά σιδηρά δοχεία· ή
- (β) σε ποσότητες μη υπερβαίνουσες τα 5 KG, επίσης σε δο-  
 χεία, κατασκευασμένα από ύαλο ή από κατάλληλη πλαστική  
 ύλη, τα οποία θα ασφαρίζονται σε γερά ξύλινα δοχεία, τα  
 γυάλινα δοχεία θα ασφαρίζονται εκεί με αποσβεστικό υλικό.

(2) Το πρωτοθιούχο νάτριο υπό στερεά μορφή  
 μπορεί επίσης να εγκλεισθεί σε άλλα στεγανά δοχεία. Εάν μετα-  
 φερθεί ως πλήρες φορτίο, μπορεί επίσης να συσκευασθεί:-

- (α) σε γερούς χάρτινους σάκκους πεντάφυλλους, έτσι κλεισμέ-  
 νους ώστε να είναι στεγανοί, και επενδεδυμένους με σάκ-  
 κιο κατασκευασμένον από κατάλληλη πλαστική ύλη· ή
- (β) σε σάκκους κατασκευασμένους από κατάλληλη πλαστική ύλη  
 ίση σε αντοχή με τους χάρτινους σάκκους.

Κόλα από σάκκους δεν πρέπει να ζυγίζουν περισσότερο  
 από 55 KG.

(I) Διαλύματα υποχλωριώδους οξέος (37°) θα συσκευά- 2820

ζονται:-

- (α) σε δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κε-

ραμεικής ή παρεμφερές υλικό, ή από κατάλληλη πλαστική ύλη, ασφαλιζόμενα σε προστατευτικές συσκευασίες. (Συνεχίζεται)

~~Εξοπλιστικά~~ δοχεία θα ασφαλιζονται εκεί με αποσβεστικό υλικό ή

(β) σε μεταλλικά βαρέλια, καταλλήλως επενδεδυμένα.

(2) Προκειμένου περί διαλυμάτων υποχλωριώδους οξέος της 37<sup>ο</sup>(α), τα δοχεία ή βαρέλια θα είναι σχεδιασμένα εις τρόπον ώστε να επιτρέπεται στα αέρια να διαφεύγουν, ή θα είναι εφοδιασμένα με ρυθμιστικές της πίεσεως βαλβίδες.

(I) Υδατοειδή διαλύματα υπεροξειδίου του υδρογόνου περιέχοντα πάνω από 40 τοις εκατόν αλλά όχι πάνω από 60 τοις εκατόν υπεροξειδίου του υδρογόνου (4H<sup>ο</sup>(α)) θα περιέχονται:— 282I.

(α) σε δοχεία τα οποία πρέπει να είναι ικανά να στέκονται σταθερά όρθια, κατασκευασμένα από αργίλλιο (αλουμίνιο) όχι κάτω του 99.5 τοις εκατόν καθαρών ή από ειδικό χαλύβα μη δυνάμενο να προκαλέσει την αποσύνθεση του υπεροξειδίου του υδρογόνου. Η χωρητικότητα των δοχείων αυτών δεν πρέπει να υπερβαίνει τα 200 λίτρα ή

(β) σε δοχεία, κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή κατάλληλη πλαστική ύλη, χωρητικότητας μη υπερβαινούσης τα 20 λίτρα. Κάθε δοχείο θα ασφαρίζεται με απορροφητικό, άκταστο και αδρανές αποσβεστικό υλικό σε συσκευασία από φύλλο-μετάλλου με πλήρεις πλευρές, επενδεδυμένη με κατάλληλα υλικά. Η συσκευασία αυτή θα τοποθετείται σε ξύλινο κιβώτιο συσκευασίας με κελιμένο προστατευτικό κάλυμμα.



η κλεισιμο και βαθμόν πληρώσεως (γεμίσματος)  
βλέπε υπό στοιχείον (3).

282I

(Συνεχίζεται)

(2) Υδατοειδή διαλύματα του υπεροξειδίου του υδρογόνου περιέχοντα άνω του 66τμ εκατόν αλλά όχι άνω του 40τμ εκατόν υπεροξειδίου του υδρογόνου (4I<sup>0</sup>(β)) θα περιέχονται σε δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής, αργίλλιο (αλουμίνιο) όχι κάτω του 99.56τμ εκατόν καθαρών, ειδικών χάλυβα μη δυνάμενον να προκαλέσει αποσύνθεση του υπεροξειδίου του υδρογόνου, ή από κατάλληλη πλαστική ύλη.

Δοχεία χωρητικότητας, μη υπερβαίνουσας τα 3 λίτρα θα ασφαρίζονται με αποσβεστικό υλικό σε ξύλινα κιβώτια· εάν τα δοχεία περιέχουν υδατοειδή διαλύματα υπεροξειδίου του υδρογόνου περιέχοντα άνω του 35τμ εκατόν υπεροξειδίου του υδρογόνου, το αποσβεστικό υλικό πρέπει να είναι κατάλληλα πυρο-στεγανόν. Το κέλον δεν πρέπει να ζυγίζει πάνω από 35 KG.

Εάν τα δοχεία έχουν χωρητικότητα άνω των 3 λίτρων, πρέπει να πληρούν τους παρακάτω όρους:-

- (α) δοχεία κατασκευασμένα από αργίλλιο (αλουμίνιο) ή από ειδικό χάλυβα πρέπει να είναι ικανά να στέκονται σταθερά όρθια. Το κέλον δεν πρέπει να ζυγίζει πάνω από 250 KG·
- (β) δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή κατάλληλη πλαστική ύλη θα τοποθετούνται σε κατάλληλες γερές προστατευτικές συσκευασίες που θα τα διατηρούν ασφαλώς όρθια· οι συσκευασίες θα είναι εφοδιασμένες με χειρολαβές. Εσωτερικές συσκευα-

σξες, πλην των κατασκευασμένων από πλαστική ύλη θα 282I  
 υφαιρούνται σε εξωτερικές συσκευασίες με αποσβε- (Συνεχίζεται)  
~~κ~~κό υλικό. Οσάντις δοχεία περιέχουν υδατοειδή δια-  
~~κ~~λύματα υπεροξειδίου του υδρογόνου περιέχοντα άνω του  
 400τ. εκατόν υπεροξειδίου υδρογόνου, το αποσβεστι-  
 κό υλικό θα είναι καταλλήλως πυρο-στεγανόν. Κόλον του  
 είδους αυτού δεν πρέπει να ζυγίζει περισσότερο από  
 90 ΚΓ. εν τούτοις, μπορεί να ζυγίζει μέχρι 110 ΚΓ εάν  
 οι προστατευτικές συσκευασίες έχουν, επιπροσθέτως, συ-  
 σκευασθεί σε κιβώτιο ή σκελετοκιβώτιον.

- (γ) υδατοειδή διαλύματα υπεροξειδίου του υδρογόνου περιέ-  
 χοντα άνω του 60τ. εκατόν αλλά όχι άνω του 406τ. :  
 εκατόν υπεροξειδίου του υδρογόνου μπορούν επίσης να πε-  
 ριέχονται, άνευ προστατευτικών συσκευασιών, σε δοχεία  
 κατασκευασμένα από κατάλληλη πλαστική ύλη, υπό τον όρον  
 ότι το πάχος των τοιχωμάτων (συμπεριλαμβανομένων των  
 χώρων τοποθέτησεως των ετικετών) δεν είναι σε κανένα  
 σημείον κάτω από 4 MM (χιλ.), τα τοιχώματα προστατεύον-  
 ται από γερές δοκίδες, και τα άκρα είναι ενισχυμένα.  
 Τα δοχεία θα είναι εφοδιασμένα με χειρολαβές. Η χωρητι-  
 κότης δεν πρέπει να υπερβαίνει τα 60 λίτρα.

Για το κλείσιμο και τον βαθμόν πληρώσεως (γε-  
 μίσματος), βλέπε υπό στοιχείον (3).

(3) Δοχεία χωρητικότητος μη υπερβαινούσης τις 3  
 λίτρες μπορούν να έχουν ερμητικόν κλείσιμον. Σε τέτοιες πε-  
 ριπτώσεις τα δοχεία θα πληρούνται (γεμίζονται) με βάρος του  
 διαλύματος το οποίον, εκφραζόμενον σε γραμμάρια, είναι ίσον

με όχι περισσότερο των δύο-τρίτων του αριθμού του εκ-  
φράζοντος την χωρητικότητα του δοχείου σε  $CM^3$ .

282I  
(Συνεχίζε-  
ται))

Δοχεία χωρητικότητας υπερβαίνουσας τα 3 λί-  
τρα θα είναι εφοδιασμένα με ειδικό κλείσιμο εμποδίζον  
την υπερβολικήν εσωτερικήν πίεσιν, την διαρροήν του υ-  
γρού, και την είσοδον ξένης ύλης στο δοχείο. Οσάκις τα  
δοχεία συσκευάζονται χωριστά, η εξωτερική συσκευασία θα  
είναι εφοδιασμένη με κάλυμμα το οποίον, ενώ προστατεύει  
το κλείσιμο, παρέχει την δυνατότητα της επαληθεύσεως  
ότι το κλείσιμο κατευθύνεται προς τα άνω. Τα δοχεία αυτά  
δεν πρέπει να γεμίζονται πέραν του 95 έτοιμ εκατόν της χω-  
ρητικότητάς των.

### 3.- Μικτή συσκευασία

2822

(I) Ύλες ομαδοποιημένες υπό τον αυτόν αριθ-  
μόν είδους μπορούν να συμπεριλαμβάνονται στο αυτό κόλον.  
Οι εσωτερικές συσκευασίες θα είναι σύμφωνες με ότι προ-  
βλέπεται για κάθε ύλη, και η εξωτερική συσκευασία θα εί-  
ναι ή οριζομένη για τις ύλες του εν λόγω αριθμού είδους.

(2) Εάν μικρότερες ποσότητες δεν προβλέπονται  
υπό του άρθρου του τιτλοφορουμένου "Συσκευασία μιας ύλης  
ή εμπορευμάτων του αυτού είδους" και ουδείς ειδικός όρος  
παρατίθεται κατωτέρω, οι ύλες της παρούσης Κλάσεως, σε  
ποσότητες μη υπερβαίνουσες τα 6 KG στη περίπτωση των στε-  
ρεών ή τα 3 λίτρα στη περίπτωση των υγρών για όλες τις  
ύλες τις απαριθμούμενες υπό τον αυτόν αριθμόν είδους ή  
το αυτό γράμμα, μπορούν να εγκλείονται στο ίδιο κόλον,  
είτε με τις ύλες άλλου αριθμού είδους ή άλλου γράμματος

2822  
(Συνεχίζεται)

Κλάσεως, είτε με ύλες ή είδη ανήκοντα σε άλλες Κλάσεις (εάν μικτή συσκευασία επιτρέπεται ομοίως προκειμένου περί των ποιούτων υλών ή ειδών), είτε με άλλα εμπορεύματα, υπό την επιφύλαξη των παρακάτω ειδικών όρων.

Οι εσωτερικές συσκευασίες πρέπει να πληρούν τους γενικούς και ειδικούς όρους της συσκευασίας. Επιπροσθέτως, πρέπει να τηρούνται οι γενικοί όροι των περιθωρίων 2001 (5), και 2002 (6) και (7).

Η μικτή συσκευασία οξίνης ύλης με βασικήν ύλην στο ίδιο κέλον δεν επιτρέπεται εάν αμφότερες οι ύλες περιέχονται σε εύθραυστα δοχεία.

Το κέλον δεν πρέπει να ζυγίζει περισσότερο από 150 KG, ή περισσότερο από 75 KG εάν περιέχει εύθραυστα δοχεία.

#### Ειδικός Όρος

(Βλέπε σελ. 434.-

Ειδικά Όροι

2822

(Συνεχίζε-

ται.)

Αρ. Είδους	Περιγραφή Ύλης	Ανωτάτη Ποσότης		Ειδικές Διατάξεις
		ανά δοχείο	ανά κόλον	
I <sup>ο</sup> (α)	OLCUM	3 λίτρες	12 λίτρες	Δεν πρέπει να συσκευάζονται μαζί με χλωρικά άλατα, υπερμαγ- γανικά, διαλύμα- τα υπεροξειδίου του υδρογόνου, υπερχλωρικά άλα- τα, υπεροξειδία ή υδραζίνη. Ο περιορισμός των 18 λίτρων ισχύει για τα οξέα θειϊ- κόν, νιτρικόν και υδροχλωρικόν, και μικτά αζω- τούχα όξέα, για όλες αυτές τις ύλες. Εάν το κό- λον περιέχει οξύ υποκείμενον στον περιορισμό των 12 λίτρων, ο πε- ριορισμός αυτός πρέπει να εφαρ- μοσθεί.
I <sup>ο</sup> (α), (β), (γ)	θειϊκόν οξύ πλήν του OLCUM	3 λίτρες	18 λίτρες	

2822

(Συνεχίζεται)

Αρ. Είδους	Περιγραφή Υλης	Ανωτάτη Ποσότητα ανά δοχείο	ανά κδλον	Ειδικά Διατάξεις
( Σ υ ν ε χ ε ι α )				
2 <sup>ο</sup> (α.)	Νιτρικόν Οξύ περιέχον άνω του 70 <sup>ο</sup> /ο καθαρού οξέος	3	λίτρες 12	Δεν πρέπει να συσκευάζονται μαζί με μυρμη- κικόν οξύ, τρι- αιθανολαμίνη, ανιλίνη, ξυλι- δίνη, τολουϊδί- νη, χλωρικά ά- λατα, υπερμαγ- γανικά, εύφλε- κτα υγρά με βαθμόν αναφλέ- ξεως κάτω των 21 <sup>ο</sup> C, διαλύμα- τα υπεροξειδί- ου του υδρογό- νου, υπερχλωρι- κά άλατα, υπερο- ξειδία, υδραζί- νη, γλυκερίνη, γλυκόλες. Μόνο αδρανές υλικό πληρώσεως πρέ- πει να χρησι- μοποιείται.
2 <sup>ο</sup> ((β))	Νιτρικόν Οξύ περιέχον όχι άνω του 70 <sup>ο</sup> /ο κα- θαρού οξέος	3	λίτρες 18	
3 <sup>ο</sup>	Μικτά οξέα νιτρώσεως	3	λίτρες 18	
4 <sup>ο</sup>	Υπερχλωρικό Οξύ	Μικτή συσκευασία απα- γορεύεται		
5 <sup>ο</sup>	Υδροχλωρικό Οξύ	5	λίτρες 18	Δεν πρέπει να αυσκευάζεται

2822

(Συνεχίζεται)

Αρ. Είδους	Περιγραφή Υλης	Ανωτάτη Ποσότητα		Ειδικές Διατάξεις
		ανά δοχείο	ανά κόλον	
( Σ υ ν έ χ ε ι α )				
				μαζί με χλωρικά άλατα, υπερμαγγα- νικά, υπερχλωρικά άλατα, υπεροξειδία (πλην των διαλυ- μάτων υπεροξειδίου του υδρογόνου)
6 <sup>ο</sup>	Διαλύματα Υδροφθορικού οξέος	I λίτρα	10 λίτρες	
II <sup>ο</sup> (α)	Διχλωριούχο Διθειό	500 G	500 G	
II <sup>ο</sup> (α)	Πενταχλωριούχο αντιμόνιο Χλωροσουλφονικό χλωρίδιο SULPHURYL ACID (Θειώδες οξύ;) THIONYLCHLORIDE Τετραχλωριούχο τιτάνιο Υπερχλωριούχος κασσίτερος	2.5KG	5KG	Δεν πρέπει να συσκευάζονται μαζί με ύλες της 36 <sup>ο</sup> της Κλάσεως 8 ή με ύλες της Κλάσεως 5.1* πρέπει να προστατεύονται κατά της εισχωρήσεως της υγρασίας
I2 <sup>ο</sup>	Τριχλωριούχο αντιμόνιο			
I4 <sup>ο</sup>	Βρώμιο - σε εύθραυστα δοχεία - σε άλλα δοχεία	500 G	500 G  I KG	3 KG

2822

(Συνεχίζεται)

Αριθμός Πεδίου	Περιγραφή Υλης	Ανωτάτη Ποσότητα ανά δοχείο	Ποσότητα ανά κόλον	Ειδικές Διατάξεις
( Σ υ ν έ χ ε ι α )				
15 <sup>ο</sup> (α)	Διφθοριούχα	5 KG	15 KG	Δεν πρέπει να συσκευάζονται μαζί με ύλες των Κλάσεων 4.2, 4.3 και 5.1, η με νιτρικό οξύ ή μικτά οξέα νιτρώσεως.
21 <sup>ο</sup> (β)	Μυρμηκικό οξύ	5 λίτρες	15 λίτρες	Δεν πρέπει να συσκευάζεται μαζί με χλωρικά άλατα, υπερμαγγανικά, διαλύματα υπεροξειδίου του υδρογόνου, νιτρικό οξύ, μικτά οξέα νιτρώσεως.
21 <sup>ο</sup> (γ)	Οξικό οξύ	5 λίτρες	15 λίτρες	Δεν πρέπει να συσκευάζεται μαζί με χλωρικά άλατα, υπερμαγγανικά.
34 <sup>ο</sup>	Υδραζίνη	5.5 KG	5.5 KG	Δεν πρέπει να συσκευάζεται μαζί με θειϊκό οξύ, χλωροσουλφονικό οξύ, νιτρικό οξύ, μικτά οξέα νιτρώσεως, χλωρικά άλατα, υπερμαγγανικά,



2822

(Συνεχίζεται)

Αρ. Είδους	Περιγραφή Υλης	Ανωτάτη Ποσότητα		Ειδικές Διατάξεις
		ανά δοχείο	ανά κόλον	

( Σ υ ν έ χ ε ι α )

θελο, διαλύματα υπεροξειδίου του υδρογόνου, υπερκλωρικά άλατα, και υπεροξειδία. Πρέπει να διατηρούνται χωριστά από καυστικές αλκαλικές ύλες και ισχυρούς άγοντες οξειδώσεως.

36°	Πρωτοθειούχο νάτριο περιέχον όχι άνω του 70°/ο $\text{Na}_2\text{S}$	2.5 KG	15 KG	Δεν πρέπει να συσκευάζεται μαζί με δεινες ύλες
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4I°(α)	Διαλύματα υπεροξειδίου του υδρογόνου περιέχοντα άνω του 35°/ο υπεροξειδίου του υδρογόνου	Μικτή συσκευασία δεν επιτρέπεται	
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4I°(β)	Διαλύματα υπεροξειδίου του υδρογόνου περιέχοντα άνω του 15°/ο αλλά όχι άνω του 35°/ο υπεροξειδίου του υδρογόνου	Δεν πρέπει να συσκευάζονται με θειϊκό οξύ, χλωροσουλφονικό οξύ, μυρμηκικό οξύ, μικτά οξέα νιτρώσεως, τριεθθανολαμίνη, ανιλίνη, ξυλιδίνη, τολουϊδίνη, υπερμαγγανικά,	
	- σε εύθραυστα δοχεία	1 λίτρα	3 λίτρες
	- σε άλλα δοχεία	3 λίτρες	12 λίτρες

2822

(Συνεχίζεται)

Αρ.	Περιγραφή	Ανωτάτη Ποσότητα		Ειδικές
Είδους	Υλης	ανά δοχείο	ανά κόλον	Διατάξεις

( Σ υ ν έ χ ε ι α )

εύκαυστα υγρά με σημείο αναφλέξεως κάτω των 21°C, μεταλλικά υπεροξειδία, υδραζίνη.

Διαλύματα υπεροξειδίου του υδρογόνου περιέχοντα άνω του 6% αλλά όχι άνω του 15% υπεροξειδίου του υδρογόνου.	3 λίτρες 12 λί- τρες	Πρέπει να χρησιμοποιούνται μόνο ανόργανα υλικά πληρώσεως.
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4.- Ενδείξεις (μαρκάρισμα) και ετικέτες κινδύνου επί των κόλων (Βλέπε Προσθήκη Α.9) 2823

Κιβώτια περιέχοντα συσσωρευτές (1<sup>ο</sup>(στ) και 33<sup>ο</sup>), θα μαρκάρονται ευανάγνωστα και ανεξίτηλα: "Συσσωρευτές". Η επιγραφή αυτή θα είναι στην επίσημη γλώσσα της χώρας της αναχωρήσεως και, εάν η γλώσσα αυτή δεν είναι η Αγγλική ή Γαλλική ή Γερμανική, στην Αγγλική, Γαλλική ή Γερμανική, εκτός εάν άλλως προβλέπεται στις, τυχόν, συμφωνίες που συνήψαν μεταξύ των οι ενδιαφερόμενες για την επιχείρηση μεταφοράς χώρες.

(I) Κόλα περιέχοντα ύλες των 1<sup>ο</sup> έως 7<sup>ο</sup>, 9<sup>ο</sup>, 11<sup>ο</sup>, 12<sup>ο</sup>, 14<sup>ο</sup>, 15<sup>ο</sup>, 22<sup>ο</sup>, 31<sup>ο</sup>, 35<sup>ο</sup> ή 41<sup>ο</sup>(α) θα φέρουν ετικέτα σύμφωνον προς το μοντέλο Νο.5.

Εν τούτοις, εάν τα υγρά των I<sup>ο</sup> (α), έως (γ), 2<sup>ο</sup> έως 5<sup>ο</sup>, 10<sup>ο</sup>, 22<sup>ο</sup> ή 32<sup>ο</sup> συσκευάζονται σε δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής, ή παρεμφερές υλικό, χωρητικότητας υπερβαίνουσας τις (τα) 5 λίτρα, τα κόλα θα φέρουν δύο ετικέτες σύμφωνες προς το μοντέλο Νο.5.

2824  
(Συνεχίζεται)

(2) Κόλα περιέχοντα εύθραυστα δοχεία μη ορατά από έξω, θα φέρουν ετικέτες σύμφωνες προς το μοντέλο Νο.9. Εάν τα εύθραυστα δοχεία περιέχουν υγρά, τα κόλα οφείλουν, επιπροσθέτως, εκτός προκειμένου περί σφραγισμένων αμπουλών, να φέρουν ετικέτες σύμφωνες προς το μοντέλο Νο.8· οι ετικέτες αυτές θα τοποθετούνται ψηλά σε δύο αντίθετες πλευρές των κιβωτίων ή κατά τρόπον ισοδύναμον οσάνεις χρησιμοποιούνται άλλες συσκευασίες.

(3) Κάθε κιβώτιο περιέχον συσσωρευτές (I<sup>ο</sup> (στ) και 33<sup>ο</sup>), και κόλα ζυγίζοντα όχι άνω των 75 KG περιέχοντα ύλες της I<sup>ο</sup> έως 7<sup>ο</sup>, 9<sup>ο</sup>, II<sup>ο</sup>, 2I<sup>ο</sup>, 3I<sup>ο</sup> έως 35<sup>ο</sup> και 37<sup>ο</sup>, θα φέρουν, επιπροσθέτως, στις δύο αντίθετες πλευρές ετικέτες σύμφωνες προς το μοντέλο Νο.8.

(4) Προκειμένου περί αποστολών μεταφερομένων ως πλήρες φορτίο, η ετικέτα Νο.5, ως προβλέπεται υπό στοιχείον (I), δεν χρειάζεται να τεθεί στα κόλα εάν το δχημα φέρει την ένδειξιν την προβλεπομένην υπό του Παραρτήματος Β, περιθώριον IO 500.

2825

B.- Στοιχεία του εγγράφου μεταφοράς

(I) Η περιγραφή των εμπορευμάτων στο έγγραφο της 2826

μεταφορές πρέπει να είναι σύμφωνη με μία των ονομα- 2826  
 σιών που υπογραμμίζονται στο περιθώριο 280I. Οσάντις (Συνεχίζεται)  
 η ονομασία της ύλης δεν σημειούται, στη περίπτωση  
 των II<sup>0</sup>, I2<sup>0</sup>, I3<sup>0</sup>, I5<sup>0</sup>, 22<sup>0</sup> και 35<sup>0</sup>, πρέπει να χρησι-  
 μοποιείται η εμπορική ονομασία. Η περιγραφή των εμπο-  
 ρευμάτων πρέπει να υπογραμμίζεται με κόκκινο και να  
 ακολουθείται από τα στοιχεία της κλάσεως, τον αριθμόν  
του είδους (μαζί με το, τυχόν, γράμμα), και τα αρχικά  
"ADR" ή "RID" (π.χ. B, II (α), ADR).

(2) Προκειμένου περί βρωμίου περιέχοντος 0.005  
 τοις εκατόν έως 0.2 τοις εκατόν ύδωρ, μεταφερομένου σε  
 δοχεία συμφώνως προς το περιθώριο 2810(2), τα παρακάτω  
 πρέπει να βεβαιούνται στο έγγραφο μεταφοράς:- "Πάρθη-  
καν μέτρα για την αποφυγή της διαβρώσεως της επενδύσεως  
των δοχείων".

2827-  
2834

### Γ. Κενές συσκευασίες

(1) Δοχεία και δεξαμενές των 51<sup>0</sup> πρέπει να είναι κλειστά με 2835  
 τον ίδιο τρόπο και στεγανά στον ίδιο βαθμό σαν να ήταν γεμάτα.

(2) Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς  
 πρέπει να είναι: "Κενό δοχείο, 8, 51, ADR (ή RID)". Αυτή η περι-  
 γραφή πρέπει να υπογραμμίζεται με κόκκινο.

(3) Ακάθαρτα δοχεία τα οποία περιείχαν ύλες των 6<sup>0</sup> ή βρώμιο  
 (14<sup>0</sup>) θα φέρουν μία ετικέτα σύμφωνη προς το μοντέλο Νο. 5 (Προσ-  
 θήκη Α.9). Δεν πρέπει να έχουν υπολείμματα οξέος ή βρωμίου στο  
 εξωτερικό μέρος.

2836-  
3099

ΟΙΚΟΝΟΜΙΚΗ ΕΠΙΤΡΟΠΗ ΓΙΑ ΤΗΝ ΕΥΡΩΠΗ  
ΕΠΙΤΡΟΠΗ ΜΕΤΑΦΟΡΩΝ ΕΣΩΤΕΡΙΚΟΥ

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Ευρωπαϊκή Συμφωνία

Για τη Διεθνή Οδική Μεταφορά Επικιν-  
δύων Εμπορευμάτων (ADR) και Πρωτο-  
κόλλο Υπογραφής

Υπογράφηκε στη Γενεύη την 30 Σεπτεμβρίου 1957

ΤΟΜΟΣ ΙΙ

(Προσθήκες Παραρτήματος Α)

ΗΝΟΜΕΝΑ ΕΘΝΗ

1978.-

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Π Ρ Ο Λ Ο Γ Ο Σ

Το παρακάτω κείμενο περιλαμβάνει, επιπροσθέτως της Συμφωνίας και του Πρωτοκόλλου Υπογραφής, τα Παραρτήματα με τη μορφή με την οποία τέθηκαν σε ισχύ την 29ην Ιουλίου 1968 καθώς και τις τροποποιήσεις τους μέχρι της 1ης Οκτωβρίου 1978.

Μέρος ΙΙΙ

ΠΡΟΣΘΗΚΑΙ

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ΠΡΟΣΘΗΚΗ Α.Ι

Α.- Όροι ευσταθείας και ασφαλείας αφορώντες  
τις εκρηκτικές ύλες, εύφλεκτα στερεά και  
οργανικά υπεροξειδία

Οι όροι ευσταθείας που εκτίθενται παρακάτω 3100 είναι τα κατώτατα πρότυπα τα καθορίζοντα την απαιτούμενη ευστάθεια των υλών που πρόκειται να γίνουν δεκτές για μεταφορά. Οι όλες αυτές μπορούν να παραδοθούν για μεταφορά μόνον εάν συμμορφούνται πλήρως προς τους παρακάτω όρους.

Περὶ περιθωρίου 210I, 1<sup>ο</sup>, περιθωρίου 217I, 310I 4<sup>ο</sup> και περιθωρίου 240I, 7<sup>ο</sup>(α): Νιτροκυτταρίνη θερμαινόμενη για μισή ώρα σε 132<sup>ο</sup>C δεν πρέπει να αναδίδει ορατές κιτρινο-φαιές νιτρώδεις αναθυμιάσεις. Η θερμοκρασία αναφλέξεως πρέπει να είναι άνω των 180<sup>ο</sup>C. Νήμα πυροξυλίνης πρέπει να ικανοποιεί τους ίδιους όρους ευσταθείας ως η νιτροκυτταρίνη. Βλέπε περιθώρια 3150, 3151(α) και 3153.

Περὶ περιθωρίου 210I, 3<sup>ο</sup>, 4<sup>ο</sup> και 5<sup>ο</sup>, και περιθωρίου 240I, 7<sup>ο</sup>(β) και (γ): 3102

1.- Κονιοποιημένη νιτροκυτταρίνη μη περιέχουσα νιτρογλυκερίνη · πλαστικοποιημένη νιτροκυτταρίνη:

3 γραμ. κονιοποιημένης ή πλαστικοποιημένης νιτροκυτταρίνης, θερμαινόμενα για μία ώρα σε 132<sup>ο</sup>C, δεν πρέπει να αναδίδουν ορατές κιτρινο-φαιές νιτρώδεις αναθυμιάσεις. Η θερμοκρασία αναφλέξεως πρέπει να είναι άνω των 170<sup>ο</sup>C.

2.- Κονιοποιημένη νιτροκυτταρίνη περιέχουσα νιτρογλυκερίνη :

1 γραμ. κονιοποιημένης νιτροκυτταρίνης θερμαινόμενο για μία ώρα στους 110<sup>ο</sup>C δεν πρέπει να αναδίδει ορατές κιτρινο-φαιές νιτρώδεις αναθυμιάσεις. Η θερμοκρασία αναφλέξεως πρέπει να είναι άνω των 160<sup>ο</sup>C.

Αναφοριὰ με τα 1. και 2., βλέπε περιθώρια 3150, 3151(β) και 3153.

Περὶ περιθωρίου 2101, 6°, 7°, 8° (α) και (β) και 3103 9° (α), (β) και (γ):-

- 1.- Τρινιτροτολουόλη (TOLITE), μίγματα οριζόμενα ως τρινιτροτολουόλη και τρινιτροανισόλη (6°), HEXYL (εξανιτροδιφαινυλαμίνη) και πικρικό οξύ (7° (α)), πεντολίτης (μίγματα τετρανιτρικής πενταερυθριτόλης και τρινιτροτολουόλη) και εξολίτης (μίγματα τριμαθυλενιο-τρινιτραμίνης και τρινιτροτολουόλης) (7° (β)), αδρανοποιημένος πενθρίτης και αδρανοποιημένο εξογόνο (7° (γ)), TRINITRORESORCINOL (8° (α)), τετρώλη (τρινιτροφαινυλομεθυλονιτραμίνη) (8° (β)), πενθρίτης (τετρανιτρική πέντερυθριτόλη) και εξογόνο (τριμεθυλενο-τρινιτραμίνη) (9° (α)), πεντολίτης (μίγματα πενθρίτου και τρινιτροτολουόλης) και εξολίτης (μίγματα εξογόνου και τρινιτροτολουόλης) (9° (β)) και μίγματα πενθρίτου ή εξογόνου με κηρό, κηρό παραφίνης ή όλες όμοιες με κηρό ή κηρό παραφίνης (9° (γ)), θερμαινόμενα για 3 ώρες σε θερμοκρασία 90°C, δεν πρέπει να αναδίδουν ορατές κιτρινο-φαιές νιτρώδεις αναθυμιάσεις. Βλέπε περιθώρια 3150 και 3152 (α).
- 2.- Οργανικές νιτρο-ενώσεις αναφερόμενες υπό στοιχείο 8° εκτός από TRINITRORESORCINOL και τετρώλη (τρινιτροφαινυλομεθυλονιτραμίνη), θερμαινόμενες για 48 ώρες σε θερμοκρασία 75°C, δεν πρέπει να αναδίδουν ορατές κιτρινο-φαιές νιτρώδεις αναθυμιάσεις. Βλέπε περιθώρια 3150 και 3152(β).
- 3.- Οργανικές νιτρο-ενώσεις αναφερόμενες υπό στοιχείο 8° δεν πρέπει να είναι περισσότερο ευαίσθητες στην ανάφλεξη, κρούση ή τριβή από:-

την TRINITRORESORCINOL, εάν είναι διαλυτές στο νερό.  
 τη τετράλη (τρινιτροφαινυλομεθυλονιτραμίνη), εάν δεν είναι διαλυτές στο νερό.

3103  
 (Συνεχίζεται)

Βλέπε περιθώρια 3150, 3152, 3154, 3155 και 3156.

Περὶ περιθωρίου 2101, II<sup>ο</sup>(α) και (β): 3104

- 1.- Η μαύρη πυρίτιδα (II<sup>ο</sup>(α)) δεν πρέπει να είναι περισσότερο ευαίσθητη στην ανάφλεξη φλόγας, κρούση ή τριβή από τη λεπτότερη πυρίτιδα κυνηγίου έχουσα τη παρακάτω σύνθεση: 75 γραμμάκια εκατό νιτρικό κάλιο, 10 γραμμάκια εκατό θείο και 15 γραμμάκια εκατό μαύρο ξυλάνθρακα (BLACK ALDER CHARCOAL). Βλέπε περιθώρια 3150, 3154, 3155 και 3156.
- 2.- Βραδυφλεγής πυρίτις ορυχείων όμοια με μαύρη πυρίτιδα (II<sup>ο</sup>(β)) δεν πρέπει να είναι περισσότερο ευαίσθητη σε ανάφλεξη φλόγας, κρούση ή τριβή από το βασικό εκρηκτικό που έχει τη παρακάτω σύνθεση:  
 75 γραμμάκια εκατό νιτρικό κάλιο, 10 γραμμάκια εκατό θείο και 15 γραμμάκια εκατό λιγνίτη. Βλέπε περιθώρια 3150, 3154, 3155 και 3156.

Περὶ περιθωρίου 2101, I2<sup>ο</sup>:- Νιτρικά εκρηκτικά υπό μορφή κόνεως (πυρίτιδος), (I2<sup>ο</sup>(α)), και εκρηκτικά μη περιέχοντα ανόργανα νιτρικά άλατα, υπό μορφή κόνεως (πυρίτιδος (I2<sup>ο</sup>(β))), πρέπει να είναι ικανά να εναποθηκευθούν για 48 ώρες σε 75<sup>ο</sup>C χωρίς να αναδίδουν ορατές κιτρινο-φαιές νιτρώδεις αναθυμιάσεις. Προ και μετά την αποθήκευση δεν πρέπει να είναι περισσότερο ευαίσθητες στην ανάφλεξη φλόγας,

3105



πρόσκρουση ή τριβή από το βασικό εκρηκτικό που έχει τη 3105  
παρακάτω σύνθεση: (Συνεχίζεται)

80 στα εκατό νιτρικό αμμώνιο, 12 στα εκατό τρι-  
τροτολουόλη, 6 στα εκατό νιτρογλυκερίνη και 2 στα ε-  
κατό ξυλάλευρο. Βλέπε περιθώρια 3150, 3152(β), 3154(α)  
και (β), 3155 και 3156.

Δείγμα του ανωτέρω αναφερομένου εκρηκτικού ελ-  
ναι στη διάθεση των Συμβαλλομένων Κράτων υπό του LABORA-  
TOIRE DU CENTRE D'ETUDES ET RECHERCHES DES CHARBONNAGES DE  
FRANCE (CERCHAR), BOITE POSTALE No. 2, 60550 VERNEUIL-EN-  
HALATTE, FRANCE (Εργαστηρίου του Κέντρου Σπουδών και Ερευ-  
νών των Ανθρακωρυχείων της Γαλλίας).

Περί περιθωρίου 2101, 13<sup>ο</sup>: Χλωρικά και υπερ- 3106  
χλωρικά εκρηκτικά πρέπει να περιέχουν αμμωνιακό άλας. Δεν  
πρέπει να είναι περισσότερο ευαίσθητα στην ανάγλεξη φλόγας  
πρόσκρουση ή τριβή από χλωρικό εκρηκτικό που έχει τη παρα-  
κάτω σύνθεση: 80 στα εκατό χλωρικό κάλιο, 10 στα εκα-  
τό δινιτροτολουόλη, 5 στα εκατό τρινιτροτολουόλη, 4  
στα εκατό κικινέλαιο και 1 στα εκατό ξυλάλευρο. Βλέπε  
περιθώρια 3150, 3154, 3155 και 3156.

Περί περιθωρίου 2101, 14<sup>ο</sup> (α) και (β): Εκρηκτι- 3107  
κά της 14<sup>ο</sup> (α) και (β) δεν πρέπει να είναι περισσότερο εαί-  
σθητα στην ανάφλεξη-φλόγας, πρόσκρουση ή τριβή από την εκρη-  
κτική ζελατίνη περιέχουσα 93 στα εκατό νιτρογλυκερίνη  
ή συναμίτη GUHR περιέχοντα όχι περισσότερο από 75 στα εκα-  
τό νιτρογλυκερίνη. Πρέπει να ικανοποιούν τον έλεγχο εξιδρώσε-  
ως του περιθωρίου 3158. Βλέπε περιθώρια 3150, 3154(β),

3155 και 3156.

3107

Περὶ περιθωρίου 2101, 14°(γ): Εκρηκτικά της 14°(γ) πρέπει να είναι ικανά να αποθηκευθούν για 48 ώρες σε 75°C, χωρίς να αναδίδουν ορατές κίτρινο-φαιές νιτρώσεις αναθυμιάσεις. Προ και μετά την εναποθήκευση δεν πρέπει να είναι περισσότερο ευαίσθητα στην ανάφλεξη φλόγας, πρόσκρουση ή τριβή από το βασικό εκρηκτικό που έχει τη παρακάτω σύνθεση: 37.7 στα εκατό νιτρογλυκόλη ή νιτρογλυκερίνη ή μίγμα των δύο, 1.8 στα εκατό βαμβακοπυρίτιδα, 4 στα εκατό τρινιτροτολουόλη, 52.5 στα εκατό νιτρικό αμμώνιο και 4 στα εκατό ξυλάλευρο. Βλέπε περιθώρια 3150, 3152(β), 3154(α), (β), (γ) και (δ), 3155 και 3156. (Συνεχίζεται)

Περὶ περιθωρίου 2131, 1°(β): Η εκρηκτική ύλη δεν 3108 πρέπει να είναι περισσότερο ευαίσθητη στην ανάφλεξη φλόγας, πρόσκρουση ή τριβή από την τετράλη. Βλέπε περιθώρια 3150, 3154, 3155 και 3156.

Περὶ περιθωρίου 2131, 1°(γ): Η εκρηκτική ύλη δεν 3109 πρέπει να είναι περισσότερο ευαίσθητη στην ανάφλεξη φλόγας πρόσκρουση ή τριβή από τον πενθάρτη. Βλέπε περιθώρια 3150, 3154, 3155 και 3156.

Περὶ περιθωρίου 2131, 5°(δ): Η γόμωση μεταδόσεως 3110 δεν πρέπει να είναι περισσότερο ευαίσθητη στην ανάφλεξη φλόγας, πρόσκρουση ή τριβή από την τετράλη. Βλέπε περιθώρια 3150, 3154, 3155 και 3156.

Περὶ περιθωρίου 2170, (2)(δ): Η γόμωση του εκρηκτικού, αφού αποθηκευθεί για τέσσερες εβδομάδες σε 50°C, δεν πρέπει να δεικνύει δείγματα χειροτερεύσεως οφειλόμενα εε 3111

ανεπαρκή σταθερότητα (ευστάθεια). Βλέπε περιθώρια 3111 3150 και 3157.

Περὶ περιθωρίου 2551, 1<sup>ο</sup> ἕως 50<sup>ο</sup>: Οι ὅλες θα 3112  
υπόκεινται σε έλεγχο που περιγράφεται στα περι-  
θώρια 3154, 3155 και 3156.

#### B.- Κανόνες για ελέγχους

(1) Οι διαδικασίες ελέγχου, που εκτίθενται παρα- 3150  
κάτω, πρόκειται να εφαρμοσθούν όταν προκύψουν διάφορες γνώ-  
μες αναφορικά με την αποδοχή των υλών σε οδική μεταφορά.

(2) Εάν άλλες μέθοδοι ή διαδικασίες ελέγχου χρη-  
σιμοποιούνται για την επαλήθευση των ὁρων ευσταθείας των  
περιγραφομένων ανωτέρω στην Προσθήκη αυτή, οι μέθοδοι  
αυτές πρέπει να οδηγούν στα ίδια ευρήματα που θα μπορούσαν  
να φθάσουν δια των παρακάτω οριζομένων μεθόδων.

(3) Κατά την διεξαγωγή των δοκιμών ευσταθείας δια-  
θερμάνσεως <sup>που</sup> περιγράφεται παραπάνω, η θερμοκρασία του κλίβα-  
νου που περιέχεται στο υπό δοκιμή δείγμα δεν πρέπει να παρε-  
κλίνει περισσότερο από 2<sup>ο</sup>C από την προβλεπόμενη θερμοκρα-  
σία. η προβλεπόμενη διάρκεια 30-λέπτου ή 60-λέπτου δοκιμής  
πρέπει να τηρείται εντός δύο λεπτών, της 48ώρου δοκιμής εντός  
μιάς ώρας, και της δοκιμής 4-εβδομάδων εντός 24 ωρών.

Ο κλίβανος πρέπει να είναι τέτοιος ώστε η απαι-  
τούμενη θερμοκρασία να εναποθηκεύεται όχι περισσότερο των  
πέντε λεπτών μετά την παρεμβολή του δείγματος.

(4) Προτού υποβληθούν σε δοκιμή, που προβλέπε-  
ται από το περιθώριο 3151, 3152, 3153, 3155 και 3156,  
τα δείγματα πρέπει να ξηρανθούν όχι λιγώτερο των 15 ωρών

σε θερμοκρασία του περιβάλλοντος και σε στεγνωτήριο 3150  
 κενό (VACUUM DESICCATOR) <sup>που</sup> περιέχει τηκτό και κοκ- (Συνεχίζεται)  
 κώδες χλωριούχο ασβέστιο, της ύλης του δείγματος απ-  
 πλωμένης σε λεπτό στρώμα. Για τον σκοπόν αυτόν, ύλες  
 που δεν είναι υπό μορφή κόκκων ουδέ υπό μορφήν ινών  
 θα αλεσθούν, ή τρυβούν, ή κοπούν σε μικρά τεμάχια. Η  
 σε στεγνωτήριο πίεση πρέπει να αχθεί κάτω των  
 50 MM υδραργύρου.

(5)(α) Προτού ξηρανθούν, ως προβλέπεται στη πα-  
 ράγραφο (4), ανωτέρω, οι ύλες του περιθωρίου 210I, 1<sup>ο</sup>  
 (εκτός εκείνων που περιέχουν κηρόν παραφίνης ή παρεμ-  
 φερή ύλη), 2<sup>ο</sup>, 9<sup>ο</sup>(α) και (β), και οι ύλες του περιθω-  
 ρίου 240I, 7<sup>ο</sup>(β), θα υποστούν προκαταρκτική ξήρανση <sup>μία</sup>  
 σε κλίβανο ξήρανσεως καλώς-εξαερισμένου, με τη θερ-  
 μοκρασία του ρυθμισμένη στους 70<sup>ο</sup>C. μέχρις ότου η απώ-  
 λεια του βάρους ανά τέταρτο είναι μικροτέρα του 0.3  
 εκατόν του αρχικού βάρους.

(β) Για ύλες του περιθωρίου 210I, 1<sup>ο</sup> (όταν  
 περιέχουν κηρόν παραφίνης ή παρεμφερή ύλη), 7<sup>ο</sup>(γ) και  
 9<sup>ο</sup>(γ), η προκαταρκτική ξήρανση πρέπει να διεξαχθεί ως  
 προβλέπεται υπό του ανωτέρω εδαφίου (α), εκτός του ότι η  
 θερμοκρασία του κλιβάνου θα ρυθμισθεί μεταξύ 40<sup>ο</sup> και 45<sup>ο</sup>C.

(6) Η νιτροκυτταρίνη του περιθωρίου 240I, 7<sup>ο</sup>(α)  
 θα υποβληθεί αρχικά στην ξήρανση <sup>που προβλεπεται</sup>  
 υπό της ανωτέρω παράγραφου 5(α). η ξήρανση ακολούθως θα  
 ολοκληρώνεται με διατήρησιν της νιτροκυτταρίνης επί 15  
 ώρες τουλάχιστον πάνω από συμπεπυκνωμένου θειϊκού οξέος  
 σε στεγνωτήριο.

Έλεγχος χημικής ευσταθείας υπό θερμότηταΠερί περιθωρίων 3101 και 3102

(α) Έλεγχος υλών απαριθμουμένων στο περιθώριο 3101 3151

(I) Σε κάθε ένα από δύο γυάλινους δοκιμαστικούς σωλήνες που έχουν τις παρακάτω διαστάσεις:-

μήκος ..... 350 MM

εσωτερική διάμετρος ..... 16 MM

πάχος τοιχώματος ..... 1.5 MM

τοποθετείται 1 γραμ. ύλης ξηρανθείσης του παρακλωριώχου ασβεστίου (εάν είναι απαραίτητο η ξήραση πρέπει να διεξαχθεί μετά την ελάττωση της ύλης σε τεμάχια <sup>που</sup> ζυγίζονται όχι άνω των 0.05 γραμ. το καθένα). Και οι δύο οι δοκιμαστικοί σωλήνες, τελείως καλυμμένοι με χαλαρά εφαρμοζόμενα κλεισίματα, τοποθετούνται μετά σε κλίβανο στο οποίο τουλάχιστον τα τέσσερα πέμπτα του μήκους των είναι ορατά, και διατηρούνται σε σταθερή θερμοκρασία 132<sup>o</sup>C επί 30 λεπτά. Παρατηρούνται εάν νιτρώδη αέρια υπό την μορφήν κιτρινοφαιών αναθυμιάσεων σαφώς ορατών σε λευκό φόντο αναδίδονται διαρκούντος του χρόνου αυτού.

(2) Ελλείψει τολούτων αναθυμιάσεων η ύλη θεωρείται ότι είναι σταθερή.

(β) Έλεγχος κόνεων απαριθμουμένων στο περιθώριο 3102.

(I) Κόνεις νιτροκυτταρίνης μη περιέχουσai νιτρογλυκερίνη, ζελατινοποιημένη ή όχι και πλαστικοποιημένη νιτροκυτταρίνη: 3 γραμ. κόνες τοποθετούνται στους γυάλινους δοκιμαστικούς σωλήνες, όμοιους με τους αναφερομένους εις (α), οι οποίοι εν συνεχεία τοποθετούνται σε κλίβανο τηρούμενο

σε σταθερή θερμοκρασία  $132^{\circ}\text{C}$ .

3151

(2) Κόνεις νιτροκυτταρίνης περιέχουσai νιτρο- (Συνεχίζεται)  
γλυκερίνη : Έ γραμ. κόνεως τοποθετείται σε γυάλινους δοκι-  
μαστικούς σωλήνες, όμοιους με τους αναφερομένους εις (α),  
οι οποίοι ακολουθώς τοποθετούνται σε κλίβανο τηρούμενο σε  
σταθερή θερμοκρασία  $110^{\circ}\text{C}$ .

(3) Οι δοκιμαστικοί σωλήνες οι περιέχοντες τας  
κόνεις τας αναφερομένας εις (1) και (2) τηρούνται εντός κλι-  
βάνου επί μίαν ώρα . Διαρκούντος του χρόνου αυτού νιτρώδη  
αέρια δεν πρέπει να είναι ορατά. Παρατήρηση και εκτίμησh  
ως εις (α).

Περί περιθωρίων 3103 και 3105

(α) Έλεγχος υλών απαριθμουμένων στο περιθώριο 3103, I. 3152

(1) Δύο δείγματα εκρηκτικού το καθένα <sup>που</sup> ζυγίζουv  
10 γραμ. τοποθετούνται σε κυλινδρικές φιάλες ζυγίσεως που  
έχουν εσωτερική διάμετρο 3 CM και ύψος 5 CM αποκάτω της  
πλευράς του καλύμματος· οι φιάλες κλείνονται ακολουθώς  
ερμητικά με τα καλύμματά τους και θερμαίνονται για τρεις  
ώρες σε σταθερή θερμοκρασία  $90^{\circ}\text{C}$  μέσα σε κλίβανο στον ο-  
ποίο είναι σαφώς ορατές.

(2) Διαρκούντος του χρόνου αυτού νιτρώδη αέ-  
ρια δεν πρέπει να είναι ορατά. Παρατήρηση και εκτίμηση  
όπως στο περιθώριο 3151 (α).

(β) Έλεγχος υλών απαριθμουμένων στα περιθώρια 3103, 2 και  
3105.

(1) Δύο δείγματα εκρηκτικού το καθένα <sup>που</sup> ζυγίζουv  
10 γραμ. τοποθετούνται σε κυλινδρικές φιάλες ζυγίσεως που

έχουν εσωτερική διάμετρο 3 CM και ύψος 5 CM από κάτω 3152  
της πλευράς του καλύμματος· οι φιάλες ακολούθως κλει- (Συνεχίζε-  
νονται ερμητικά με τα καλύμμά τους και θερμαίνονται ται)  
για 48 ώρες σε σταθερή θερμοκρασία 75°C μέσα σε κλίβανο  
στον οποίο είναι καθαρά ορατές.

(2) Κατά το χρονικό αυτό διάστημα δεν πρέπει να  
είναι ορατά υγρώδη αέρια. Παρατήρηση και εκτίμηση ως  
εις περιθώριο 3151(α).

Θερμοκρασία Αναφλέξεως (βλέπε περιθώρια 3101 και 3102)

(1) Η θερμοκρασία αναφλέξεως καθορίζεται δια 3153  
θερμάνσεως 0.2 γραμ. ύλης κλεισμένης σε γυάλινο δοκιμα-  
στικό σωλήνα βυθισμένο σε λουτρό κράματος WOOD. Ο δο-  
κιμαστικός σωλήνας τοποθετείται στο λουτρό όταν το τε-  
λευταίο φθάσει τους 100°C. Η θερμοκρασία του λουτρού  
αυξάνεται ακολούθως προοδευτικά κατά 5°C ανά λεπτό .

(2) Οι δοκιμαστικοί σωλήνες πρέπει να έχουν τις  
παρακάτω διαστάσεις:-

μήκος .....	125 MM
εσωτερική διάμετρος .....	15 MM
πάχος τοιχώματος .....	0.5 MM

και πρέπει να είναι βυθισμένοι σε βάθος 20 MM.

(3) Ο έλεγχος πρέπει να επαναληφθεί τρεις φορές,  
της θερμοκρασίας εις την οποίαν η ανάφλεξη της ύλης λαμ-  
βάνει χώρα , π.χ., βραδεία ή ταχεία καύση, ανάφλεξη ή  
ακαριαία έκρηξη (εκτόνωση), σημειουμένης κάθε φορά.

(4) Η κατωτάτη θερμοκρασία που καταγράφεται στους  
τρεις ελέγχους είναι η θερμοκρασία ανάφλεξης.

Έλεγχος ευαισθησίας εις ερυθροπύρωση και ανάφλεξη 3154  
φλόγας (βλέπε περιθώρια 3103 έως 3110).

(α) Έλεγχος εις ερυθροπυρωμένη ημισφαιρική σιδηρά χοάνη (βλέπε περιθώρια 3103 έως 3106 και 3108 έως 3110).

(1) Οι προς εξέταση ποσότητες του εκρηκτικού αυξανόμενες από 0.5 γραμ. εις 10 γραμ. ρίπτονται μέσα σε ερυθροπυρωμένη ημισφαιρική σιδηρά χοάνη πάχους 1 MM και διαμέτρου 120 MM.

Τα αποτελέσματα του ελέγχου ταξινομούνται *παράτω:*

- 1.- ανάφλεξη με βραδεία καύση (εκρηκτικά με βάση νιτρικού καθ' αμμωνίου).
- 2.- ανάφλεξη με ταχεία καύση (χλωρικά εκρηκτικά).
- 3.- ανάφλεξη με βιαία καύση και κατάκαυση (μαύρη πυρίτις).
- 4.- ακαριαία έκρηξη (εκτόνωση) (βροντώδης υδράργυρος).

(2) Το αποτέλεσμα (επίδραση) επί της αλληλουχίας των γεγονότων του ποσού που χρησιμοποιήθηκε εκρηκτικού πρέπει να λαμβάνεται υπόψη.

(3) Το προς εξέταση εκρηκτικό δεν πρέπει να δεικνύει βασική διαφορά από το στάνταρντ εκρηκτικό.

(4) Οι σιδηρές χοάνες πρέπει να έχουν προσεκτικά καθαρισθεί *πριν από κάθε έλεγχο* και να αντικαθίστανται σε συχνά χρονικά διαστήματα.

(β) Έλεγχος της Περιπτώσεως αναφλέξεως (βλέπε περιθώρια 3103 έως 3110).

(1) Το προς εξέταση εκρηκτικό τοποθετείται σε μικρό



σώρο πάνω σε σιδηρό έλασμα σε ποσότητες αυξανόμενες -υπό 3154  
το φώς των αποτελεσμάτων του ελέγχου κατά την (α)- από (Συνεχίζεται)  
0.5 γραμ. έως το ανώτατο 100 γραμ.

(2) Ένα αναμμένο σπύρτο τοποθετείται στη κορυφή της μικρής σωρού και λαμβάνεται σημείωση εάν το εκρηκτικό αναφλαγεί και καεί βραδέως, κατακαεί, ή καεί ακαριαία, και εάν, *μία φορά* έλαβε χώρα η ανάφλεξη, η καύση εξακολουθεί ακόμη και μετά το σβύσιμο (την απομάκρυνση) του σπύρτου. Εάν δεν λάβει χώρα ανάφλεξη παρόμοιος έλεγχος γίνεται, φέρνοντας το εκρηκτικό σε επαφή με φλόγα αερίου και σημειούνται τα αυτά σημεία.

(3) Τα αποτελέσματα του ελέγχου συγκρίνονται με τα επιτυγχανόμενα με το βασικό (στάνταρντ) εκρηκτικό.

(γ) Έλεγχος καύσεως με συνθήκες εγκλεισεως εντός κυτρίου από φύλλα χάλυβος (βλέπε περιθώριο 3107)

(I) Ο έλεγχος της καύσης διεξάγεται σε κυβικό κιβώτιο, κατασκευασμένο από φύλλα χάλυβα με άκρα μήκους 8 CM και πάχος τοιχώματος 1 MM. Το κιβώτιο είναι κατασκευασμένο από φύλλα πυρακτωμένου μαλακού χάλυβα και κλεισμένο κατά τρόπο όσο το δυνατόν ερμητικό δια πτυχώσεως του άκρου του υπεράνω καλύμματος (εικόν I.).

(2) Στη περίπτωση εκρηκτικών που είναι ευάλωτα στη τριβή, η άνω επιφάνεια πρέπει να καλύπτεται με φύλλο χαρτιού για να αποφευχθεί η διαφυγή μορίων του εκρηκτικού μεταξύ των άκρων και η παγίδευση των εκεί όταν το άκρο του καλύμματος λυγισθεί. Το κιβώτιο πληρούται εξ ολοκλήρου με το εκρηκτικό εις τρόπον ώστε το τελευταίο να έχει όσο το

δύνατο την αυτήν πυκνότητα όπως όταν είναι σε φυσίγγια. 3154  
 Το κιβώτιο τοποθετείται στην πυρά με προσοχή· θα πρέπει (Συνεχίζεται)  
 αρχικώς να τυλιχθεί, π.χ., σε πολλά στρώματα χάρτου συ-  
 σκευασίας προς αποφυγήν αμέσου αναφλέξεως του εκρηκτικού.

Ένας σωρός από ξύλα ύψους 0.8 M. ετοιμάζεται δια  
 τη φωτιά με αρχική τοποθέτηση επί του εδάφους ενός λεπτού  
 στρώματος ξυλοβάμβακος και εν συνεχεία επάνω από αυτό, κελ-  
 μενά οριζόντια τρία καυσόξυλα (κούτσουρα) μήκους περίπου  
 0.5 M και διαμέτρου 0.25 M. Εγκαρσίως αυτών τοποθετούνται  
 τρία ακόμη καυσόξυλα ομοίου μεγέθους. Επάνω από όλα τοπο-  
 θετούνται τρία στρώματα μικρών ράβδων κομμένων περίπου σε  
 μήκος 0.2 M, με ξυλοβάμβακα μεταξύ των στρωμάτων. Σε κάθε  
 πλευρά, τρία ή τέσσερα τεμάχια ξύλου μήκους περίπου 0.5 M  
 ακουμπούμται στη σωρό για να την εμποδίσουν να πέσει όταν  
 θα καίγεται. Η σωρός ανάβεται με αναμμένη θρυαλλίδα από  
 ξυλοβάμβακα.

(3) Παρατηρήσεις γίνονται δια να ιδούμε εάν το  
 εκρηκτικό αναφλέγεται ή εκρήγνυται· πόσην ώραν καίει και τι  
 φαινόμενα συνοδεύουν την καύση και τι αλλαγές υπέστη το  
 κιβώτιο.

(4) Ο έλεγχος διεξάγεται τέσσερες φορές. Φωτο-  
 γραφία λαμβάνονται των χαλυβδίνων κιβωτίων μετά την χρησι-  
 μοποίησ τους.

(δ) Έλεγχος θερμάνσ σε περιωρισμένο χώρο σε χαλύβδι-  
 νο σωλήνα με βαθμονομημένη διάτρητο πλάκα (έλεγχος  
 χαλυβδίνου σωλήνος) (βλέπε περιθώρια 3103 έως 3110  
 και 3112)

(1) Οι έλεγχοι των (α) έως (γ) μπορούν να συμπληρωθούν από τον παρακάτω έλεγχο. 3154  
(Συνεχίζεται)

(2) Περιγραφή του χαλυβδίνου σωλήνος (Εικόν 2):

Ο σωλήνας κατασκευάζεται δια πίεσεως εκ φύλλου μετάλλου καταλλήλου για βαθύ εφελκυσμό. 1/ Αι διαστάσεις είναι: εσωτερική διάμετρος 24 MM\* πάχος τοιχώματος 0.5 MM\* μήκος 75 MM. Στο ανοικτό άκρο εφαρμόζεται μια εξωτερική φλάντζα. Ο σωλήνας κλείνεται με ανθεκτική στη πίεση κεντρική διάτρητο πλάκα στερεωμένη στεγανά πάνω στη φλάντζα με εξωτερικά κοχλιωμένο κολλάρο περαστό στον σωλήνα και με παξιμάδι κιβωτίου κοχλιωμένο πάνω στο κολλάρο αυτό. Η πλάκα κατασκευάζεται από ανθεκτικό στη θερμότητα χρωμιούχο χάλυβα 2/ πάχους 6 MM. Δια να επιτραπεί η διαφυγή των αερίων της αποσυνθέσεως, χρησιμοποιούνται πλάκες με κυλινδρο-κεντρικές διατρήσεις (α) των κάτωθι διαμέτρων:  
1.0-1.5-2.0-2.5-3-4-5-6-8-10-12-14-16-18-20 MM\* διάμετρος 24 MM προστίθεται όταν ο σωλήνας χρησιμοποιείται χωρίς διάτρητο πλάκα και μηχανισμό κλεισίματος. Το κοχλιωτό κολλάρο και παξιμάδι κατασκευάζονται από μαγγάνιο-χρωμιούχο χάλυβα μη-εκλεπιζόμενο μέχρι τους 800°C. 1/

1/ π.ψ. Υλική Προδιαγραφή Αρ. I.0336.505 ζ, συμφώνως προς DIN I623 SHEET I.

2/ π.χ. Υλική Προδιαγραφή Αρ. I.4873, συμφώνως προς SHEET "STAHL-EISEN-WERKSTOFF" 490-52.

1/ π.χ. Υλική Προδιαγραφή Αρ. I.3817, συμφώνως προς SHEET "STAHL-EISEN-WERKSTOFF" 490-52.

Για διάτρητες πλάκες διαμέτρου I έως 8 MM, περικόχλια (πα- 3154  
 ξιμάδια) διατρήσεως (β) διαμέτρου 10 MM πρέπει να χρη- (Συνεχίζεται)  
 σιμοποιούνται· εά η διάμετρος της διατρήσεως είναι άνω  
 των 8 MM, τότε η διάμετρος διατρήσεως του περικοχλίου  
 πρέπει να είναι 20 MM. Κάθε σωλήνας χρησιμοποιείται δι'  
 έναν έλεγχο και μόνον. Αφ'ετέρου, οι διάτρητες πλάκες,  
 τα κοχλιωτά κολλάρα και παξιμάδια μπορούν να χρησιμοποιη-  
 θούν και πάλιν εφ'όσον δεν έχουν καταστραφεί. Μετά από  
 κάθε έλεγχο πρέπει να μετράται η διάτρησις.

(3) Θέρμανσις και προστατευτικός μηχανισμός

(Εικόν 3):-

Η θέρμανσις παρέχεται δια δημοτικού αερίου καθα-  
 ράς θερμικής τιμής 4,000 KCAL/MM<sup>3</sup>, από 4 καυστήρες παρά-  
 γοντες περίπου 2.4 KCAL/SEC για κατανάλωση 0.6 I/SEC.

Επειδή η καταστροφή του σωλήνα είναι δυνατή, η  
 θέρμανσις αναλαμβάνεται μέσα σε αδιαπέραστο από θραύσμα-  
 τα συγκολλημένο κιβώτιο, κατασκευασμένο από χάλυβα πάχους  
 10 MM, ανοικτό στη μία πλευρά και στο άνω μέρος. Ο σωλήνας  
 αιωρείται μεταξύ δύο ράβδων διαμέτρου 4 MM παρεμβαλλομένων  
 δι'οπών διατρηθεισών στα έναντι τοιχώματα του κιβωτίου,  
 και ακολούθως θερμαίνεται δια τεσσάρων καυστήρων TECLU  
 (διαμέτρου εξωτερικού σωλήνος 19 MM), του κατωτάτου καυστή-  
 ρος θερμαίνοντος τον πυθμένα του σωλήνα, των δεξιού και  
 αριστερού καυστήρων θερμαινόντων τα τοιχώματα, και του ο-  
 πισθίου καυστήρος το κλείσιμον. Οι σωλήνες του καυστήρος  
 παρεμβάλλονται και ασφαρίζονται (στηρίζονται) σε οπές διαμέ-  
 τρου 20 MM διατρηθείσες στα τοιχώματα του αδιαπέραστου από

θραύσματα κιβωτίου. Οι καυστήρες ανάβονται ταυτόχρονα 3154  
με βοηθητικό αναβλυστήρα και ρυθμίζονται σε άφθονη (Συνεχίζεται)  
παροχή αέρα εις τρόπον ώστε οι κορυφές των κυανών  
εσωτερικών κώνων των φλογών να ακουμπούν σχεδόν τον  
σωλήνα.

Η δλη εγκατάσταση περιέχεται σε τράπεζα δο-  
κιμής χωριζομένην από τον χώρο της παρατηρήσεως δι' ι-  
σχυρού τοίχου εις τον οποίον έχουν διευθετηθεί οπές  
διοπτύσεως προστατευόμενες από ωπλισμένην ύαλον και  
χαλύβδινες πλάκες. Το αδιαπέραστο από θραύσματα κιβώτιο  
τοποθετείται με την ανοικτή του πλευρά προς τον χώρο πα-  
ρατηρήσεως, με προσοχήν όπως οι φλόγες μη επηρεασθούν  
από ρεύματα. Εξοπλισμός δια την εξαγωγήν αερίων αποσυν-  
θέσεως και καπνού εκ της εκρήξεως εγκαθίσταται στο δο-  
κιμαστήριον.

Εάν δημοτικόν αέριον δεν διατίθεται, προπάνιον  
μπορεί να χρησιμοποιηθεί δια θέρμανσιν. Στην περίπτωση αυ-  
τή το προπάνιο λαμβάνεται από βιομηχανικόν κύλινδρον  
εφοδιασμένον με ρυθμιστή πίεσεως (υδροδείκτης 500 MM),  
διά τινος μετρητή (μετρητού τύπου φυστηρός με ικανότη-  
τα 2 λιτρών σε υδροδείκτη 500 MM), και διανέμεται δια σω-  
ληνώσεως εις τους τέσσερες καυστήρες, οι αναβλυστήρες των  
οποίων έχουν διάμετρον 0.8 MM. Ο καθένας καυστήρας κατα-  
ναλίσκει όχι περισσότερον από περίπου 1.7 λίτρα προπανί-  
ου ανά λεπτόν. Οι κύλινδροι αερίου και ο μετρητής το-  
ποθετούνται έξω από τη τράπεζα δοκιμής.

(4) Διαδικασία (μέθοδος) ελέγχου:-

Ο σωλήνας πληρούται με την εκρηκτική ύλη μέχρι 15 MM της κορυφής, τ.έ. σε ύψος 60 MM. Εάν η ύλη είναι υπό μορφήν κόνεως συμπιέζεται δια προσεκτικού και ελαφρού ανοίγματος του σωλήνα και ακολούθως δι' ελαφράς πίεσεως με μικρή ξύλινη ράβδο. Εάν η ύλη είναι υπό μορφήν ζελατίνης τοποθετείται στον σωλήνα με την βοήθεια σπάτουλας· μετά από κάθε προσθήκη η ύλη πιέζεται ελαφρά προς τα κάτω με μια μικρή ξύλινη ράβδο προς εξάλειψιν των απορροφήσεων αέρος. Όταν η ποσότης της τεθείσης ύλης ζυγισθεί, το κοχλιωτό κολλάρο περνιέται στον σωλήνα, η απαιτούμενη διάτρητη πλάκα τοποθετείται στη θέση της, και το παξιμάδι σφίγγεται με το χέρι. Ουσιαστές είναι να βεβαιούμεθα ότι μέρος της ύλης δεν έχει παγιδευθεί μεταξύ της φλάντζας και της πλάκας, ή εις τις κοχλιώσεις. Ο σωλήνας τοποθετείται ακολούθως σε μέγγενη με θωράκιση κατά της εκρήξεως εξ αμελείας, και το παξιμάδι σφίγγεται πλήρως με κλειδί. Ο σωλήνας, ήδη έτοιμος δια τον έλεγχο, αιωρείται μεταξύ των δύο ράβδων στο αδιαπέραστο από θραύσματα κιβώτιο· ο βοηθητικός αναβλυστήρας ανάβεται, και όταν η τράπεζα δοκιμής κλεισθεί ανοίγεται η παροχή του αερίου στους τέσσερες καυστήρες. Ταυτοχρόνως χρονομέτρης τίθεται σε λειτουργία για να μετρήσει τον χρόνο  $T_1$  ο οποίος περνά μεταξύ του ανάμματος των καυστήρων και της αναφλέξεως της ύλης, όπως εικονίζεται δια της διαφυγής φλόγας εκ της οπής της πλάκας, και τον χρόνο  $T_2$  μεταξύ του ανάμματος και της εκρήξεως. Μετά το πέρας του ελέγχου η παροχή αερίου κλείνεται και

3154  
(Συνεχίζεται)

το σύστημα εξαγωγής στην τράπεζα της δοκιμής τίθεται σε 3154 λειτουργία· κανείς δεν πρέπει να εισέλθει στην τράπεζα (Συνεχίζεται)  
δοκιμής εάν δεν παρέλθει αρκετός χρόνος.

Δια να είμεθα βέβαιοι ότι ο μηχανισμός θερμάνσεως λειτουργεί ικανοποιητικά, των δοκιμών πρέπει να προηγείται "εικονική λειτουργία" (DUMMY RUN).

(5) Ερμηνεία των αποτελεσμάτων:

Ο σχετικός βαθμός ευαισθησίας μίας ύλης προς τη θέρμανση στο χαλύβδινο σωλήνα διαφράζεται δια της οριακής διαμέτρου, δηλαδή της οπής με τη μεγαλύτερη διάμετρο σε χιλιοστάμετρα με την οποία, σε τρεις δοκιμές, ο ένας τουλάχιστον σωλήνας εκρήγνυται, τ.έ. θραύεται σε τουλάχιστον τρία τεμάχια. Η θερμική ευαισθησία αυξάνει με αύξηση της οριακής διαμέτρου και με μείωση των χρόνων  $T_1$  και  $T_2$ .

Οργανικά υπεροξειδία (πλην των υδροποιουμένων ή αραιουμένων με πτητικές ύλες, πχ. ύδωρ) δια τα οποία η οριακή διάμετρος δεν είναι μικρότερη των 2.0 MM πρέπει να θεωρούνται ως εκρηκτικές ύλες της Κλάσεως Ia (βλέπε επίσης σημείωση εις περιθώριον 2550).

(ε) Έλεγχος θερμάνσεως σε αγγείο (σκεύος) πίεσεως με διάτρητον πλάκα και διαρρηκτικόν δίσκον (έλεγχος αγγείου πίεσεως) (βλέπε περιθώριον 3112)

(I) Δι' οργανικά υπεροξειδία, οι έλεγχοι οι εικονιζόμενοι εις (α), (β) και (δ) μπορούν να συμπληρωθούν από τον παρακάτω έλεγχον.

(2) Περιγραφή του αγγείου (σκεύους) πίεσεως (εικόνες 4 έως 6):

Οι Εικόνες 4 έως 6 και οι κατάλληλοι τίτλοι δίδουν 3154 τις λεπτομέρειες της χρησιμοποιηθείσας συσκευής και τις (Συνεχίζονται) διαστάσεις και τα υλικά των συστατικών μερών.

Δέον να σημειωθεί ότι προβλέπεται η χρήση 24 πλάκων, οι δε διάμετροι των οπών είναι: 1.0-1.2-1.5-2.0-2.5-3.0-3.5-4.0-4.5-5.0-5.5-6.0-7.0-8.0-9.0-10.0-11.0-12.0-14.0-16.0-18.0-20.0-22.0 και 24.0 MM. Οι πλάκες αυτές έχουν πάχος 2.0 MM  $\pm$  0.2 MM.

Ο διαρρηκτικός δίσκος (δίσκος εκρήξεως) κόβεται με τρύπανο από φύλλο λευκού ορειχάλκου πάχους 0.05 MM αντέχον σε πίεση εκρήξεως των 5.4  $\pm$  0.5 KG/CM<sup>2</sup> σε κανονική θερμοκρασία. Μη-πυρακτωμένος κυλινδρωςυμπιεστός λευκός ορείχαλκος περιέχων 67 άτομα εκατόν χαλκόν είναι κατάλληλος.

### (3) Μηχανισμός θερμάνσεως:

Το αγγείον πίεσεως θερμαίνεται δια βουτανίου τεχνικής διαβαθμίσεως (TECHNICAL-GRADE) λαμβανόμενον από κύλινδρον εφοδιασμένον με ρυθμιστήν πίεσεως. Η απόδοσις της θερμότητος πρέπει να είναι περίπου 2,700 KCAL/H (ωριαίως). Με καθαρή θερμική τιμή 27,000 KCAL/M<sup>3</sup> (εις 1 ATM και 20°), ο ρυθμός της παροχής αερίου πρέπει να είναι περίπου 100 L/H (ωριαίως). Χρησιμοποιείται καυστήρ βουτανίου TECLU. Η ποσότης του χρησιμοποιηθέντος αερίου μετράται με περιστροφόμετρο ή με άλλον μετρητήν και ρυθμίζεται με τη βαλβίδα του καυστήρα.

Αντί βουτανίου, δημοτικόν αέριον ή προπάνιον μπορεί να χρησιμοποιηθεί με κατάλληλον καυστήρα, υπό τον όρον ότι η εις θερμότητα απόδοσις του αερίου είναι ομοίως περί-



που 2,700 KCAL/H (π.χ., στη περίπτωση του δημοτικού αερίου 3I54 με καθαρά θερμική τιμή 4,050 KCAL/M<sup>3</sup> θα ήταν απαραίτη- (Συνεχίζεται)  
τη η παροχή περίπου 670 I/H).

Ο κύλινδρος αερίου και το περιστροφόμετρο ή άλλος μετρητής πρέπει να ευρίσκονται εκτός της περιοχής ελέγχου.

#### (4) Διαδικασία (μέθοδος) Ελέγχου:

Για κανονική δοκιμή (έλεγχος), 10 γραμμάρια της ύλης τοποθετούνται εις το αγγέλιον (σκεύος). Στην περίπτωση ύλης η ευαισθησία της οποίας είναι άγνωστη αρχίζομε με μικρότερες ποσότητες: κάνομε αρχή με 1 γραμμάριο, ακολούθως (εάν είναι δυνατόν) 5 γραμμάρια, και τελικά 10 γραμμάρια. Ο πυθμώστου αγγείου πρέπει να είναι ομοιόμορφα καλυμμένος με την ύλη. Ο διαρρηκτικός δίσκος, η κεντρική διάτρητη πλάκα και ο δακτύλιος συγκρατήσεως τοποθετούνται εν συνεχεία. Τα πτερυγιωτά περικόχλια (παξιμάδια) σφίγγονται με το χέρι και το περικόχλιο (παξιμάδι) κιβωτίου με κλειδί. Ο διαρρηκτικός δίσκος καλύπτεται με αρκετό νερό δια να τον διατηρεί σε χαμηλή θερμοκρασία.

Το αγγείο (σκεύος) πίεσεως τοποθετείται σε τρίποδον (με διάμετρον εσωτερικού δακτυλίου 67 MM) που είναι εσωτερικά ένας προστατευτικός κύλινδρος. Ο δακτύλιος στον πυθμένα του αγγείου παραμένει (κάθεται) στο τρίποδο.

Ο καυστήρας ανάβεται, η ροή του αερίου ρυθμίζεται στον απαιτούμενο ρυθμό, και η ροή του αέρος ρυθμίζεται κατά τέτοιο τρόπο ώστε το χρώμα της φλόγας να είναι κυανούν και ο εσωτερικός κώνος του φωτός της φλόγας κυα-

νούς. Το τρίποδον πρέπει να έχει τέτοιο ύψος ώστε ο εσωτερικός κώνος να ακουμπά τον πυθμένα του αγγείου. Ακολούθως ο καυστήρας τοποθετείται κάτω από το αγγείο μέσω οπής του προστατευτικού κυλίνδρου.

Ο χώρος των δοκιμών (ελέγχων) πρέπει να εξαερίζεται πολύ καλά η δε είσοδος εις αυτόν να απαγορεύεται διαρκούσης της δοκιμής. Το αγγείον παρατηρείται από έξω είτε με καθρέφτες δι' οπής διοπτρεύσεως στον τοίχο, εφοδιασμένης με ωπλισμένην ύαλον.

Ο χρόνος  $T_1$  μεταξύ της ενάρξεως της θερμάνσεως και της ενάρξεως της αντιδράσεως (φλόγα, παραγωγή καπνού, σφύριγμα) και ο χρόνος  $T_2$  μέχρι της λήξεως της αντιδράσεως (έκρηξις, λήξις σφυρίγματος, ή σβύσιμον της φλόγας) μετρούνται. Το αγγείον ακολούθως ψύχεται με νερό και καθαρίζεται.

#### (5) Ερμηνεία αποτελεσμάτων:

Ο σχετικός βαθμός ευαισθησίας μιάς ύλης στη θέρμανση στο αγγείο πίεσεως εκγράζεται δια της οριακής διαμέτρου, δηλαδή της διαμέτρου της μεγαλύτερας οπής σε χιλιοστάμετρα με την οποία ο διαρρηκτικός δίσκος θραύεται τουλάχιστον μία φορά σε τρεις δοκιμές ενώ παρέμεινε ανέπαφος κατά τη διάρκεια τριών δοκιμών με την επομένη μεγαλύτερη διάμετρο.

Η θερμική ευαισθησία αυξάνει με την αύξηση της οριακής διαμέτρου και τη μείωση των χρόνων  $T_1$  και  $T_2$ .

Οργανικά υπεροξειδία (πλην των υγροποιουμένων ή αραιουμένων με πτητικές ύλες, π.χ. ύδωρ) δια τα οποία η οριακή διάμετρος δεν είναι μικρότερη των 9 MM πρέπει

να θεωρούνται ως εκρηκτικές ύλες της Κλάσεως Ια (βλέπε επίσης σημείωμα στο περιθώριο 2550).

Δοκιμή ευαισθησίας σε πρόσκρουση (βλέπε περιθώρια 3155 3103 έως 3110 και 3112)

(α) Δοκιμή ρίψεως σφύρας (FALL-HAMMER TEST) I (Εικόνες 7 και 8) κατά βασικού (υπ ό έλεγχον) εκρηκτικού

(I). Το εκρηκτικόν, αφού ξηρανθεί όπως περιγράφεται στο περιθώριο 3150, τοποθετείται υπό την ακόλουθη μορφή:

(α) Συμπαγή εκρηκτικά ρινίζονται αρκετά λεπτά δια να διέλθουν χωρίς κατάλοιπα από κόσκινο πλέγματος I MM° μόνο τα επί του κόσκινου πλέγματος 0.5 MM κρατούνται για την επόμενη δοκιμή°

(β) Εκρηκτικά υπό μορφήν κώνων διέρχονται από κόσκινο πλέγματος I MM° ό,τι διέλθει από το κόσκινο αυτό κρατείται για τη δοκιμή προσκρούσεως°

(γ) Πλαστικά και ζελατινώδη εκρηκτικά σχηματίζονται σε μικρά, περίπου σφαιρικά δισκία (καταπότια) ζυγίζονται μεταξύ 25 και 35 MG.

(2) Η συσκευή δια την διεξαγωγή της δοκιμής αποτελείται από ένα βάρος, το οποίον, ολισθαίνον μεταξύ δύο ράβδων, είναι σε θέση να ρυθμισθεί να πέσει από προκαθορισμένο ύψος και να αφηθεί ευχερώς να πέσει. Το βάρος δεν πέφτει απ' ευθείας στο εκρηκτικό, αλλά πέφτει πάνω σε επικρουστήρα D που κάθεται πάνω σε άκμονα (αμόνι) E, και οι δύο (επικρουστήρας και αμόνι) από πολύ σκληρό χάλυβα, και ολισθαίνει ευχερώς στον οδηγό δακτύλιο F (Εικόν 7). Το δείγμα του εκρηκτικού τοποθετείται μεταξύ του επικρουστήρα και του άκμονος. Ο επικρουστήρας, ο άκμονας και ο οδηγός

δακτύλιος ευρίσκονται σε προστατευτικό κύλινδρο C κατα- 3155  
σκευασμένον από σκληρό χάλυβα και τοποθετημένον πάνω (Συνεχίζε-  
ται)  
σε χαλύβδινο συγκρότημα B εντοιχισμένο σε τσιμεντένιο  
συγκρότημα A (Εικών 8). Αι διαστάσεις των διαφόρων εξαρ-  
τημάτων δίδονται στις εικόνες.

(3) Οι δοκιμές εκτελούνται με τη σειρά επί  
του υπό έλεγχον εκρηκτικού και επί του βασικού (CONTROL)  
εκρηκτικού ως εξής:-

(α) Το εκρηκτικόν, υπό μορφήν σφαιρικού δισκίου (καταποτί-  
ου) (εάν είναι πλαστικόν) ή μετρούμενον με κοχλιάριο  
μετρήσεως χωρητικότητας  $0.05 \text{ CM}^3$  (εάν είναι υπό μορφήν  
κόκκων ή ρινισμάτων), τοποθετείται με προσοχήν μεταξύ  
του επικρουστήρος και του άκμονος, αι επιφάνειαι επαφής  
των οποίων δεν πρέπει να είναι υγραί. Η θερμοκρασία  
του περιβάλλοντος δεν πρέπει να υπερβαίνει τους  $30^{\circ}\text{C}$   
ούτε να είναι μικρότερη των  $15^{\circ}\text{C}$ . Κάθε δείγμα του εκρη-  
κτικού πρέπει να υποβάλεται σε μία πρόσκρουση μόνον.

Μετά από κάθε έλεγχο (δοκιμή) ο επικρουστήρας, ο άκμονος  
και ο οδηγός δακτύλιος πρέπει να καθαρίζονται προσεκτι-  
κά, αφαιρουμένου κάθε υπολείμματος του εκρηκτικού.

(β) Οι δοκιμές πρέπει να αρχίζουν από ύψη ρίψεως που ήθε-  
λαν ενδεχομένως προκαλέσει πλήρη έκρηξιν των υπό δοκι-  
μήν εκρηκτικών. Το ύψος ρίψεως μειώνεται βαθμηδόν μέχρις  
όπου η έκρηξις είναι ατελής ή ουδεμία έκρηξις γίνεται.  
Στο ύψος αυτό διεξάγονται τέσσερας δοκιμές προσκρού-  
σεως, και εάν τουλάχιστον μία παράγει ορισμένην έκρη-  
ξιν, τέσσερας επί πλέον δοκιμές ρίψεως από ελαφρώς χα-

μηλότερον ύψος διεξάγονται, και ούτω καθ' εξής.

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(γ) Το χαμηλότερον ύψος ρίψεως το προκαλούν ορισμένην έκρηξη (Συνεχίζεται)  
ξιν σε σειρά τουλάχιστον τεσσάρων δοκιμών στο ύψος  
αυτό λαμβάνεται ως το όριον ευαισθησίας.

(δ) Η δοκιμή προσκρούσεως διεξάγεται κανονικώς με ρίψιν  
βάρους 2 KG· εν τούτοις, εάν η ευαισθησία στη πρόσκρου-  
ση με το βάρος αυτό απαιτεί ύψος ρίψεως μεγαλύτερον  
των 60 έως 70 CM, η δοκιμή προσκρούσεως πρέπει να  
διεξαχθεί με βάρος 5 KG.

(ε) Δοκιμή ρίψεως-σφύρας (FALL-HAMMER TEST) II (Εικόνες 9  
έως 13) με αριθμητικήν διατύπωση της ευαισθησίας σε  
πρόσκρουση (ενέργεια προσκρούσεως σε KGM)

(1) Η δοκιμή η περιγραφομένη στο (α) μπορεί να αντικα-  
τασταθεί από τη παρακάτω δοκιμή.

(2) Περιγραφή της συσκευής:

Τα βασικά εξαρτήματα της συσκευής είναι ο μηχανισμός προσκρούσεως (βλέπε υπό στοιχείον (4)), το <sup>χυτό</sup> χαλύβδινο συγκρότημα με τη βάση, ο άκμων, η στήλη, οι οδηγοί και η σφύρα με μηχανισμόν αφέσεως (Εικόν 9). Ένας χαλύβδινος άκμων (διαμέτρου 100 MM, ύψους 70 MM) βιδώνεται στο χαλύβδινο συγκρότημα (230 X 250 X 200 MM) χυτό σε ένα σώμα με τη βάση (450 X 450 X 60 MM). Βιδωμένο στο πίσω μέρος του χαλύβδινου συγκροτήματος είναι το στήριγμα στο οποίο στερεώνεται η στήλη από χαλύβδινο σωλήνα (SEAMLESS-DRAWN STEEL TUBE) (εξωτερικής διαμέτρου 90 MM, εσωτερικής διαμέτρου 75 MM). Οι δύο οδηγοί στερεώνονται στη στήλη μέσω τριών εγκάρσιων δοκών και είναι εφοδιασμένοι με οδοντωτή ράβδο δια να περιο-

3155  
(Συνεχίζεται)

Πιθεται η αναπήδηση της σφύρας και με μια κινητή βαθμονομημένη κλίμακα για τη ρύθμιση του ύψους της ρίψεως (πτώσεως). Ο μηχανισμός συγκρατήσεως και αφέσεως της σφύρας ρυθμίζεται μεταξύ των οδηγών και συσφίγγεται σ' αυτούς δια της λειτουργίας περικοχλίου μετά μοχλού (LEVER-NUT) πάνω σε δύο σιαγόνες. Η συσκευή είναι έτσι στερεωμένη επί συμπαγούς συγκροτήματος εκ μπετόν (600 X 600 X 600 MM), δια τεσσάρων κοχλιών προσδέσεως σφραγισμένων στο μπετόν ώστε η βάση να είναι σε επαφή με το μπετόν καθ' όλο τον χώρον αυτού και οι οδηγοί να είναι ακριβώς κάθετοι. Εύλινο αντέχον στα θραύσματα κιβώτιον το οποίον έχει επένδυση δια μολύβδου πάχους 2 MM και ανοίγει ευκόλως περιβάλλει τη συσκευή μέχρι του επιπέδου της εγκαρσίας δοκού του πυθμένου. Ένας εξαγωγεύς αερίων παρέχει τη δυνατότητα στα αέρια της εκρήξεως και την σκόνη ανα αφαιρεθούν από την όλην.

(3) Περιγραφή των σφυρών-ρίψεως (FALL-HAMMERS):-

Κάθε σφύρα είναι εφωδιασμένη με δύο αύλακες εμφράξεως (POSITIONING GROOVES) που την συγκρατούν μεταξύ των οδηγών καθώς πίπτει και με ένα αξονίσκο αιωρήσεως, μία δυναμένη να αφαιρεθεί κεφαλή προσκρούσεως και μία αρπάγη αναπήδησεως (REBOUND CATCH) που βιδώνονται στη σφύρα (Εικόνων II). Η κεφαλή προσκρούσεως είναι από σκληρό χάλυβα (HRC 60 έως 63)· η κατωτάτη διάμετρος της είναι 25 MM· έχει ένα ωμίδιο το οποίο την εμποδίζει από του να πιεσθεί στη σφύρα δια της προσκρούσεως.

Υπάρχουν τρεις σφύρες διαφορετικού βάρους. Η σφύ-

ρα I-KG (ενός κιλού) χρησιμοποιείται για λίαν ευπαθείς 3155  
 ύλες, η σφύρα 5-KG (πέντε κιλών) για ύλες μέσης ευπα- (Συνεχίζεται)  
 θείας (ευαισθησίας) και η σφύρα 10-KG (δέκα κιλών) για  
 ύλες χαμηλής ευαισθησίας. Οι σφύρες των 5-KG και 10-KG είναι  
 από ατσάλιο και συμπαγή χάλυβα (Τουλάχιστον ST 37-I, συμφώνως  
 προς DIN 17000). Η σφύρα του I-KG πρέπει να έχει βαρύ χα-  
 λύβδινο κέντρο φέρον την κεφαλή προσκρούσεως και σχηματίζον  
 με αυτήν την κυρίαν μάζα της σφύρας.

Η σφύρα του I-KG χρησιμοποιείται για ύψη ρίψεων  
 των 10 έως 50 CM (ενέργεια προσκρούσεως 0.1 έως 0.5 KGM),  
 η σφύρα των 5-KG για ύψη ρίψεων των 15 έως 60 CM (ενέργεια  
 προσκρούσεως 0.75 έως 3 KGM), και η σφύρα των 10-KG για ύψη  
 ρίψεων των 35 έως 50 CM (ενέργεια προσκρούσεως 3.5 έως 5 KGM).

(4) Περιγραφή του μηχανισμού προσκρούσεως:-

Το προς εξέτασιν δείγμα εγκλείεται σε ένα μη-  
 χανισμό προσκρούσεως (Εικόν II) αποτελούμενον εκ δύο στε-  
 ρεών χαλυβδίνων κυλίνδρων ομοαξονικώς τοποθετημένα το ένα  
 επάνω στο άλλο σε κυλινδρικό οδηγό δακτύλιο κατασκευασμένον  
 ομοίως από χάλυβα. Οι κύλινδροι είναι χαλύβδινοι κατά της  
 τριβής κυλινδροτριβείς και και είναι διαμέτρου 10 MM (τύ-  
 πος με μέση παρέκκλισιν -4 μικρόν δι'ανοχήν εκ -2 μικρόν,  
 τ.έ. διαμέτρου 10  $\begin{matrix} -0.003 \\ -0.005 \end{matrix}$  MM), ύψους 10 MM, με στιλβωμένες  
 επιφάνειες και κυκλικά άκρα (ακτίς καμπυλότητος 0.5 MM)  
 και σκληρότητα HRC μεταξύ 58 και 65. Ο οδηγός δακτύλιος  
 έχει εξωτερικήν διάμετρον 16 MM, διάμετρον/μετ'επικαλύ-  
 φεως 10  $\begin{matrix} +0.005 \\ +0.010 \end{matrix}$  MM και ύψος 13 MM. Κυλινδρικός ελεγκτής ο-  
 πών μπορεί να χρησιμοποιηθεί δια να ελέγξει την διάμετρο

της οπής εάν είναι εντός των προβλεπομένων ανοχών. Οι 3155 κυλινδρικοί και ο οδηγός δακτύλιος θα πρέπει να απολιπανθούν με ακετόνη προτού χρησιμοποιηθούν. (Συνεχίζεται)

Ο μηχανισμός προσκρούσεως τοποθετείται σε ενδιάμεσο άκμονα/26 MM και ύψους 26 MM και κεντράρεται με δακτύλιον στερεώσεως εφωδιασμένον με δακτύλιον με οπές αερισμού δια να επιτρέπεται η διαφυγή των αερίων (Εικόνες II και I2). Κάθε επιφάνεια προσκρούσεως των κυλινδρικών θα χρησιμοποιείται μόνον ~~μία φορά~~ εάν λάβει χώραν έκρηξις, ο οδηγός δακτύλιος δεν θα χρησιμοποιηθεί εκ νέου.

(5) Προετοιμασία των δειγμάτων:-

Οι εκρηκτικές ύλες δοκιμάζονται σε ξηρά κατάσταση. Οι ύλες του περιθωρίου 2101, II<sup>o</sup> έως I4<sup>o</sup>, δοκιμάζονται όπως παραδίδονται εφ' όσον το ~~σε νερό~~ περιεχόμενον των συμφωνεί με την τιμήν την οριζομένην υπό του κατασκευαστή. Εάν το ~~σε νερό~~ περιεχόμενον είναι υψηλότερο, τα μίγματα πρέπει να ξηρανθούν προ της δοκιμής μέχρις ότου το ~~σε υ-~~γρασίαν περιεχόμενον των είναι εκείνο που ορίζεται.

Επιπροσθέτως, στη περίπτωση των στερεών υλών πλήν των υπό μορφήν πάστας υλών πρέπει να τηρούνται τα ~~απομόνωση~~ σημεία:-

- (α) ύλες υπό μορφήν κόκκων, κοσκινίζονται (πλέγμα κοσκίνου 0.5 MM)· κάθε τι το οποίον διέρχεται δια του κοσκίνου χρησιμοποιείται δια την δοκιμήν·
- (β) ύλες οι οποίες έχουν συμπιεσθεί, χυθεί ή άλλώς ενοποιηθεί θραύονται σε μικρά τεμάχια και κοσκινίζονται· τα (απο)κοσκινίδια διαμέτρου από 0.5 MM έως 1.0 MM χρησιμοποιούνται για τη δοκιμή.



## (6) Διαδικασία Ελέγχου (Δοκιμής):-

3155

Προκειμένου περί υλών υπό μορφήν κόνας, λαμβάνεται δείγμα με κυλινδρικό μέτρον ικανότητας/χωρητικότητας  $40 \text{ MM}^3$  (διάμετρος  $3.7 \text{ MM} \times 3.7 \text{ MM}$ ). Για όλες υπό μορφήν πάστας, κυλινδρικός σωλήνας αυτής χωρητικότητας χρησιμοποιείται, ο οποίος βυθίζεται στη μάζα. Μετά την ισοπέδωσιν του περισσεύματος του εκτεινομένου πέραν του μέτρου, το δείγμα εξάγεται με τη βοήθεια ξυλίνης ράβδου. Δι'εγκρηκτικά υγρά μία λεπτά-εξηλασμένη πιπέτα (σιφόνι)  $40 \text{ MM}^3$  χρησιμοποιείται. (Συνεχίζεται)

Το δείγμα τοποθετείται πάνω στον ανοικτό μηχανισμό προσκρούσεως, ο οποίος είναι ήδη στον δακτύλιο στερεώσεως στον ενδιάμεσο άκμονα, και στη περίπτωση υλών υπό μορφήν κόνας ή πάστας ο άνω χαλύβδινος κύλινδρος πιέζεται ελαφρώς και προσεκτικώς με τον δείκτην της ράβδου μέχρις ότου ακουμπήσει το δείγμα χωρίς να το επιπεδώσει. Στην περίπτωση υγρών υλών ο άνω χαλύβδινος κύλινδρος πιέζεται προς τα κάτω με τη βοήθεια της κλίμακας βάθους βερνιέρου βαθυμέτρου μέχρις ότου απέχει  $1 \text{ MM}$  από τον κάτω κύλινδρον, και κρατείται στη θέση αυτή με ελαστικό δακτύλιο προηγουμένως ολισθήσαν εις τούτον. (Εικών Ι3).

Ο μηχανισμός τοποθετείται στο κέντρον επί του άκμονος, το προστατευτικό ξύλινο κιβώτιον κλείεται, η σφύρα αιωρούμενη στο απαιτούμενο ύψος αφήνεται (ελευθερώνεται), και ο εξαγωγέας αερίων τίθεται ακολούθως σε λειτουργία. Η δοκιμή εκτελείται έξι φορές σε κάθε ύψος ρίψεως (πτώσεως).

## (7) Ερμηνεία των αποτελεσμάτων:-

Ερμηνεύοντας τα αποτελέσματα της δοκιμής ευαι- 3155  
 σθησίας στη πρόσκρουση, διάκριση γίνεται μεταξύ (Συνεχίζε-  
 "ουδεμία αντίδρασις" "αποσύνθεσις" (χωρίς φλόγα ή ται)  
 έκρηξη<sup>ν</sup> δυναμένη να αναγνωρισθεί δι' αλλαγής-χρώματος  
 ή οσμής) και "έκρηξη<sup>ν</sup>" (με αδύνατη έως ισχυρή έκρηξη <sup>ο</sup>/).  
 Ο βαθμός ευαισθησίας σε πρόσκρουση μιας ύλης μετράται  
 δια καθορισμού του βάρους της σφύρας σε κιλά και του  
 κατωτάτου ύψους ρίψεως σε CM με την οποίαν λαμβάνει χώ-  
 ρα έκρηξη<sup>ν</sup> σε τουλάχιστο μία από έξι δοκιμές, και της  
 προκύπτουσας ενεργείας προσκρούσεως σε KGM. Η ευαισθη-  
 σία της ύλης στην πρόσκρουση ούσα μεγαλύτερα, χαμηλοτέ-  
 ρα είναι η ενέργεια προσκρούσεως σε KGM.

Δοκιμή ευαισθησίας στην τριβή (βλέπε περιθώρια 3103 έως 3156  
 3110 και 3112)

(α) Δοκιμή τριβής σε ιγδόν (γουδί) ει πορσελάνης

(1) Το εκρηκτικόν ξηραίνεται σε χλωριούχο ασβε-  
 στιο. Δείγμα του εκρηκτικού συμπιέζεται και αλέθεται  
 (τριβεται) σε αβερνίκωτο ιγδόν/ει πορσελάνης με γου-  
 δοχέρι, επίσης αβερνίκωτο. Το ιγδόν (γουδί) και γουδο-  
 χέρι πρέπει να έχουν θερμοκρασίαν περίπου 10 βαθμούς με-  
 γαλύτερη της θερμοκρασίας του περιβάλλοντος (15° έως  
 30°C).

(2) Τα αποτελέσματα της δοκιμής συγκρίνονται  
 με τα επιτευχθέντα με το βασικό (ελέγχου) εκρηκτικό  
 (πρότυπο εκρηκτικό), και ταξινομούνται ως παρακάτω:

1.- ουδέν αποτέλεσμα \*

2.- αδύνατος συμπτωματολογικός σπινθηρισμός \*

3.- συχνός σπινθηρισμός ή πολύ έντονος συμπτωματικός  
σπινθηρισμός.

3156  
(Συνεχίζεται.)

ο/ Για μερικές ύλες υπάρχει "ανάφλεξις χωρίς έκρηξη".  
Η αντίδρασις αυτή, εν τούτοις, θεωρείται ως έκρηξις  
(και χαρακτηρίζεται εκ των εντός των εισαγωγικών δρών)  
διότι συνεπάγεται ολόκληρον το δείγμα και έκρηξις μπο-  
ρεί επίσης να λάβει χώραν υπό ιδίας συνθήκας.

(3) Εκρηκτικά τα οποία, κατόπιν δοκιμής, δίδουν  
το αποτέλεσμα το αναφερόμενον εις 1. πρέπει να θεωρούν-  
ται ως πρακτικώς μη ευπαθή εις την τριβήν· εάν δίδουν  
το αποτέλεσμα το αναφερόμενον εις 2. πρέπει να θεωρούν-  
ται ως μετρίως ευαίσθητα εις την τριβήν· εάν δίδουν το  
αποτέλεσμα το αναφερόμενον εις 3. πρέπει να θεωρούνται  
ως πολύ ευαίσθητα εις την τριβήν.

(β) Έλεγχος (δοκιμή) με τη συσκευή τριβής (Εικόνες I4  
και I5)

(1) Η δοκιμή η περιγραφομένη εις (α) μπορεί να  
αντικατασταθεί δια της εξής δοκιμής:

(2) Περιγραφή της συσκευής:

Η συσκευή τριβής κατασκευάζεται από βάσιγγ χυτο-  
χάλυβοσεπί της οποίας ο κατάλληλος μηχανισμός τριβής, απο-  
τελούμενος από σταθερόν γόμφον εκ πορσελάνης και κινητήν  
πλάκα εκ πορσελάνης (Εικόν I4), μοντάρεται. Η πλάκα εκ  
πορσελάνης φέρεται επί κινητού συστήματος το οποίον λει-  
τουργεί επί δύο οδηγών. Ανοίγοντες τον διακόπτην (πλήκτρον-  
ωθήσεως) το κινητόν σύστημα μετακινείται υπό ηλεκτρικού  
κινητήρος μέσω διωστήρος, εκκεντρικού δίσκου και καταλλή-

λου μηχανισμού κατά τοιούτον τρόπον ώστε η πλάκα εκ 3156 πορσελάνης να κινείται πίσω-μπρός μόνο μία φορά (Συνεχίζεται) κάτω του γόμφου εκ πορσελάνης, της αποστάσεως της διαδρομής ούσης 10 MM. Ο συγκρατητής του γόμφου περιστρέφεται επί άξονος εις τρόπον ώστε ο εκ πορσελάνης γόμφος να μπορεί να αλλαγεί· εκτείνεται διά τινος βραχίονος φορτώσεως με έξι εγκοπές δι' ανάρτησιν βάρους. Η ισορροπία εις την θέσιν "μηδέν" (χωρίς βάρη) επιτυγχάνεται δια ρυθμίσεως αντιβάρου. Όταν χαμηλώσμε (κατεβάσμε) τον συγκρατητή του γόμφου επί της πλάκας εκ πορσελάνης ο επιμήκης άξωνιστος εκ πορσελάνης γόμφου είναι κάθετος επί της άνω επιφανείας της πλάκας. Ένα από τα βάρη κρέμεται μέσω ενός δακτυλίου και αγκίστρου εις την κατάλληλη εγκοπή· το επί του γόμφου φορτίο μπορεί να ποικίλει από 0.5 έως 36 KG.

(3) Περιγραφή των εκ πορσελάνης πλάκας και γόμφου:

Αι επίπεδες εκ πορσελάνης πλάκες κατασκευάζονται από καθαρή τεχνική πορσελάνη και έχουν τις παρακάτω διαστάσεις:— 25 MM X 25 MM X 5 MM. Προτού πυροδοτηθούν (αναφλεγούν) αι επιφάνειες λεθάνσεως καθίστανται ανώμαλές τριβόμενές με σπόγγον. Τα σημεία (ενδειξεις) του σπόγγου είναι σαφώς ορατά.

Οι κυλινδρικοί εκ πορσελάνης γόμφοι κατασκευάζονται επίσης εκ τεχνικής λευκής πορσελάνης· είναι μήκους 15 MM και διαμέτρου 10 MM και τα ανώμαλα άκρα τους στρογγυλεύονται, με ακτίνα καμπυλότητας 10 MM.

Δείγματα των εκ πορσελάνης γόμφων και πλακών 3156  
της ανωτέρω περιγραφόμενης ποιότητας είναι κατατεθει- (Συνεχίζε-  
μένα εις BUNDESANSTALT FÜR MATERIALPRÜFUNG, Βερολί-  
νον-DAHLEM, από όπου μπορούν να ληφθούν οι διευθύνσεις  
των κατασκευαστών.

Επειδή η φυσική μη-κατεστραμμένη τραχύτητα των  
πλακών και κόμβων αποτελεί ουσιώδη προϋπόθεση για την  
αντίδραση της εκρηκτικής ύλης, κάθε τμήμα της επιφανεί-  
ας πρέπει να χρησιμοποιείται μόνο μία φορά. Συνεπώς,  
οι δύο ακραίες επιφάνειες κάθε γόμφου είναι αρκετές για  
δύο δοκιμές, και οι δύο επιφάνειες τριβής της πλάκας  
θα χρησιμεύσουν η κάθε μία για τρεις έως έξι περίπου δο-  
κιμές.

#### (4) Προετοιμασία δειγμάτων:

Η εκρηκτική ύλη δοκιμάζεται σε ξηρά κατάσταση.  
Οι ύλες του περιθωρίου 2101, II<sup>0</sup> έως I4<sup>0</sup> δοκιμάζονται δ-  
πως παραδίδονται εφ' όσον το  $\epsilon$ ε νερό περιεχόμενόν των συμ-  
φωνεί με την τιμήν την οριζομένην υπό του κατασκευαστή.  
Εάν το  $\epsilon$ ε ύδωρ περιεχόμενον είναι μεγαλύτερον, τα μίγ-  
ματα πρέπει να ξηρανθούν προ της δοκιμής μέχρις ότου πο  
 $\epsilon$ ε υγρασίαν περιεχόμενόν των είναι το οριζόμενον.

Επιπροσθέτως, για στερεές ύλες, πλην των χυλών  
υπό μορφήν πάστας, πρέπει να τηρούνται τα παρακάτω σημεία:-

- (α) ύλες υπό μορφήν κόκκων κοσκινίζονται (πλέγμα κοσκί-  
νου 0.5 MM)\* κάθε τι που διέρχεται από το κόσκινο  
χρησιμοποιείται για τη δοκιμή\*
- (β) ύλες οι οποίες έχουν συμπιεσθεί, χυθεί ή άλλως ενοποιη-

θεί θραύονται σε μικρά τεμάχια και κοσκινίζονται·  
κάθε τι το οποίον διέρχεται από το πλέγμα του  
κοσκίνου 0.5 MM χρησιμοποιείται για τη δοκιμή.

3156  
(Συνεχίζε-  
ται)

(5) Διαδικασία (μέθοδος) δοκιμής:

Πλάκα εκ πορσελάνης στερεώνεται στο κινητό  
σύστημα της συσκευής τριβής κατά τρόπον ώστε οι αβλα-  
κες των σημείων του σπόγγου λειτουργούν εγκαρσίως προς  
την κατεύθυνση της κινήσεως. Η υπό εξέταση ποσότητα,  
περίπου 10 MM<sup>3</sup>, λαμβάνεται από ύλη υπό μορφήν κόμης  
μέσω κυλινδρικού μέτρου (διαμέτρου 2.3 MM X 2.4 MM)·  
στην περίπτωση ύλης υπό μορφήν πάστας το δείγμα μετρά-  
ται υπό κυλινδρικού σωλήνος ο οποίος βυθίζεται στη μά-  
ζα. Μετά την επιπέδωση του περισσεύματος του εκτεινο-  
μένου πέραν του μέτρου, το δείγμα λαμβάνεται μέσω ξυ-  
λίνης ράβδου και τοποθετείται επάνω στη πλάκα εκ πορ-  
σελάνης. Ο σταθερά σφιγμένος γόμφος εκ πορσελάνης το-  
ποθετείται επί της σωρευθείσης ποσότητας ως εικονίζε-  
ται στην Εικόνα 15· ο βραχίονας φορτώσεως φορτώνεται με  
το απαραίτητον βάρος και τίθεται εις λειτουργίαν το πλήκ-  
τρον ώσεως του διακόπτου. Μόριμνα πρέπει να ληφθεί όπως  
ο γόμφος επικάθεται στο δείγμα και όπως υπάρχει αρκετή  
ύλη εμπροσθεν αυτού δια να έλθει κάτω από τον γόμπο  
καθώς κινείται η πλάκα.

(6) Ερμηνεία αποτελεσμάτων:

Ερμηνεύοντες τα αποτελέσματα της δοκιμής, διά-  
κριση γίνεται μεταξύ "ουδεμία αντίδρασις", "αποσύνθεσις"  
(αλλαγή χρώματος, οσμή), "ανάφλεξις", "σπινθηρισμός" και  
"έκρηξις".

Ο σχετικός βαθμός ευαισθησίας ύλης στη τριβή μέσα στη συσκευή τριβής όπως περιγράφεται καθορίζεται (χωρίς να ληφθεί υπ' όψη ο συντελεστής τριβής) από το μικρότερο επί του γόμφου φορτίο σε KG (κιλά), με το οποίο λαμβάνει χώραν ανάφλεξις, σπινθηρισμός ή έκρηξις σε τουλάχιστο μία από έξι δοκιμές. Εν προκειμένω, ακόμη και η ανάφλεξις και ο σπινθηρισμός θεωρούνται ως επικίνδυνες αντιδράσεις. <sup>Όσο</sup> Η ευαισθησία εκρηκτικής ύλης στην τριβή είναι μεγαλύτερα, τόσο μικρότερο το εξακριβούμενο επί του γόμφου φορτίο (βάρος φορτώσεως ~~σε~~ σχέση με το μήκος του γόμφου φορτώσεως).

3156  
(Συνεχίζεται)

Εκρηκτικά υγρά και υλαί υπό μορφήν πάστας δεν είναι γενικώς ευαίσθητα στη τριβή υπό τας συνθήκας της δοκιμής αυτής, επειδή λόγω της λιπαντικής επιδράσεως η παραγομένη ελαφρά εκ τριβής θερμότης δεν είναι αρκετή δια να επάγει ανάφλεξιν. Με τέτοιες ύλες η έλλειψις οιασδήποτε αντιδράσεως δεν είναι ένδειξις ότι η ύλη δεν είναι επικίνδυνος.

Η σταθερότης των προϊόντων των αναφερομένων στο 3157 περιθώριο 3111 πρέπει να ελέγχεται δια συνήθων εργαστηριακών μεθόδων.

Έλεγχος δυναμίτου δι' εξίδρωσιν (βλέπε περιθώριον 3107)

(I) Η συσκευή δια την δοκιμήν του δυναμίτου δι' εξίδρωσιν (Εικόνων Ι6 έως Ι8) αποτελείται από ένα κοίλο ορειχάλκινο κύλινδρο. Ο κύλινδρος αυτός, ο οποίος είναι κλεισμένος στο ένα άκρον από πλάκα του αυτού μετάλλου,

Έχει εσωτερική διάμετρο 15.7 MM και βάθος 40 MM. 3158  
 Φέρει 20 οπές διαμέτρου 0.5 MM (4 σειρές από 5 οπές) (συνεχίζε-  
 επί της περιφέρειας. Ορειχάλκινο έμβολο, κυλινδρικών  
 48 MM του συνολικού του μήκους των 52 MM, μπορεί να  
 ολισθαίνει στον κατακόρυφο κύλινδρο· το έμβολο αυτό  
 του οποίου η διάμετρος είναι 15.6 MM, φορτώνεται με  
 βάρος 2,220 γραμμαρίων ώστε να παραχθεί πίεσις εξ 1.2  
 KG/CM<sup>2</sup>.

(2) Μικρό πώμα δυναμίτου ζυγίζον 5 έως 8  
 γραμμάρια, μήκους 30 MM και διαμέτρου 15 MM, τυλίσσε-  
 ται σε πολλή λεπτή γάζα και τοποθετείται στον κύλινδρο·  
 το έμβολο και το βάρος φορτώσεως τοποθετούνται ακολού-  
 θως επ' αυτού εις τρόπον ώστε ο δυναμίτης να υπόκειται  
 σε πίεση 1.2 KG/CM<sup>2</sup>.

Σημειούται το χρονικό διάστημα που περνά  
 για την εμφάνισι των πρώτων ενδείξεων λιπαρών σταγο-  
 νιδίων (νιτροκυτταρίνης) στις εξωτερικές επιφάνειες των  
 οπών του κυλίνδρου.

(3) Ο δυναμίτης θεωρείται ικανοποιητικός  
 εάν ο διαρρέυσας χρόνος προ της εμφανίσεως των υγρών  
 εξιδρώσεων είναι περισσότερος των 5 λεπτών, της δοκιμής  
 έχουσης διεξαχθεί σε θερμοκρασία 15° έως 25°C.

3159-

3199



Έλεγχος (Δοκιμή) ΚαύσεωςΠερὶ περιθωρίου 3154(γ)Εικὼν 1:- Χαλύβδινο κιβώτιο (σχῆμα σελ. 2844)

πάχος τοιχώματος I MM

διαστάσεις σε MM

- (1) γενική άποψη
- (2) κάθετος τομή
- (3) τομή Α-Β
- (4) κατασκευή τοιχώματος
- (5) κατασκευή βάσεως και καλύμματος
- (6) άκρα υποκείμενα σε πτύχωση

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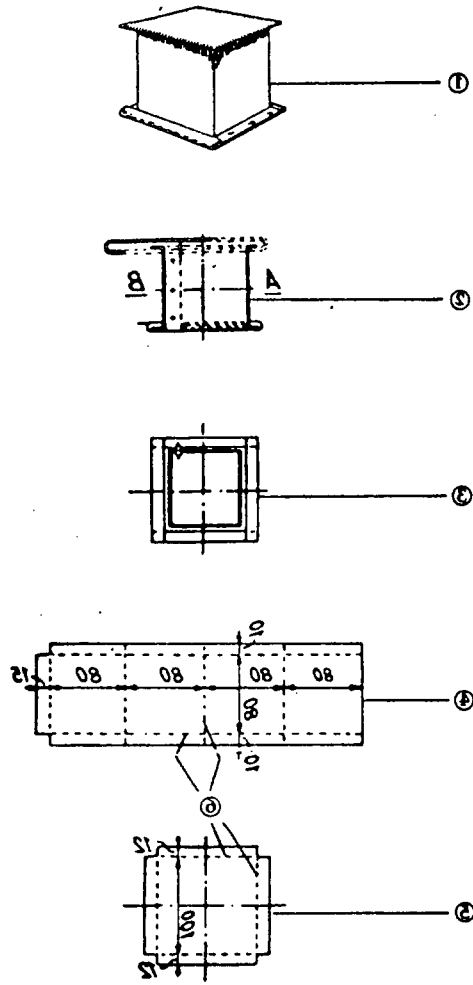
Έλεγχος δια θερμάνσεως σε χαλύβδινο σωλήνα  
με βαθμονομημένη διάτρητο πλάκαΠερὶ περιθωρίου 3154(δ))Εικὼν 2: Χαλύβδινος σωλήνας και εξαρτήματα (σχῆμα σελ. 2844)Εικὼν 3: Θέρμανσις και προστατευτικός μηχανισμός (σχῆμα σελ. 2844)

διαστάσεις σε MM° δια υλικά κατασκευής

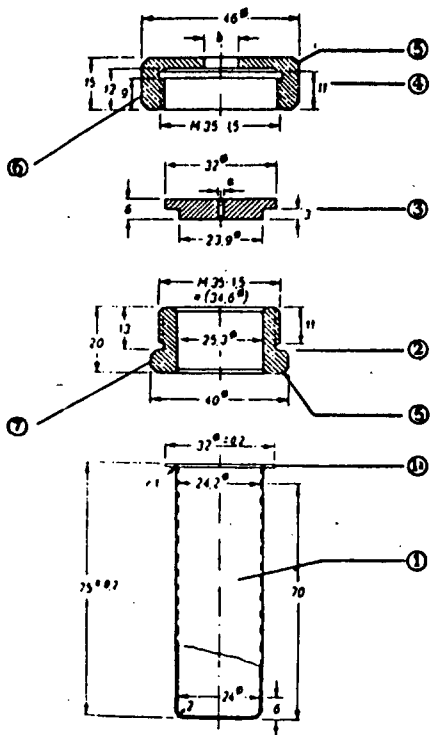
βλέπε περιθώριο 3154(δ), (2) και (3)

- (1) σωλήνας
- (1α) εξωτερική φλάντζα
- (2) κοχλιωτό κολλάρο° χαμηλής-τριβής νήμα
- (3) διάτρητος πλάκα  $\alpha = 1.0 \dots 20.0$  διάμετρος
- (4) περικόχλιο (παξιμάδι)  $\beta =$  διαμέτρου 10 ή 20
- (5) λοξοτμημένη επιφάνεια
- (6) 2 επίπεδα (FLATS) για κλειδί μεγέθους 4I.

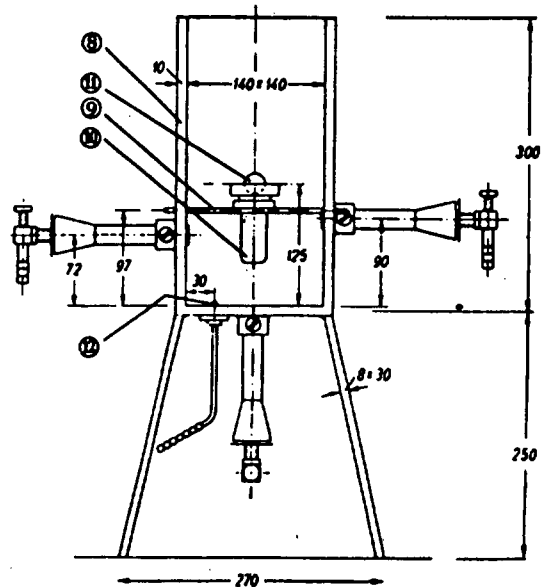
ΕΙΚΟΝΑ 1



ΕΙΚΟΝΑ 2



ΕΙΚΟΝΑ 3



- (7) 2 επίπεδα γ\*α κλειδών μεγέθους 36
- (8) κιβώτιο ανθεκτικό στα θραύσματα
- (9) 2 ράβδοι υποστηρίξεως δια τον σωλήνα
- (ΙΟ) συναρμολογημένος σωλήνας
- (ΙΙ) θέσεις οπισθίου καυστήρος· οι άλλοι καυστήρες είναι ορατοί
- (Ι2) βοηθητικός αναβλυστήρ

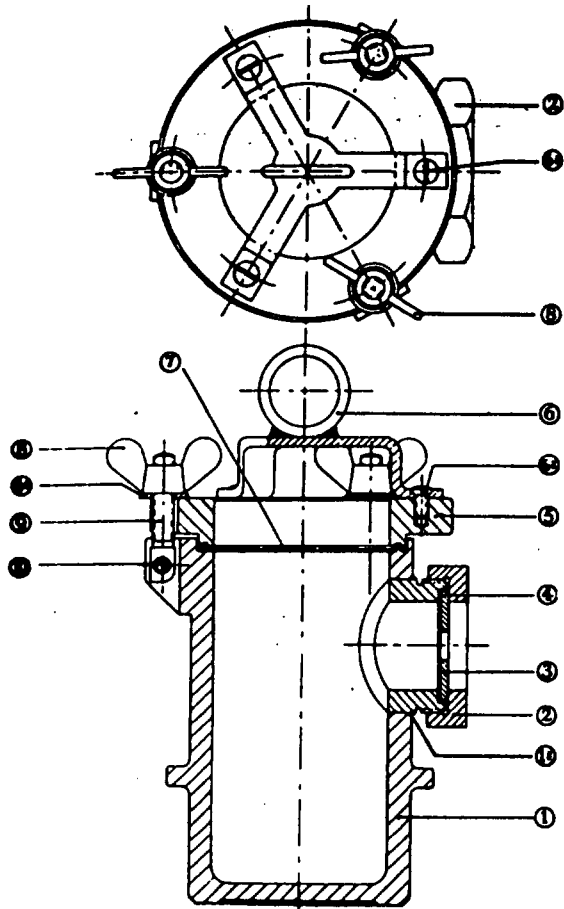
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Έλεγχος θερμάνσεως σε αγγείον (σκεύος) πίεσεως  
με διάτρητο πλάκα και διαρρηκτικόν δίσκον  
Περὶ περιθωρίου 3154(ε)

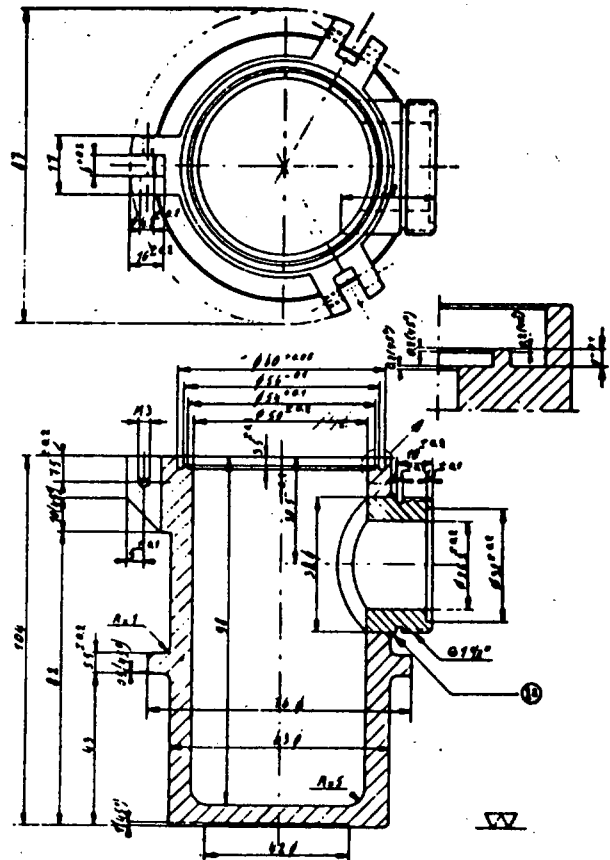
Εικὼν 4: Συναρμολογημένον αγγείον πίεσεως  
κάθετος τομή και σχέδιον (σχῆμα σελ. 690)

Εικὼν 5: Αγγείον (σκεύος) πίεσεως (σχῆμα σελ. 690)  
 διαστάσεις σε MM

- (I) αγγείον (σκεύος) πίεσεως (ανοξειδωτος χάλυψ)
- (Iα) συγκολλημένη ένωσις
- (2) περικόχλιο (παξιμάδι) κιβωτίου (πλήρως-κεκορε-  
σμένος δυνάμενος να συγκολληθελ χάλυψ)
- (3) κεντρική-διάτρητος πλάκα (ανοξειδωτος χάλυψ)
- (4) αδρανῆς δακτύλιος συγκρατήσεως, πάχους 0.5
- (5) δακτύλιος πίεσεως (ανοξειδωτος χάλυψ)
- (6) ορειχάλκινος λαβή
- (6α) ορειχάλκινος κοχλίας (υλικό M4 X 8 DIN 88)
- (7) διαρρηκτικός δίσκος (για υλικό βλέπε περιθώ-  
ριο 3154 (ε) (2))
- (8) πλευρικά περικόχλια (παξιμάδια) (ορείχαλκος M6  
DIN 315)



ΕΙΚΟΝΑ 4



ΕΙΚΟΝΑ 5

(8α) ροδέλα (ορειχάλκινος 6 DIN I25)

(9) κοχλίας αρτήσεως (οφθαλμοκοχλίας) (ανοξειδωτος χάλυψ.)

(10) αξονίσκος για πλευρικά περικόχλια (ανοξειδωτος χάλυψ.)

Σημειώσεις:— Ανοξειδωτος χάλυψ έχων την κατωτέρω μέση σύνθεσιν θεωρείται κατάλληλος: CR 18<sup>0</sup>/ο, Νι 9<sup>0</sup>/ο, ΜΝ  $\leq$  2<sup>0</sup>/ο, Si  $\leq$  1<sup>0</sup>/ο, C  $\leq$  0.12<sup>0</sup>/ο.

Εικόν 6: Δακτύλιος πίεσεως του αγγείου\* λεπτομέρειαι καθέτου τομής και κατόψεως (PLAN VIEW)

διαστάσεις σε MM (σχήμα σελ. 2847)

Δοκιμή I ρίψεως-σφύρας (FALL-HAMMER)Έργ. περιθωρίου 3155(α)

Εικών 7: Μηχανισμός προσκρούσεως, κάθετος τομή  
 διαστάσεις σε MM (σχήμα σελ. 2847)

Εικών 8: Βάσις για μηχανισμό προσκρούσεως,  
κάθετος τομή  
 διαστάσεις σε MM (σχήμα σελ. 2848)

A.- συμπαγές εκ μπετόν συγκρότημα (BLOCK)

B.- χαλύβδινο συγκρότημα (BLOCK)

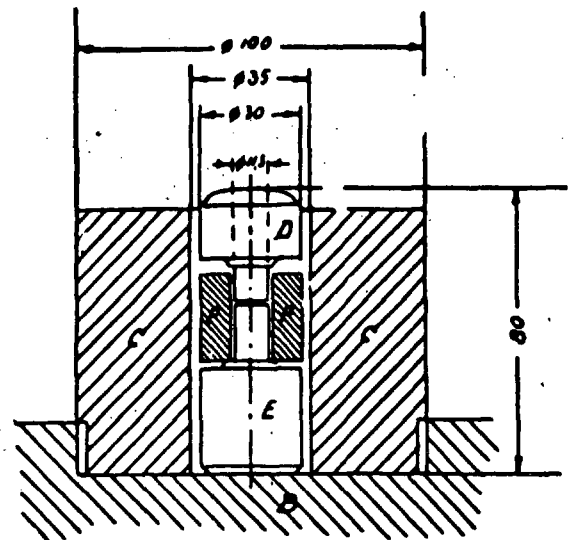
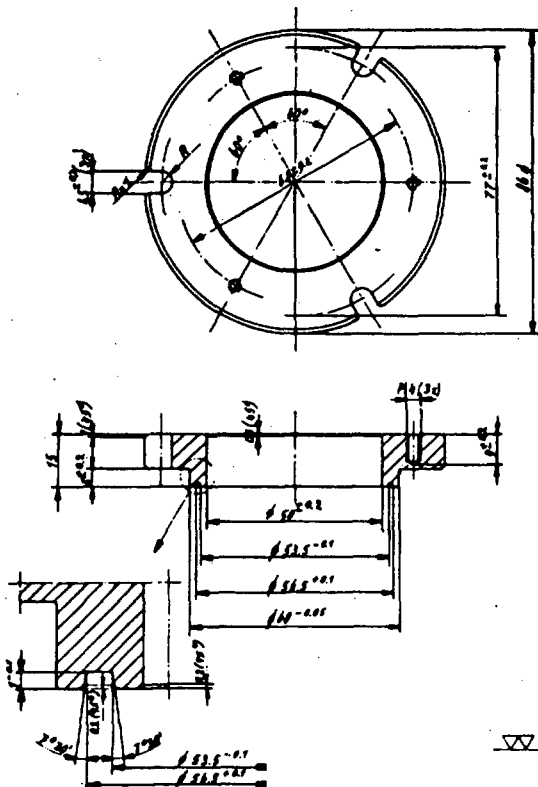
Γ.- προστατευτικός κύλινδρος

Δ.- επικρουστήρ

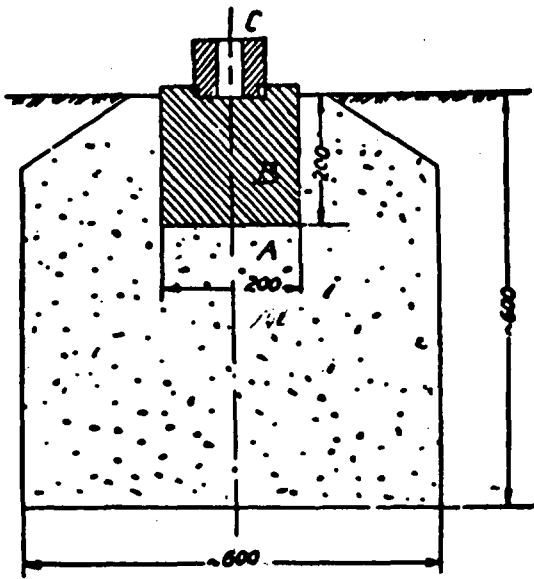
Ε.- άκμωνα(αμόνι)

ΣΤ.- οδηγός δακτύλιος

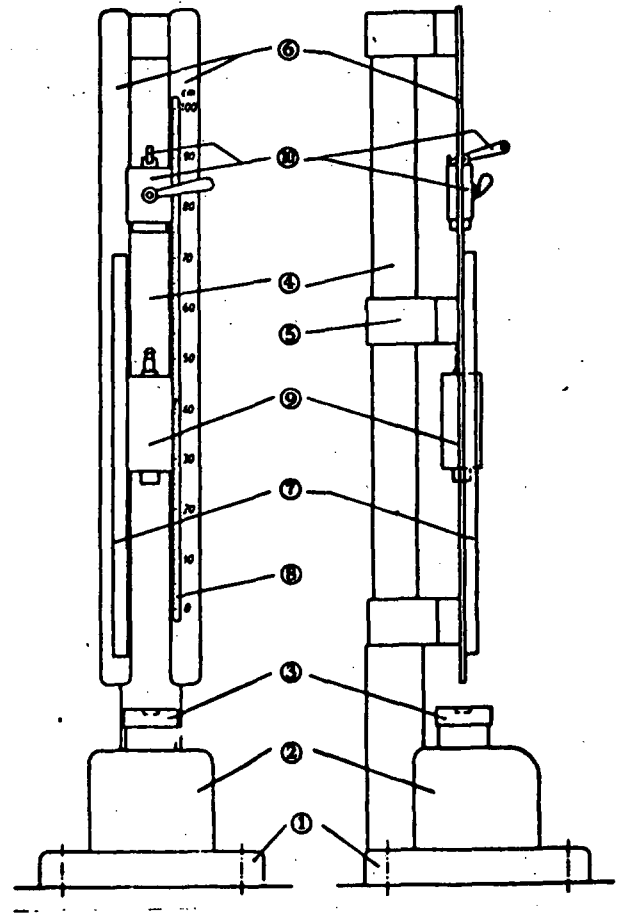
Εικών 9: Ρέφλις-σφύρας (FALL-HAMMER) II  
προσθία και πλευρική, γενική άποψις  
 διαστάσεις σε MM (σχήμα σελ. 2848)



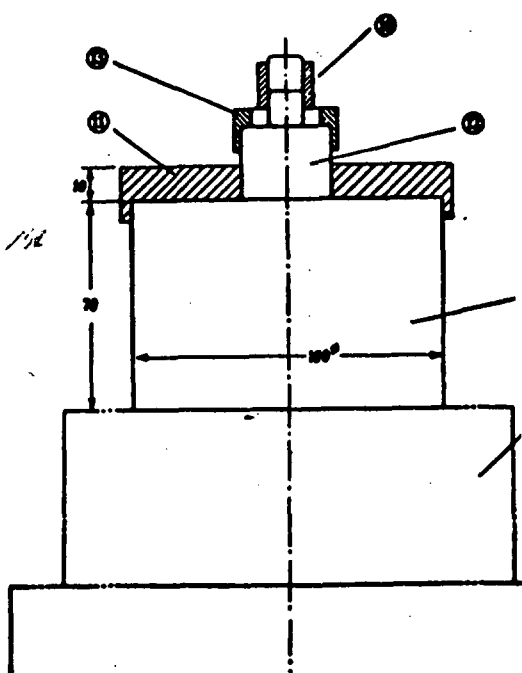
ΕΙΚΟΝΑ 7



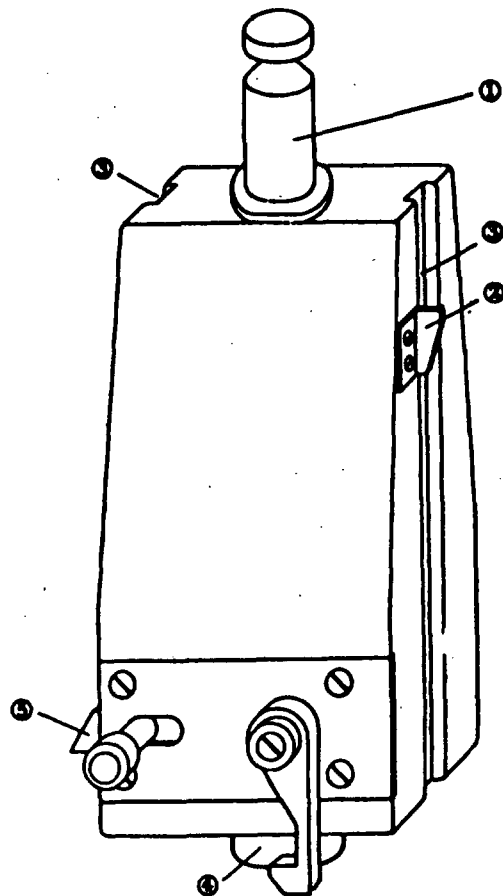
ΕΙΚΟΝΑ 8.



ΕΙΚΟΝΑ 9



ΕΙΚΟΝΑ 10.



ΕΙΚΟΝΑ 11

Εικόν ΙΟ: Ρίψις-σφύρας ΙΙ,κάτω τμήμα (σχήμα σελ. 2848)

διαστάσεις σε MM

- (1) βάση, 450 X 450 X 60
- (2) χαλύβδινο συγκρότημα (BLOCK), 230 X 250 X 200
- (3) άκμωνας, 100 διαμέτρου X 70
- (4) στήλη
- (5) μέσος εγκάρσιος-δοκός
- (6) 2 οδηγοί
- (7) οδοντωτή ράβδος
- (8) βαθμονομημένα κλίμακα
- (9) σφύρα-ρίψεως (πίπτον βάρος)
- (10) μηχανισμός συγκρατήσεως και αφέσεως
- (11) πλάκα στερεώσεως
- (12) ενδιάμεσος άκμωνας (ανταλλάξιμος),  
διαμέτρου 26 X 26
- (13) δακτύλιος στερεώσεως με οπές
- (14) μηχανισμός προσκρούσεως

Εικόν ΙΙ: Σφύρα (πίπτον βάρος) 5 KG (σχήμα σελ. 2848)

- (1) αξονίσκος αιωρήσεως
- (2) δείκτης ύψους
- (3) αύλαξ εμφράξεως
- (4) κυλινδρική κεφαλή προσκρούσεως
- (5) αρπάγη αναπηδήσεως

Εικόν Ι2: Μηχανισμός προσκρούσεως για ύλες υπό μορφήν κόψεωςή πάστας (σχήμα σελ. 2851)

διαστάσεις σε MM

Εικόν 13: Μηχανισμός προσκρούσεως για ύλες υπό μορφήν υγρού (σχήμα σελ. 2851)

- (1) χαλύβδινοι κύλινδροι<sup>†</sup>
- (2) οδηγός δακτύλιος για χαλύβδινους κυλίνδρους<sup>†</sup>
- (3) δακτύλιος στερεώσεως με οπές
  - (α) κάθετος τομή
  - (β) κάτωφης
- (4) ελαστικός δακτύλιος
- (5) υγρή ύλη (40 MM<sup>3</sup>)
- (6) χώρος ελεύθερος από υγρό

† Ο χάλυψ μπορεί να έχει τη παρακάτω σύνθεση:

CR  $\hat{=}$  1.55%, C  $\hat{=}$  1%, Si MAX 0.25%

MN  $\hat{=}$  0.35%, HRC 58 ... 65 (επεξεργασθείς εν θερμώ χάλυψ)

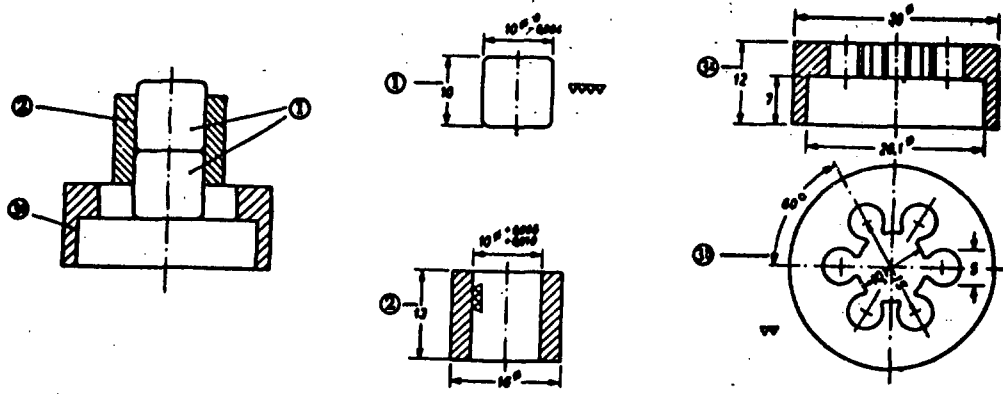
Έλεγχος (δοκιμή) με συσκευή τριβής

Περί περιθωρίου 3I56(β)

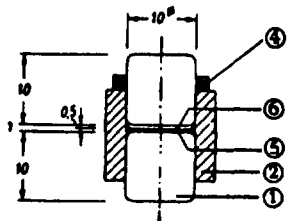
Εικόν 14: Συσκευή τριβής: πρόσοφης και κάτωφης (σχήμα σελ. 2851)

- (1) χαλύβδινη βάση
- (2) κινητό σύστημα (MOVABLE CARRIAGE)
- (3) πλάκα εκ πορσελάνης, 25 X 25 X 5 MM, επί του κινητού συστήματος
- (4) σταθερό γομφίο εκ πορσελάνης, διαμέτρου 10 X 15 MM
- (5) δείγμα υπό έλεγχον, περίπου 10 MM<sup>3</sup>
- (6) συγκρατητής γομφίου
- (7) βραχίων φορτώσεως
- (8) αντίβαρον
- (9) διακόπτης
- (10) τροχός προς ρύθμισιν του κινητού συστήματος σε θέση εκκινήσεως

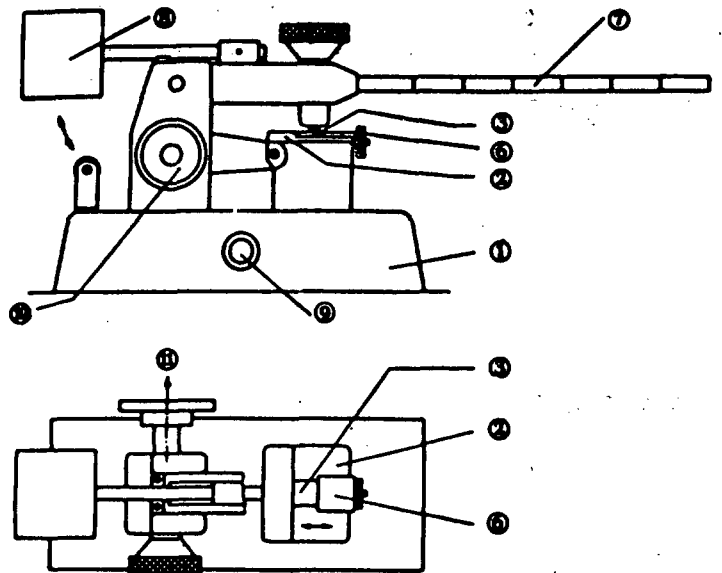




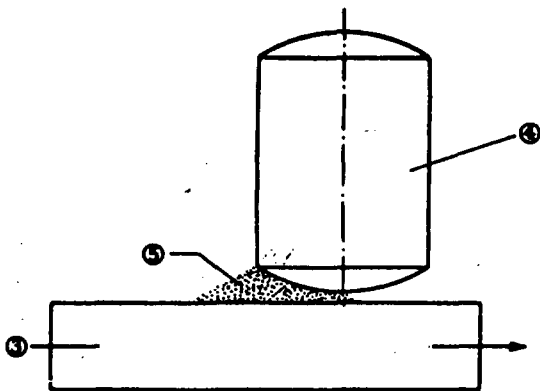
ΕΙΚΟΝΑ 12



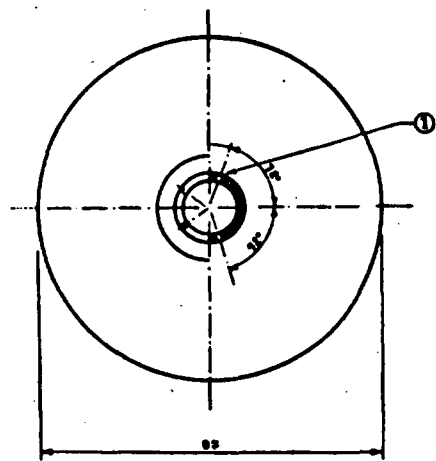
ΕΙΚΟΝΑ 13



ΕΙΚΟΝΑ 14.



ΕΙΚΟΝΑ 15.



ΕΙΚΟΝΑ 16

(II) κατεύθυνσεις προς ηλεκτρικόν κινητήρα

Εικόν 15: Θέσις εκκινήσεως του γόμφου επί του δείγματος (βλ. σελ. 2851)

Έλεγχος δυναμίου δι' εξέρωσιν

Περὶ περιθωρίου 3I58

Εικόν 16: Κοίλος ορειχάλκινος κύλινδρος, κλειστός στο ένα άκρο, κάθετος και κάθετος τομή (σχήμα σελ. 2851)  
διαστάσεις σε MM

Εικόν 17: Βάρος σχήματος κώδωνος 2220 γραμ., ικανόν να αιωρείται επί ορειχαλκίνου εμβόλου (σχήμα σελ. 2852)

Εικόν 18: Κυλινδρικό ορειχάλκινο έμβολο  
διαστάσεις σε MM (σχήμα σελ. 2852)

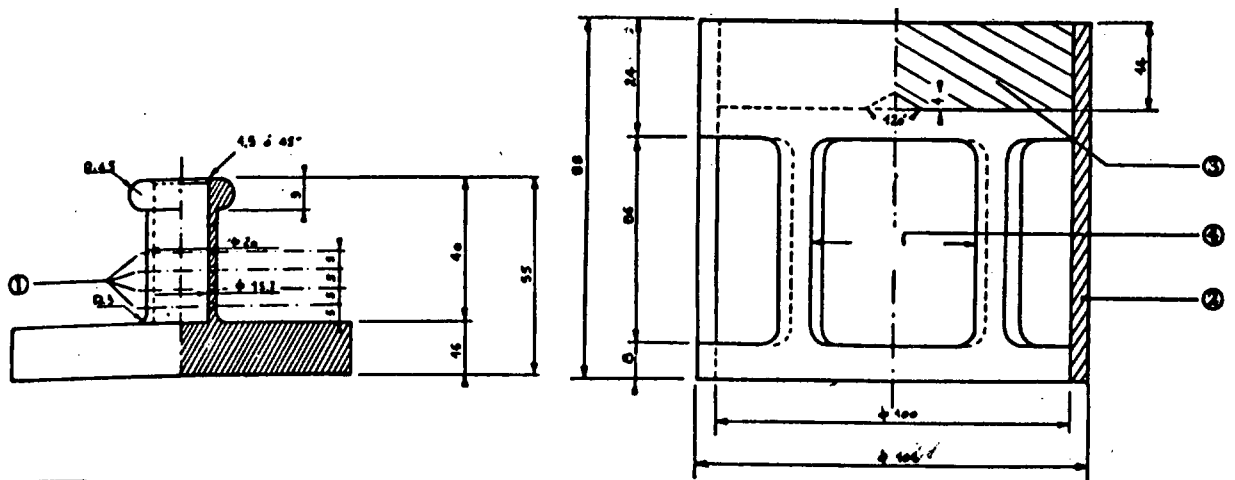
(1) 4 σειρές 5 σπών διαμέτρου 0.5

(2) χαλκός

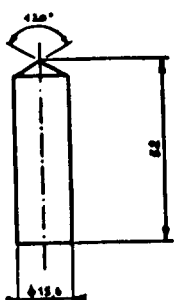
(3) πλάκα από μόλυβδο με κεντρική κωνική υποδοχή στη κάτω πλευρά

(4) 4 ανοίγματα, περίπου 46 X 56,

ομοιομόρφως χωρισμένη κυκλική περιφέρεια



ΕΙΚΟΝΑ 17



## ΠΡΟΣΘΗΚΗ Α.2

Α.- Διατάξεις αφορώσαι την φύσιν των δοχείων  
(RECEPTACLES) εκ κράματος αλουμινίου για  
συγκεκριμένα αέρια της Κλάσεως 2

I.- Ποιότης του υλικού

(I) Τα υλικά των δοχείων εκ κράματος αλουμινίου 3200  
τα οποία πρόκειται να γίνουν δεκτά για τα αέρια τα νανα-  
φερόμενα στο περιθώριο 2203 (2) (β) θα πληρούν τους παρα-  
κάτω όρους:

	A	B	Γ	Δ
Αντοχή εις εφελκυσμόν, RM, σε KG/MM <sup>2</sup>	5 έως 19	20 έως 38	20 έως 38	35 έως 50
Κρίσιμον σημείον ε- λαστικότητας, Re, σε KG/MM <sup>2</sup> (μόνιμο σείτ → = 0.2%)	I έως 17	6 έως 32	I4 έως 34	2I έως 42
Μόνιμος επιμήκυνσις σε ρήγμα (I=5D) επί τοις εκατόν	I2 έως 40	I2 έως 30	I2 έως 30	II έως I6
Δοκιμή κάμψεως N = 5 (RM < 10) (διάμετρος προ-N = 6 (RM > 10))	N = 6 (RM < 33)	N = 6 (RM < 33)	N = 7 (RM < 40)	N = 8 (RM > 40)
ηγουμένου: D = N.E, δπου E είναι το πάχος του υπό δοκιμήν τεμα- χίου)				
Αριθμός Σειράς Σωματείου Αλουμινίου*	I000	5000	6000	2000

\* Βλέπε "Πρότυπα και Στοιχεία Αλουμινίου", πέμπτη έκδοσις, Ιανουά-  
ριος 1976, δημοσιευθέν υπό του Σωματείου Αλουμινίου, 750 THIRD AVENUE  
N. Υόρκη.  
Ξα

Οι πραγματικές ιδιότητες θα εξαρτηθούν εκ της συνθέσεως του προειμένου κράματος και εκ της τελικής επεξεργασίας του δοχείου, αλλά οποιοδήποτε κρ-μα χρησιμοποιηθεί το πάχος του δοχείου θα υπολογίζεται δια του παρακάτω τύπου:

$$\epsilon = \frac{P \cdot X \cdot D}{200 R_e / P} \quad ,$$

I.30

όπου  $\epsilon$  = κατώτατο πάχος του τοιχώματος του δοχείου, σε MM°

P = πίεσις δοκιμής, σε KG/CM<sup>2</sup>.

D = ονομαστική εξωτερική διάμετρος του δοχείου, σε MM° και

R<sub>e</sub> = εγγυημένη κατωτάτη 0.26τα εκατό τάση δοκιμής, σε KG/MM<sup>2</sup>.

Επιπροσθέτως, η τιμή της κατωτάτης εγγυημένης τάσεως δοκιμής (R<sub>e</sub>) του τύπου, *σε καμία περίπτωση* θα είναι μεγαλύτερα των 0.85 φορές της εγγυημένης κατωτάτης αντοχής εις εφελκυσμόν (R<sub>m</sub>), οποιοσδήποτε και εάν είναι ο χρησιμοποιηθείς τύπος του κράματος.

Σημειώσεις: - (δχ<sup>η</sup>μα 6ε) 2856

I.- Τα ανωτέρω χαρακτηριστικά βασίζονται επί προηγούμενης δια τα παρακάτω υλικά τα χρησιμοποιηθέντα για δοχεία:

Στήλη A: Αλουμίνιον, καθαρόν, 99.5°/ο καθαρόν°

Στήλη B: Κράματα αλουμινίου και μαγνησίου°

Στήλη Γ: Κράματα αλουμινίου, πυριτίου και μαγνησίου, ως ISO/R209-AI-Si-MG (Σωματελον Αλουμινίου 635I)°

2.- Η μόνιμος επιμήκυνσις σε ρήγμα ( $L = 5D$ ) 3200  
 μετράται δια τεμαχίων-δοκιμής κυκλικής τομής εις τα (Συνεχίζεται  
 οποία το μήκος του μετρητού  $L$  ισούται με πέντε φορές  
 τη διάμετρο  $D$ · εάν τεμάχια ορθογωνίου τομής χρησιμο-  
 ποιηθούν, το μήκος του μετρητού πρέπει να υπολογισθεί  
 δια του τύπου  $L = 5.65 / F_0$ , όπου  $F_0$  είναι η αρχική  
 επιφάνεια (εμβαδόν) της διατομής του τεμαχίου δοκιμής.

3.- (α) Η δοκιμή κάμψεως (βλέπε διάγραμμα) θα διε-  
 ξάγεται επί δειγμάτων λαμβανομένων δια κο-  
 πής εις <sup>δύο</sup> ίσα μέρη πλάτους  $3ε$ , αλλά εν ου-  
 δεμιά περιπτώσει ολιγώτερο των 25 MM,  
 δακτυλιοειδούς τμήματος κυλίνδρου. Τα δείγ-  
 ματα θα τριανταρισθούν μόνον στα άκρα.

(β) Η δοκιμή κάμψεως θα διεξάγεται μεταξύ εργα-  
 λείου κάμψεως (μαντρέλι) διαμέτρου ( $D$ )  
 και δύο κυκλικών στηριγμάτων χωρισμένων  
 δι' αποστάσεως των ( $D + 3ε$ ). Διαρκούσης της  
 δοκιμής οι εσωτερικές όψεις θα χωρίζονται  
 δι' αποστάσεως όχι μεγαλύτερας της διαμέτρου  
 του εργαλείου κάμψεως (μαντρελιού).

(γ) Το δείγμα δεν θα παρουσιάζει ρωγμάς όταν  
 καμφθεί προς τα μέσα περίξ του εργαλείου  
 κάμψεως (μαντρελιού) μέχρις ότου οι εσωτε-  
 ρικές όψεις χωρισθούν δι' αποστάσεως όχι  
 μεγαλύτερας της διαμέτρου του εργαλείου  
 κάμψεως (μαντρελιού).

(δ) Ο λόγος ( $N$ ) μεταξύ της διαμέτρου του εργα-

λείου κάμφεως (μαντρελιού) και του πάχους 3200 του δείγματος θα συμφωνεί με τις τιμές που (Συνεχίζονται) δίδονται στον πίνακα.

$D \neq 3e$  περίπου.

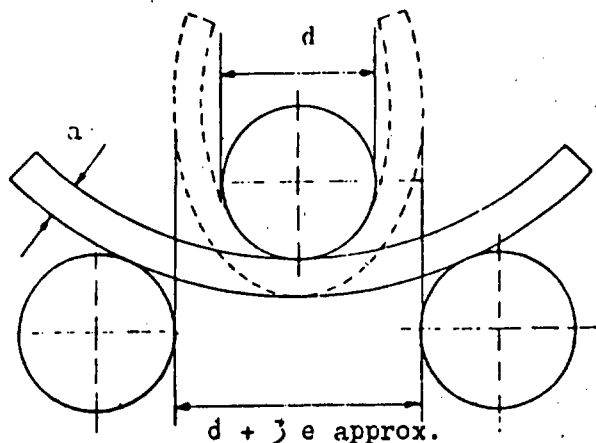


Diagram of bend test

Διάγραμμα δοκιμής κάμφεως

(2) Χαμηλότερα τιμή κατωτάτης επιμηκύνσεως είναι δεκτή υπό τον όρον ότι πρόσθετος δοκιμή εγκριθείσα υπό της αρμοδίας αρχής της χώρας εις την οποίαν κατασκευάζονται τα δοχεία αποδείξει ότι η ασφάλεια της μεταφοράς εξασφαλίζεται *σε όποια* έντασι εξασφαλίζεται δια δοχεία κατασκευασμένα συμφώνως προς τα χαρακτηριστικά τα διδόμενα εις την παράγραφον (I) του πίνακος.

(3) Το πάχος του τοιχώματος των δοχείων εις το λεπτότερον σημείον θα είναι το κάτωθι:-

οσάνις η διάμετρος του δοχείου είναι μικρότερα των 50 MM: όχι μικρότερο των 1.5 MM.

οσάνις η διάμετρος του δοχείου είναι από 50 έως 150 MM: όχι μικρότερο των 2 MM και

οσάνις η διάμετρος του δοχείου είναι μεγαλύτερα των 150 MM: όχι μικρότερο των 3 MM.

(4) Τα άκρα των δοχείων θα έχουν ημικυκλικόν, ελλειπτικόν ή "λαβής καλάθου" τμήμα·θα παρέχουν τον αυτόν βαθμόν ασφαλείας ως το σώμα του δοχείου.

II.- Πρόσθετος επίσημος δοκιμή κραμάτων αλουμινίου

(I) Επιπροσθέτως των δοκιμών των απαιτούμενων υπό 320I των περιθωρίων 22I5, 22I6 και 22I7, είναι απαραίτητον να γίνει έλεγχος για πιθανή ενδοκρυσταλλική διάβρωση του εσωτερικού τοιχώματος του δοχείου όπου γίνεται χρήση κράματος αλουμινίου περιέχοντος χαλκόν, ή όπου γίνεται χρήση κράματος αλουμινίου περιέχοντος μαγνήσιον και μαγγάνιον και το εις μαγνήσιον περιεχόμενον είναι μεγαλύτερον του 3.5 ετα εκατό ή το εις μαγγάνιο περιεχόμενον είναι μικρότερον του 0.5 ετα εκατό .

(2) Προκειμένου περί κράματος αλουμινίου/χαλκού η δοκιμή θα διεξαχθεί υπό του κατασκευαστού κατά την έγκρισιν νέου κράματος υπό της αρμόδιας αρχής· εν συνεχεία θα επαναλειφθεί, κατά την πορείαν της παραγωγής για κάθε χύσιμον του κράματος.

(3) Προκειμένου περί κράματος αλουμινίου/μαγνησίου η δοκιμή θα διεξαχθεί υπό του κατασκευαστού κατά την έγκρισιν του νέου κράματος και της μεθόδου κατασκευής υπό της αρμόδιας αρχής. Η δοκιμή θα επαναλειφθεί όσάκις γίνεται αλλαγή εις την σύνθεσιν του κράματος ή εις την μέθοδον κατασκευής.

(4) (α) Προπαρασκευή κραμάτων αλουμινίου/χαλκού  
Προτού το κράμα αλουμινίου/χαλκού υποβληθεί εις την δοκιμή της διαβρώσεως, τα δείγματα θα καθαρισθούν από το λίπος δια καταλλήλου διαλυτικού, και ξηρανθούν.

(β) Προπαρασκευή κραμάτων αλουμινίου/μαγνησίου  
Προτού το κράμα αλουμινίου/μαγνησίου υποβληθεί εις την δοκιμήν της διαβρώσεως, τα δείγματα θα θερμανθούν επί επτά ημέρες σε 100° C· ακο-

λούθως θα καθαρισθούν από το λίπος δια καταλλήλου διαλυτικού, και ξηρανθούν.

3201

(γ) Εκτέλεσις της δοκιμής

(Συνεχίζεται)

Η εσωτερική πλευρά του δείγματος μετρήσεως  $1,000 \text{ MM}^2$  ( $33,3 \times 30 \text{ MM}$ ) του υλικού του περιέχοντος χαλκόν θα επεξεργασθεί σε θερμοκρασία του περιβάλλοντος, επί 24 ώρες, με  $1,000 \text{ ML}$  υδατώδους διαλύματος περιέχοντος 3 τοια εκατό  $\text{NaCl}$  και 0.5 τοια εκατόν  $\text{HCl}$ .

(δ) Εξέτασις

Αφού πλυθεί και ξηρανθεί, τμήμα του δείγματος μήκους  $20 \text{ MM}$  θα εξετασθεί μικρογραφικώς σε μεγέθυσιν  $100$  έως  $500 \times$ , κατά προτίμησιν μετά την ηλεκτροστίλβωσιν.

Το βάθος της προσβολής δεν θα προχωρήσει πέραν του δευτέρου στρώματος κόκκων εκ της επιφανείας της υποκειμένης εις την δοκιμήν της διαβρώσεως· κατ' αρχήν, εάν ολόκληρον το πρώτον στρώμα των κόκκων προσβληθεί, μόνον μέρος της δευτέρας σειράς πρέπει να προσβληθεί.

Προκειμένου περί τμημάτων, η εξέτασις θα εκτελείται εις ορθάς γωνίας προς την επιφάνειαν.

Οσάκις μετά την ηλεκτροστίλβωσιν ευρεθεί απαράλη<sup>δπως</sup>τητον/τα όρια των κόκκων είναι ιδιαιτέρως ορατά δια μεταγενεστέραν εξέτασιν, τούτο θα γίνει δια μεθόδου αποδεκτής από την αρμοδίαν αρχήν.

III.- Προστασίας της εσωτερικής επιφανείας

Η εσωτερική επιφάνεια των δοχείων εκ κράματος αλου- 3202



μινίου θα είναι εφοδιασμένη με κατάλληλον αντιδιαβρωτικήν επένδυσιν εάν οι αρμόδιοι σταθμοί ελέγχου (δοκιμών) το θεωρήσουν απαραίτητον. (Συνεχίζεται)

3202  
3203-  
3249

Β.- Όροι αφορώντες τα υλικά και την κατασκευήν των δοχείων των προοριζομένων δια την μεταφοράν των βαθειά-κατεψυγμένων υγροποιημένων αερίων της Κλάσεως 2

(1) Δοχεία, δεξαμεναί και περιβλήματα πρέπει να είναι κατασκευασμένα από χάλυβα, αλουμίνιον, κράμα αλουμινίου, χαλκόν, ή κράμα χαλκού, π.χ. ορείχαλκον. Εν τούτοις, δοχεία, δεξαμεναί και περιβλήματα κατασκευασμένα από χαλκό ή κράμα χαλκού θα γίνονται δεκτά μόνον δι' αέρια μη περιέχοντα ακετυλένιον· αιθυλένιον μπορεί εν τούτοις να περιέχει όχι άνω του 0.005 έτα εκατό ακετυλένιον. 3250

(2) Μόνον υλικά κατάλληλα δια την χαμηλοτέραν θερμοκρασίαν λειτουργίας των δοχείων, δεξαμενών και περιβλημάτων, και των εξαρτημάτων και παρακολουθημάτων των, μπορούν να χρησιμοποιηθούν.

Τα παρακάτω υλικά θα γίνονται δεκτά δια την κατασκευήν δοχείων, δεξαμενών και περιβλημάτων: 3251

(α) χάλυβες μη υποκείμενοι εις εύθρυπτον ρήγμα εις την χαμηλωτέραν θερμοκρασίαν λειτουργίας (βλέπε περιθώριο 3265).

Δύνανται να χρησιμοποιηθούν οι κάτωθι:-

I.- λεπτό-κοκκοι καθαροί χάλυβες, σε θερμοκρασία μέχρι  $-60^{\circ}\text{C}$ .

2.- Νικελιούχοι χάλυβες (με περιεχόμενον εις νικέ- 3251  
 λιον 0.5 έως 9~~τα~~ εκατό ), μέχρι θερμοκρασίας (Συνεχίζε-  
 -196° (, εξαρτωμένης εκ του εις νικέλιον περιεχο-  
 μένου. ται)

3.- Χρωμιονικελιούχοι μετά ωστενίτου χάλυβες, μέχρι  
 θερμοκρασίας -270°C.

(β) αλουμίνιον όχι ολιγώτερο του 99.5~~τα~~ εκατό καθαρόν,  
 ή κράματα αλουμινίου (βλέπε περιθώριον 3266)·

(γ) αποξειδωμένος χαλκός όχι ολιγώτερο του 99.9~~τα~~ εκατό  
 καθαρός, ή κράματα χαλκού έχοντα περιεχόμενον εις χαλ-  
 κόν άνω του 56~~τα~~ εκατό (βλέπε περιθώριον 3267).

(I) Δοχεία, δεξαμενάι και περιβλήματα θα είναι είτε 3252  
 άνευ ραφών είτε συγκολλημένα.

(2) Δοχεία του περιθωρίου 2207 κατασκευασμένα από ωστε-  
 νίτη χάλυβα, χαλκόν ή κράμα χαλκού μπορούν εναλλακτικώς να  
 υποβληθούν εις σκληράν συγκόλλησιν.

Τα εξαρτήματα και παρακολληθήματα μπορούν είτε 3253  
 να βιδώνωνται στα δοχεία, δεξαμενές και περιβλήματα είτε  
 να προσκολλώνται σ'αυτά ως κάτωθι:-

(α) δοχεία, δεξαμενάι και περιβλήματα κατασκευασμένα από  
 χάλυβα, αλουμίνιο ή κράμα αλουμινίου: δια συγκολλήσεως·

(β) δοχεία, δεξαμενάι και περιβλήματα κατασκευασμένα από  
 ωστενίτη χάλυβα, χαλκό ή κράμα χαλκού: δια συγκολλή-  
 σεως ή σκληράς-συγκολλήσεως.

Η κατασκευή των δοχείων, δεξαμενών και περιβλημά- 3254  
 των και ο τρόπος της προσκολλήσεως των εις το όχημα, κάτω  
 από το σασσί ή εις το φέρον υποδοχέα (CONTAINER) σασσί·

θα είναι κατά τρόπον ώστε να αποκλείεται μετά βεβαιότη- 3254  
 -σιαδήποτε τοιαύτη μείωσις της θερμοκρασίας των φερδόντων (Συνεχίζε-  
 -ται)  
 -το φορτίον εξαρτημάτων που θα τα καθίστα ενδεχομένως εύ-  
 -θρυπτα (εύθραυστα). Τα στερεώματα (δεσίματα) των δοχείων,  
 δεξαμενών και περιβλημάτων θα έχουν έτσι υπολογισθεί ώστε  
 ακόμη και όταν το δοχείον, η δεξαμενή ή το περίβλημα είναι  
 στη χαμηλωτέρα θερμοκρασία της λειτουργίας του να εξακολου-  
 -θούν να κατέχουν τις απαραίτητες μηχανικές ιδιότητες.

3255-

3264

I. - Υλικά, δοχεία, δεξαμενές και περιβλήματα

(α) Χαλύβδινα δοχεία, δεξαμενές και περιβλήματα

Τα υλικά τα χρησιμοποιούμενα δια την κατασκευήν 3265  
 δοχείων, δεξαμενών και περιβλημάτων, και αι συγκολλητι-  
 -κά των πλαισιώσεις, πρέπει εις την χαμηλωτέραν θερμοκρα-  
 -σίαν λειτουργίας των να πληρούν τουλάχιστον τους κατωτέρω  
 -δρους, ως προς την αντοχήν εις κρούσιν.

Οι δοκιμές μπορούν να διεξαχθούν με τεμάχια-δοκιμών  
 έχοντα εγκοπήν σχήματος U ή σχήματος V.

Υλικό

Αντοχή εις κρούσιν I/2/ ελάσματος  
 και συγκολλητικών πλαισιώσεων  
 (WELD BEADS) στη χαμηλωτέρα θερμο-  
 -κρασία λειτουργίας

KGM/CM<sup>2</sup> 3/KGM/CM<sup>2</sup> 4/

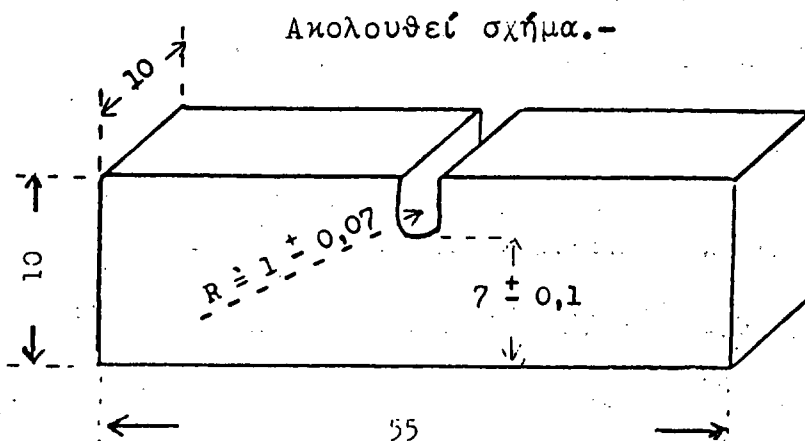
Καθαρός νεκορεσμένος χάλυψ	3.5	2.8
Χάλυψ κράματος Φερρίτη Ni/ 5°/ο	3.5	2.2
Χάλυψ κράματος Φερρίτη 5°/ο/Ni/9°/ο	4.5	3.5
Ωστενίτης CR-Ni Χάλυψ	4.0	3.2

1/ Αντοχά εις κρούσιν καθορισθείσαι με διαφορετικὰ 3265 τεμάχια-δοκιμών δεν είναι αμοιβαίως παραβληταί.

2/ Βλέπε περιθώρια 3275 έως 3277.

3/ Οι τιμές αφορούν τεμάχια δοκιμών με εγχοπήν σχήματος U ως εικονίζεται κατωτέρω.

4/ Οι τιμές αφορούν τεμάχια δοκιμών με εγχοπήν σχήματος V σύμφωνα προς ISO R I48.



Προκειμένου περί ωστενίτου χάλυβος, μόνον η συγκολλητική πλαισίωσις χρειάζεται να υποβληθεί σε δοκιμήν αντοχής εις κρούσιν.

Δια θερμοκρασίας λειτουργίας κάτω των  $-196^{\circ}\text{C}$ , η δοκιμή αντοχής εις κρούσιν δεν εκτελείται στη χαμηλωτέρα θερμοκρασία λειτουργίας, αλλά στους  $-196^{\circ}\text{C}$ .

(β) Δοχεία, δεξαμενές και περιβλήματα κατασκευασμένα από αλουμίνιον ή κράμα αλουμινίου

Οι ραφές των δοχείων, δεξαμενών και περιβλημάτων 3266 σε θερμοκρασία του περιβάλλοντος πρέπει να πληρούν τους παρακάτω δρους ως προς τον συντελεστήν κάμψεως:

Πάχος φύλλου ε σε MM	Συντελεστής κάμψεως $K_I^I$ / δια την ραφήν
	Ρίζα εις ζώνην συμπίεσεως   Ρίζα εις ζώνην τάσεως

$\leq 12$

$\geq 15$

$\geq 12$

$> 12$  έως 20

$\geq 12$

$\geq 10$

$> 20$

$\geq 9$

$\geq 8$

Ι, Βλέπε περιθώριο 3285

(γ) Δοχεία, δεξαμενάς και περιβλήματα κατασκευασμένα από χαλκό ή κράμα χαλκού

Δεν είναι απαραίτητον να διεξαχθούν δοκιμαί προς 3267 καθορισμόν εάν η αντοχή εις κρούσιν είναι κατάλληλος.

3268-

3274

2.- Δοκιμαί (Έλεγχοι)

(α) Δοκιμαί αντοχής εις κρούσιν

Η αντοχή εις κρούσιν η εικονιζομένη στο περιθώριο 3275 3265 αφορά τεμάχια-δοκιμών μετρήσεως 10 X 10 MM και έχοντα εγχοπήν σχήματος U ή σχήματος V.

Σημειώσεις:- Ι.- Αναφορικώς με το σχήμα του τεμαχίου δοκιμής, βλέπε περιθώριο 3265 (πίνα ξ), υποσημειώσεις 3/ και 4/.

2.- Για ελάσματα μικρότερα των 10 MM αλλά πάχους όχι μικρότερου των 5MM, τεμάχια δοκιμών έχοντα διατομήν 10 X ε. MM, όπου "ε" αντιπροσωπεύει το πάχος του ελάσματος, θα χρησιμοποιούνται. Τέτοιες δοκιμές αντοχής εις κρούσιν γενικώς αποδίδουν υψηλότερες τιμές εκείνων των τριούτων δοκιμών επί βασικών (στάνταρντ) τεμαχίων δοκιμών.

3.- Ουδεμία δοκιμή αντοχής εις κρούσιν θα διεξάγεται επί ελασμάτων πάχους μικρότερου των 5 MM, ή επί των ραφών των.

(Ι) Για την δοκιμή ελάσματος η αντοχή εις κρού- 3276 σιν θα προσδιορίζεται επί τριών τεμαχίων-δοκιμών. Τα τεμάχια δοκιμών θα αφαιρούνται εις ορθές γωνίες προς την διεύθυνσιν ελάσεως (κυλίσεως) προκειμένου περί τεμαχίων-δοκιμών

με εγκοπήν σχήματος U και εις την διεύθυνσιν ελάσεως (κυλίσεως) προκειμένου περί τεμαχίων δοκιμών με εγκοπήν σχήματος "V".

3276

(Συνεχίζεται)

(2) Για την δοκιμήν ραφών τα τεμάχια-δοκιμών θα λαμβάνονται ως κάτωθι:

ε / IO

Τρία τεμάχια-δοκιμών εκ του κέντρου της συγκολλήσεως·

τρία τεμάχια-δοκιμών εκ της ζώνης παραμορφώσεως της δημιουργηθείσης υπό της συγκολλήσεως (η εγκοπή θα ευρίσκεται τελείως έξω της τηχθείσης περιοχής αλλά όσο το δυνατόν πλησιέστερον αυτής.)

Σχήματα: (σελ. 2865) Κέντρον συγκολλήσεως Ζώνη παραμορφώσεως  
 π.έ. εξ τεμάχια-δοκιμών συνολικώς.

Τα τεμάχια δοκιμών θα υποστούν μηχανικήν επεξεργασίαν (τορνευθούν) ώστε να έχουν το ανώτατο δυνατόν πάχος.

IO / ε / 20

Τρία τεμάχια-δοκιμών εκ του κέντρου συγκολλήσεως·

τρία τεμάχια-δοκιμών εκ της ζώνης παραμορφώσεως·

Σχήμα

κέντρον συγκολλήσεως

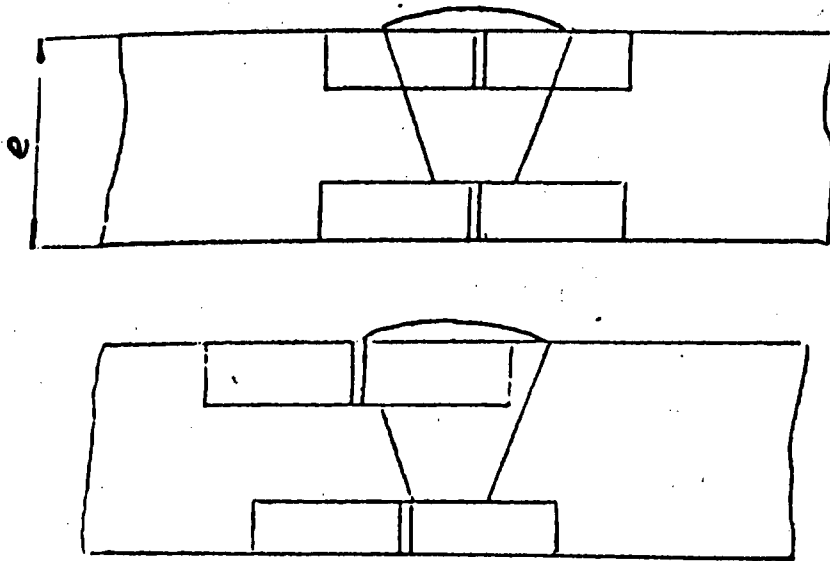
Σχήμα

Ζώνη παραμορφώσεως

π.έ. εξ τεμάχια-δοκιμών συνολικώς.

ε 20

Δύο σειρές (σετ) των τριών τεμαχίων δοκιμών (μια σειρά στην



άνω όψιν, μία σειρά στην κάτω όψιν) σε κάθε ένα των παρακάτω οριζομένων σημείων:

3276  
(Συνεχίζεται)

Σχήμα (σελίδας 2866)

Κέντρον Συγκολλήσεως

Σχήμα (σελίδας 2866)

Ζώνη Παραμορφώσεως

τ.έ. δώδεκα τεμάχια δοκιμών συνολικώς.

(1) Για έλασμα ο μέσος όρος των τριών δοκιμών θα πληροί τις κατώτατες τιμές τις διδόμενες στο περιθώριο 3265° καμμία των τιμών δεν μπορεί να είναι μεγαλύτερα του 30 ετα εκατό κάτω της κατωτάτης ορισθείσης τιμής. 3277

(2) Για συγκολλήσεις οι μέσες τιμές τριών τεμαχίων δοκιμών ληφθέντων εκ διαφορετικών σημείων, κέντρου συγκολλήσεως και ζώνης παραμορφώσεως, θα αντιστοιχούν προς τις κατώτατες εικονιζόμενες τιμές. Καμμία των τιμών δεν μπορεί να είναι μεγαλύτερη του 30 ετα εκατό κάτω της κατωτάτης ορισθείσης τιμής.

3278-  
3284

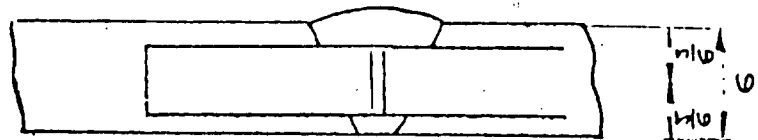
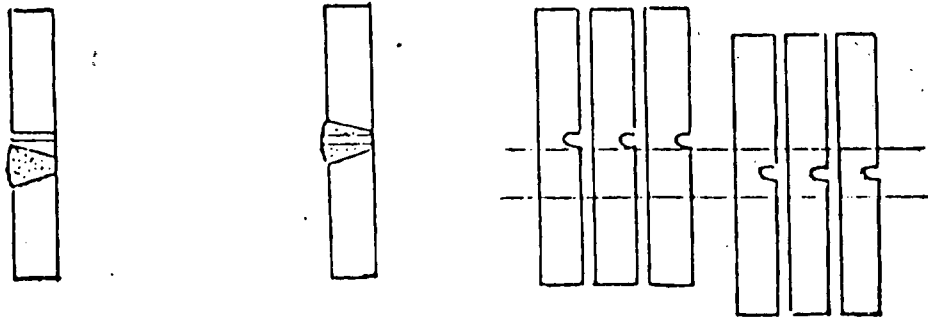
(β) Προσδιορισμός συντελεστού κάμψης

(I) Ο συντελεστής κάμψης  $K$  αναφερόμενος στο περιθώριο 3266 προσδιορίζεται ως κάτωθι:-

$$K = 50 \frac{\varepsilon}{R},$$

όπου  $\varepsilon$  = πάχος του ελάσματος σε MM. και

$R$  = μέση ακτίνα καμπυλότητας σε MM του τεμαχίου δοκιμής όταν η πρώτη ρωγμή εμφανισθεί στη ζώνη τάσεως.





(2) Ο συντελεστής κάμψης  $K$  θα προσδιορίζεται για 3285 τη ραφή. Το πλάτος του τεμαχίου δοκιμής θα είναι ίσο (Συνεχίζεται) με 3 ε.

(3) Τέσσερες δοκιμές θα εκτελούνται επάνω στη ραφή, δύο με τη ρίζα στη ζώνη συμπίεσεως (Εικών 1) και δύο με τη ρίζα στη ζώνη τάσεως (Εικών 2). Όλοι οι λαμβανόμενοι τιμαλ θα πληρούν τους όρους των κατωτέρων τιμών του περιθωρίου 3266.

Εικών 1



Εικών 2



3286-  
3290

Γ.- Διατάξεις αφορώσαι δοκιμές σε διανεμητές αεροζόλ και μιάς χρήσεως (μη-δυναμένους να γεμισθούν εκ νέου) υποδοχείς (CONTAINERS) δι' αέρια υπό πίεσιν της κλάσεως 2, 10<sup>ο</sup> και 11<sup>ο</sup>

Ι.- Δοκιμαί πίεσεως και έκρηξεως επί μοντέλου δοχείου

Δοκιμαί υδραυλικής πίεσεως θα διεξάγονται σε τουλάχιστον πέντε άδεια δοχεία εκάστου μοντέλου: 3291

- (α) μέχρις επιτεύξεως της προβλεπομένης πίεσεως δοκιμής, όταν ουδεμίαν διαρροή ή ορατή μόνιμος παραμόρφωσις θα έχει λάβει χώρα· και
- (β) μέχρις ότου διαρροή ή έκρηξις λάβει χώρα· το, τυχόν, κοίλον άκρον, πρέπει να υποχωρήσει πρώτον, και το δοχείον δεν πρέπει να παρουσιάσει διαρροήν ή έκρηξιν μέχρις ότου επιτευχθελ πίεσις 1.2 φορές της πίεσεως δοκιμής.

2. Δοκιμαία στεγανότητας (διαρροής) σε όλα τα δοχεία

(I). Για τη δοκιμή σε διανεμητές αεροζόλ (I<sup>0</sup>) και 3292 μιάς χρήσεως (μη-δυναμένους να γεμισθούν εκ νέου) υποδοχείς (CONTAINERS) δι' αέριον υπό πίεσιν (II<sup>0</sup>) σε λουτρό καυτού-ύδατος, η θερμοκρασία του λουτρού και η διάρκεια της δοκιμής θα είναι τέτοια ώστε η εσωτερική πίεσις εκάστου δοχείου να φθάσει τουλάχιστον το 90 έτα εκατό της εσωτερικής πίεσεως που θά έφθανε σε 55<sup>0</sup>C.

Εν τούτοις, εάν το περιεχόμενον είναι ευαίσθητον στη θερμότητα ή εάν τα δοχεία είναι κατασκευασμένα από πλαστικό υλικό το οποίο μαλακώνει στη θερμοκρασία αυτής της δοκιμής, η θερμοκρασία του λουτρού θα είναι από 20<sup>0</sup> έως 30<sup>0</sup>C· επιπροσθέτως, ένας διανεμητής από κάθε παρτίδα 2.000 θα δοκιμάζεται στη θερμοκρασία τη προβλεπομένη από τη προηγούμενη παράγραφο.

(2) Ουδεμία διαρροή ή μόνιμος παραμόρφωσις των δοχείων θα προκύψει. Η διάταξις η αφορώσα τη μόνιμο παραμόρφωση δεν ισχύει για δοχεία τα οποία, κατασκευασμένα από πλαστική ύλη, μαλακώνουν.

3293-

ΠΡΟΣΘΗΚΗ Α.3

3299

Δοκιμαία αφορώσαι αφλεκτα υγρά των Κλάσεων 3 και 6.1

(I) Το σημείον αναφλέξεως προσδιορίζεται μέσω ενός 3300 των κατωτέρω τύπων συσκευών:

(α) δια χρήσιν σε θερμοκρασίες μη υπερβαίνουσες τους 50<sup>0</sup>C:

ABEL, ABEL-PENSKY, LUCHAIRE-FINANCES, TAG·

(β) δια χρήσιν σε θερμοκρασίες άνω των 50<sup>0</sup>C: PENSKY-MARTENS,

LUCHAIRE-FINANCES.

3300

(γ) ελλείπει αυτών, οποιαδήποτε κλειστή με καπάκι συσκευή ικανή να δώσει αποτελέσματα εντός 2<sup>ο</sup> C τα οποία συσκευή που αναφέρεται ανωτέρω θα έδιδε στον αυτόν τρόπο. (Συνεχίζεται)

(2) Προς καθορισμόν του σημείου αναφλέξεως των βαφών (χρωμάτων), κόμμι (γομμωδών ουσιών) και παρομοίων ιξωδών προϊόντων περιεχόντων διαλυτικά, μόνον συσκευές και μέθοδοι ελέγχου κατάλληλοι για τον καθορισμόν του σημείου αναφλέξεως των ιξωδών υγρών μπορούν να χρησιμοποιηθούν, όπως

μέθοδος Α του ΙΡ προτύπου Ι70/59 ή περισσότερον προσφάτων ΙΡ προτύπων, Γερμανικών προτύπων DIN 53 213 και TGL 14 301, φυλλάδιον 2.

Η διαδικασία της δοκιμής (ελέγχου) θα είναι: 3301

- (α) για τη συσκευή ABEL, εκείνη του ΙΡ (Ινστιτούτου Πετρελαίου, οδός NEW CAVENDISH, αρ. 61, Λονδίνον, W.I.) προτύπου 34/47, το πρότυπο αυτό μπορεί να χρησιμοποιηθεί επίσης για τη συσκευή ABEL-PENSKY.
- (β) για τη συσκευή PENSKY-MARTENS, εκείνη του ΙΡ (Ινστιτούτου Πετρελαίου, οδός NEW CAVENDISH, αρ. 61, Λονδίνον, W.I.) προτύπου 34/47, ή εκείνην του ASTM (Αμερικανικού Σωματείου Δοκιμών και Υλικών, 1916 RACE STREET, Φιλαδέλφειας 3, (PA.) προτύπου D.93/46.
- (γ) για τη συσκευή TAG, εκείνην του ASTM (Αμερικανικού Σωματείου Δοκιμών και Υλικών, 1916 RACE STREET, Φιλαδέλφειας 3, (PA.)) προτύπου D.53/46.
- (δ) για τη συσκευή LUCHAIRE, εκείνη των Οδηγιών συνημμένων

στην υπουργικήν απόφασιν (ARRETE MINISTERIEL) (Γαλλίας) της 26ης Οκτωβρίου 1925 την εκδοθείσαν υπό του Υπουργείου Εμπορίου και Βιομηχανίας και δημοσιευθείσαν εις την Εφημερίδα της Κυβερνήσεως (JOURNAL OFFICIEL) της 29ης Οκτωβρίου 1925.

Εάν οποιαδήποτε άλλη συσκευή χρησιμοποιηθεί, πρέπει να ληφθούν αι παρακάτω προφυλάξεις:-

- 1.- η δοκιμή πρέπει να εκτελεσθεί σε τόπο απαλλαγμένο από ρεύματα. 3301 (Συνεχίζεται)
- 2.- ο ρυθμός αυξήσεως της θερμοκρασίας του υπό δοκιμήν υγρού δεν πρέπει να υπερβαίνει τους 5° C ανά λεπτόν.
- 3.- η ενδεικτική-φλόγα πρέπει να έχει μήκος 5 MM ( $\pm$  0.5 MM).
- 4.- η ενδεικτική-φλόγα πρέπει να εφαρμοσθεί στο άνοιγμα του δοχείου μετά από κάθε αύξηση 1° C της θερμοκρασίας του υγρού.

Σε περίπτωση διαφωνίας ως προς την ταξινόμηση του αφλέκτου υγρού, ο αριθμός είδους (ITEM NUMBER) ο προτεινόμενος υπό του αποστολέως θα γίνεται δεκτός εάν δοκιμη-ελέγχου του σημείου αναφλέξεως, διεξαχθείσα στο *πριμείβριο* υγρό, αποδώσει αποτέλεσμα μη διαφορετικό κατά περισσότερο των 2° εκ των ορίων (21°, 55° και 100° C αντιστοίχως) των αναφερομένων στο περιθώριο 2301. Εάν δοκιμη-ελέγχου αποδώσει αποτέλεσμα διαφορετικό από άνω των 2° C εκ των ορίων αυτών, δεύτερη δοκιμή-ελέγχου πρέπει να διεξαχθεί, και να υιοθετηθεί ο ληφθείς ανώτατος αριθμός.

Το εις υπεροξείδιον περιεχόμενον ενός υγρού θα προσδιορίζεται ως κάτωθι:- 3303

Ποσότης P (περίπου 5 γραμ., ζυγισθείσα στο 3303  
 πλησιέστερο CG) του υγρού του οποίου πρόκειται να καθο- (Συνεχί-  
 ρισθεί η πυκνότης τοποθετείται σε φιάλην ERLLENMEYER· ζεται)  
 προστίθενται 20 CM<sup>3</sup> ανυδρίτου του οξικού οξέος και πε-  
 ρίπου I γραμ. κονιοποιημένου στερεού ιωδιούχου καλίου·  
 κουνάμε τη φιάλη και, μετά από δέκα λεπτά, τη θερμαίνο-  
 με για 3 λεπτά σε περίπου 60°C· ακολούθως την αφήνομε να  
 ψυχθεί επί 5 λεπτά, μετά τα οποία προσθέτομε 25 CM<sup>3</sup> νερό.  
 Αφού την αφήσωμε ακίνητη για μισή ώρα, η πυκνότης του  
 ελευθερωθέντος ιωδίου καθορίζεται με δεκατοκανονικόν  
 διάλυμα θειοθειϊκού νατρίου. Πλήρης αποχρωματισμός καθο-  
 ρίζει το τέλος της αντιδράσεως. Εάν N είναι ο αριθμός των  
 CM<sup>3</sup> του απαιτουμένου θειοθειϊκού διαλύματος, το ποσοστόν  
 του υπάρχοντος υπεροξειδίου (υπολογιζόμενον ως H<sub>2</sub>O<sub>2</sub>)  
 εις το δείγμα λαμβάνεται δια του τύπου  $\frac{17 N}{100 P}$ .

100 P

3304-

3399

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## ΠΡΟΣΘΗΚΗ Α.4

Υπό επιφύλαξιν

3400-

3499

## ΠΡΟΣΘΗΚΗ Α.5

Διατάξεις αφορώσαι εις δοκιμάς επί μεταλλικών βαρελίων  
αναφερομένων στα περιθώρια 2303(6) και 2813(I) (γ)

I.- Δοκιμή υδραυλικής πίεσεως

Η δοκιμή αυτή θα εκτελείται υπό εγκεκριμένης υπηρεσίας. 3500

Αριθμός δειγμάτων

Τρία βαρέλια ανά τύπον σχεδίου και ανά κατασκευαστήν.

Διαδικασία (μέθοδος) δοκιμής και πίεσις δοκιμής

Τα βαρέλια θα υποβληθούν σε πίεση υδραυλικού θλιβομέτρου όχι κάτω των  $0.75 \text{ KG/CM}^2$  επί πέντε λεπτά, κατά τη διάρκεια του οποίου χρόνου η πίεσις πρέπει να παραμείνει σταθερά. Τα βαρέλια δεν θα υποστηρίζονται μηχανικώς διαρκούσης της δοκιμής.

Κριτήρια καθοριστικά της επιτυχούς διεξαγωγής της δοκιμής

Τα βαρέλια πρέπει να παραμείνουν στεγανά.

II.- Δοκιμή ρίψεως

Η δοκιμή αυτή θα εκτελείται υπό εγκεκριμένης υπηρεσίας. 3501

Αριθμός δειγμάτων

Έξι βαρέλια ανά τύπον σχεδίου και ανά κατασκευαστήν.

Προετοιμασία συσκευασιών (κόλων) για δοκιμή

Τα βαρέλια θα πληρούνται μέχρι του 98 στα εκατό της χωρητικότητός των.

Στόχος

Ο στόχος θα είναι άκαμπτος, ομαλή, επίπεδος και οριζών-

τιος επιφάνεια.

Ύψος ρίψεως

3501

Εάν η δοκιμή διεξάγεται με νερό

(Συνεχίζεται)

(α) οσάνκις τα προς μεταφοράν υγρά έχουν ειδικόν βάρος μη υπερβαίνον το  $I.2 : I.20 M^{\circ}$

(β) οσάνκις τα προς μεταφοράν υγρά έχουν ειδικόν βάρος υπερβαίνον το  $I.2$  : ύψος εκφραζόμενον σε μέτρα δι' αριθμού ίσου προς τον αριθμόν τον εκφράζοντα το ειδικόν βάρος του προς μεταφοράν υγρού στρογγυλεωμένου μέχρι ενός δεκαδικού ψηφίου.

Εάν η δοκιμή διεξάγεται με το υπό μεταφοράν υγρόν ή με υγρόν του οποίου το ειδικόν βάρος είναι τουλάχιστον ίσον προς το του υπό μεταφοράν υγρού :  $I.20 M.$

Σημείον κρούσεως

Η δοκιμή θα περιλαμβάνει ρίψεις δύο ειδών:-

Πρώτη ρίψις (χρησιμοποιούντες τρία βαρέλια):

Το βαρέλι θα κτυπά τον στόχον διαγωνίως επί της ούγκιας, η εάν δεν έχει ούγκια, επί περιφερειακής ραφής.

Όταν ριφθεί, το βαρέλι θα αιωρείται κατά τέτοιο τρόπον ώστε το κέντρον της βαρύτητός του να είναι καθέτως υπεράνω του σημείου κρούσεως.

Δεύτερη ρίψις (χρησιμοποιούντες τα άλλα τρία βαρέλια):

Το βαρέλι θα κτυπά τον στόχον οριζοντίως επί της συγκολλημένης επιμήκουσ ραφής του κορμού του βαρελιού.

Κριτήρια καθοριστικά της επιτυχούς διεξαγωγής της δοκιμής

Μετά την ρίψιν, όλα τα βαρέλια πρέπει να είναι στεγανά όταν αποκατασταθεί η ισορροπία μεταξύ της εξωτερικής πιέ-

σεως και της εσωτερικής πίεσεως. Εάν ένα βαρέλι δεν είναι στεγανό, θα δοκιμασθούν άλλα δώδεκα βαρέλια. Κανένα από αυτά τα βαρέλια δεν πρέπει να παρουσιάζει οποιαδήποτε διαρροή μετά τις δοκιμές. Εάν περισσότερα του ενός της πρώτης παρτίδος των έξι βαρελιών δεν είναι στεγανά, το περί ου πρόκειται βαρέλι θα απορριφθεί.

3501  
(Συνεχίζεται)

### III.- Δοκιμή διαρροής

Κάθε βαρέλι θα δοκιμάζεται (ελέγχεται):

3502

(α) προτού χρησιμοποιηθεί στη μεταφορά για τη πρώτη φορά και

(β) μετά την ανακαίνισιν, προτού χρησιμοποιηθεί και πάλιν στη μεταφορά.

#### Διαδικασία (μέθοδος) Δοκιμής (ελέγχου)

Το βαρέλι θα βυθισθεί στο νερό· ο τρόπος διατηρήσεως του βαρελιού κάτω από το νερό θα είναι τέτοιος ώστε να μη διαφευσθεί το αποτέλεσμα της δοκιμής. Εναλλακτικώς το βαρέλι μπορεί να καλυφθεί με διάλυμα σάπωνος, βαρέος ελαίου ή ετέρου καταλλήλου υγρού επί των ραφών και επί οιαδήποτε άλλου μέρους όπου θα μπορούσε να προκύψει διαρροή.

Μπορούν επίσης να χρησιμοποιηθούν άλλαι μέθοδοι τώσον τουλάχιστον αποτελεσματικά, όπως η διαφορική δοκιμή πίεσεως αέρος ("AIR-ROCKET TESTER") ("δοκιμαστής κενού αέρος").

#### Εφαρμοσθησομένη ατμοσφαιρική πίεσις

Η πίεσις δεν θα είναι μικρότερη των  $0.2 \text{ KG/CM}^2$ .

#### Κριτήρια καθοριστικά της επιτυχούς διεξαγωγής της δοκιμής

Δεν πρέπει να υπάρχει διαρροή αέρος.

### IV.- Μαρκάρισμα

Βαρέλια δοκιμασθέντων τύπων κατασκευής θα μαρκάρονται

3503



II ανέξτελα με τυπωμένη την ένδειξιν του Κράτους<sup>†</sup> εις 3503  
το οποίον διεξήχθη η δοκιμή, την ένδειξιν "ADR" ή (Συνεχίζε-  
"RID" και τον αριθμόν μητρώου των εκχωρηθέντα υπό  
της Υπηρεσίας που διεξήγαγε τις δοκιμές. ται)

V.- Εκθέσις δοκιμής

Εκθέσις δοκιμής πρέπει να συνταχθεί, η οποία θα περι-  
λαμβάνει:- 3504

- I.- στοιχεία αναγνωρίσεως του κατασκευαστού του βαρελιού\*
- 2.- περιγραφήν (π.χ. χρησιμοποιηθέν υλικόν, πάχος τοι-  
χωμάτων και άκρων, ενώσεων, ραφών) και σχέδιον\*
- 3.- το αποτέλεσμα των δοκιμών\*
- 4.- το σήμα του βαρελιού.

Αντίγραφον της εκθέσεως της δοκιμής θα σταλεί εις Υπη-  
ρεσίαν ορισθείσαν υπό της αρμοδίας αρχής του Κράτους  
εις το οποίον διεξήχθη η δοκιμή.

3505-  
3599

† αι αναφερόμεναι ενδείξεις είναι αι εθνικαί διακριτικαί εν-  
δείξεις αυτοκινήτων διεθνούς κυκλοφορίας.

## ΠΡΟΣΘΗΚΗ Α.6

ΔΙΑΤΑΞΕΙΣ ΔΙΕΠΟΥΣΑΙ ΤΙΣ ΡΑΔΙΟΕΝΕΡΓΕΙΣ ΥΛΕΣ ΤΗΣ ΚΛΑΣΕΩΣ 7  
ΚΕΦΑΛΑΙΟΝ Ι - ΟΡΟΙ ΣΥΣΚΕΥΑΣΙΑΣ ΚΑΙ ΣΧΕΔΙΟΝ ΚΟΛΟΥ

## Α.- ΓΕΝΙΚΟΙ ΟΡΟΙ ΣΧΕΔΙΟΥ ΣΥΣΚΕΥΑΣΙΑΣ ΚΑΙ ΚΟΛΩΝ

(1) Η συσκευασία θα είναι έτσι σχεδιασμένη ώστε 3600 το κόλον να μπορεί να χειρίζεται ευχερώς και να μπορεί να ασφαρίζεται (στερεώνεται) κανονικά διαρκούσης της μεταφοράς.

(2) Κόλον μικτού βάρους 10 KG και άνω και μέχρι 50 KG θα είναι εφωδιασμένον με χειρολαβήν.

(3) Κόλον μικτού βάρους άνω των 50 KG θα είναι έτσι σχεδιασμένον ώστε να μπορεί ο ασφαλής χειρισμός του να γίνεται δια μηχανικού μέσου.

(4) Το σχέδιο θα είναι τέτοιο ώστε οποιαδήποτε εξαρτήματα (συγκρατητήρες) ανυψώσεως επί του κόλου, όταν χρησιμοποιηθούν κατά τον προτιθέμενον τρόπον, να μην επιβάλλουν ανασφαλείς τάσεις επί της δομής του κόλου· η εκτίμησις θα λαμβάνει υπόφει τους ενδεδειγμένους συντελεστάς ασφαλείας προς κάλυψιν της "ανά τεμάχιον" ανυψώσεως.

(5) Εξαρτήματα (συγκρατητήρες) και οποιαδήποτε άλλα χαρακτηριστικά επί της εξωτερικής επιφανείας της συσκευασίας που θα μπορούσαν να χρησιμοποιηθούν δια την ανύψωσιν των κόλων θα δύνανται να αφαιρεθούν ή άλλως ακινητοποιηθούν δια μεταφοράν ή θα σχεδιάζονται δια να(υπο)στηρίζουν το βάρος του κόλου συμφώνως προς τους όρους της ανωτέρω παραγράφου (4).

(6) Το εξωτερικό στρώμα της συσκευασίας θα είναι έτσι σχεδιασμένο ώστε να αποφεύγεται, όσον είναι πρακτικώς δυνατόν, η συλλογή και η συγκράτησις του ύδατος.

(7) Οι εξωτερικές επιφάνειες της συσκευασίας θα 3600 έχουν, όσο είναι πρακτικώς δυνατόν, σχεδιασθεί και υποστεί τελικήν επεξεργασία κατά τρόπον ώστε να μπορούν ευχερώς να απολυμανθούν.

(8) Οποιαδήποτε χαρακτηριστικά προστεθέντα εις το κώλον κατά τον χρόνον της μεταφοράς τα οποία δεν είναι εξαρτήματα του κώλου δεν θα μειώνουν την ασφάλειαν του κώλου.

(9) Η μικρότερη γενική εξωτερική διάστασις της συσκευασίας δεν θα είναι μικρότερη των 10 CM.

(10) Ύλεις που έχουν κρίσιμον θερμοκρασίαν κάτω των  $50^{\circ}\text{C}$  ή, στη θερμοκρασία αυτή, πλέσις ατμού άνω των  $3\text{ KG/CM}^2$  θα περιέχεται εις τα δοχεία τα οποία επίσης θα είναι σύμφωνα προς τις διατάξεις των περιθωρίων 2202 και 2211 έως 2218.

#### B.- ΠΡΟΣΘΕΤΟΙ ΟΡΟΙ ΓΙΑ ΚΟΛΑ ΤΥΠΟΥ Α

(1) Το εξωτερικόν κάθε κώλου θα ενσωματώνει χα- 3601 ρακτηριστικόν ως μία σφραγίδα, η οποία δεν θα μπορεί ευχερώς να σπάσει και η οποία, ενδσω θα είναι ανέπαφη, θα αποτελεί απόδειξιν ότι το κώλον δεν ανοίχθηκε.

(2) Όσον είναι πρακτικώς δυνατόν, η συσκευασία θα έχει έτσι σχεδιασθεί ώστε οι εξωτερικές επιφάνειες να είναι ελεύθερες από προεξέχοντα χαρακτηριστικά.

(3) Το σχέδιο της συσκευασίας θα λάβει υπόψη τις μεταβολές της θερμοκρασίας στις οποίες η συσκευασία μπορεί να υποβληθεί διαρκούσης της μεταφοράς και αποθηκεύσεως. Από της απόψεως αυτής,  $-40^{\circ}\text{C}$  και  $70^{\circ}\text{C}$  θα θεωρούνται ως ικανοποιητικά όρια δια την επιλογήν των υλικών· ειδική προσο-

χ), εν τούτοις, θα δίδεται σε εύθυπτο (εύθραυστο) θραύ- 3601  
ση στάθμια της ανωτέρω θερμοκρασίας. (Συνεχίζε-  
ται)

(4) Το σχέδιον και η τεχνική της κατασκευής για συγκολλημένες, συγκολλημένες δι' ορειχάλκου ή άλλης μεταλλικής τήξεως ενώσεις θα είναι σύμφωνα προς τα εθνικά ή διεθνή πρότυπα ή προς πρότυπα αποδεικτά από την αρμόδια αρχή.

(5) Το κέλον θα είναι ικανόν να αντέχει τας επιδράσεις οιασδήποτε επιταχύνσεως, κραδασμού ή ταλαντώσεως η οποία ενδέχεται να υπάρξει διαρκούσης της κανονικής μεταφοράς χωρίς οιαδήποτε χειροτέρευσιν της αποτελεσματικότητος των μηχανισμών κλεισίματος επί των διαφόρων δοχείων ή της ακεραιότητος του κέλου ως έν σύνολον. Ειδικώτερον, περικόχλια, βίδες και λοιποί μηχανισμοί ασφαλείας θα είναι έτσι σχεδιασμένοι ώστε να τας εμποδίζουν να καταστούν χαλαρά (να χαλαρώνουν) ή να ελευθερούνται (λύονται) ακιόπως, ακόμη και μετά από επανειλημμένην χρήσιν.

(6) Ραδιενεργείς ύλες ειδικού τύπου (μορφής) μπορούν να θεωρούνται ως συστατικόν στοιχείον του συστήματος υποδοχέων (CONTAINMENT SYSTEM).

(7) Το σχέδιον θα περιλαμβάνει σύστημα υποδοχέων κλειόμενον δια θετικού μηχανισμού στερεώσεως, δηλαδή δια μηχανισμού ο οποίος δεν θα μπορεί να ανοίγει μόνος του, θα μπορεί μόνον να ανοίγει εκ προθέσεως και θα ανθίσταται εις την επίδρασιν πιθανής αυξήσεως της πιέσεως εσωτερικώς του δοχείου.

(8) Εάν σύστημα υποδοχέων (CONTAINMENT SYSTEM) αποτελεί χωριστήν μονάδα της συσκευασίας, θα είναι ικανόν

να κλείνει ασφαλώς, δια θετικού μηχανισμού στερεώσεως 360I  
(προσδέσεως) ο οποίος θα είναι ανεξάρτητος από οποιο- (Συνεχίζεται)  
δήποτε άλλο εξάρτημα της συσκευασίας.

(9) Τα υλικά της συσκευασίας και οποιαδήποτε  
συστατικά μέρη ή δομαί θα συμφωνούν φυσικώς και χημικώς  
μεταξύ των και με το περιεχόμενο του κελού· δέον να λαμ-  
βάνεται υπόψη η συμπεριφορά των υπό ακτινοβολίαν.

(10) Το σχέδιον οιοδήποτε συστατικού μέρους του  
συστήματος υποδοχέων (CONTAINMENT SYSTEM) θα λαμβάνει  
υπόψη, οσάντις είναι δυνατόν να εφαρμοσθεί, την ραδιολυ-  
τικήν αποσύνθεσιν των υγρών και άλλων τρωτών υλικών και  
την παραγωγήν αερίου δια χημικής αντιδράσεως και ραδιο-  
λύσεως.

(11) Το σύστημα υποδοχέων (CONTAINMENT SYSTEM)  
θα κρατεί το ραδιενεργόν περιεχόμενον του κάτω της ελατ-  
τώσεως της περιβαλλοντικής πίεσεως μέχρι  $0.25 \text{ KG/CM}^2$ .

(12) Όλες οι βαλβίδες, πλην των βαλβίδων ανα-  
κουφίσεως της πίεσεως, δια των οποίων το ραδιενεργόν πε-  
ριεχόμενον θα μπορούσε άλλως να διαφύγει θα προστατεύον-  
ται κατά της μη-εξουσιοδοτηθείσης λειτουργίας των και θα  
είναι εφοδιασμένες με καλύπτρα δια να συγκρατείται οποια-  
δήποτε διαρροή εκ της βαλβίδος.

(13) Προστευτικόν της ακτινοβολίας κάλυμμα το  
οποίον εγκλείει συστατικόν μέρος της συσκευασίας οριζο-  
μένον ως τμήμα του συστήματος υποδοχέων (CONTAINMENT SYSTEM)  
θα είναι έτσι σχεδιασμένον ώστε να εμποδίζεται ή μη ηθελη-  
μένη ελευθέρωσις του συστατικού τούτου μέρους εκ του προ-

στατευτικού καλύμματος. Οσάκις το προστατευτικόν της ακτι- 360I  
νοβολίας κάλυμμα και το εντός αυτού τοιούτον συστατικόν (Συνεχίζε-  
μέρος αποτελούν χωριστήν μονάδα, το προστατευτικόν της  
ταί)  
ακτινοβολίας κάλυμμα θα είναι ικανόν να κλείνει ασφαλώς  
δια θετικού μηχανισμού στερεώσεως (προσδέσεως) ο οποίος  
θα είναι ανεξάρτητος από οιαδήποτε άλλην δομήν συσκευασίας.

(I4) Οποιαδήποτε συνδετικά προσαρτήματα επί του  
κόλου θα είναι έτσι σχεδιασμένα ώστε, υπό κανονικής και  
τυχαίας συνθήκας, αι δυνάμεις εις τα προσαρτήματα αυτά δεν  
θα εξασθενούν την ικανότητα του κόλου να αντιμετωπίσει  
τους όρους της παρούσης προσθήκης.

(I5) Η συσκευασία τύπου Α θα είναι έτσι σχεδια-  
σμένη ώστε, εάν υπεβάλετο στις δοκιμές τις οριζόμενες υπό  
του περιθωρίου 3635 θα εμπόδιζε:-

- (α) την απώλειαν ή διασποράν του ραδιενεργού περιεχομέ-  
νου, και
- (β) οιαδήποτε αύξησιν της προ της δοκιμής καταγραφείσης  
ή υπολογισθείσης εις την εξωτερικήν επιφάνειαν ανω-  
τάτης ακτινοβολίας.

(I6) Η σχεδιασμένη για υγρά συσκευασία Τύπου Α  
θα είναι, επιπροσθέτως, κατάλληλος να αντιμετωπίσει τους  
όρους τους προβλεπομένους υπό του ανωτέρω περιθωρίου (I5)  
εάν το κόλον υποβληθεί στις δοκιμές τις οριζόμενες στο πε-  
ριθώριο 3636.

Εν τούτοις, οι δοκιμές αυτές δεν απαιτούνται  
όταν αρκετό απορροφητικό υλικό απορροφά δύο φορές  
τον όγκον του περιεχομένου του υγρού ευρίσκεται εντός του  
συστήματος υποδοχέων (CONTAINMENT SYSTEM) και :

- (α) το απορροφητικό υλικό ευρίσκεται εντός του προστατευτικού καλύμματος ακτινοβολίας· ή (360I (Συνεχίζεται))
- (β) το απορροφητικό υλικό ευρίσκεται εκτός του προστατευτικού καλύμματος ακτινοβολίας, υπό τον όρον ότι θα μπορεί να αποδειχθεί ότι εάν το περιεχόμενο του υγρού απερροφείτο υπό του απορροφητικού υλικού το προκύπτον επίπεδον ακτινοβολίας εις την επιφάνειαν του κόλου δεν θα υπερέβαινε τα 200 MREM/H (ωριαίως).

(I7) Η συσκευασία Τύπου Α η σχεδιασμένη για πεπιεσμένα ή μη πεπιεσμένα αέρια, θα εμποδίζει, επιπροσθέτως, με απώλειαν ή διασποράν του ραδιενεργού περιεχομένου εάν το κόλον υποβληθεί εις τις δοκιμές τις οριζόμενες στο περιθώριο 3636. Συσκευασία σχεδιασθείσα για τρίτιο και αργό-37, υπό αεριώδη μορφήν και για δράσιν μέχρι 200 Ci, θα εξαιρείται του παρόντος όρου.

Γ.- ΒΑΣΙΚΟΙ ΠΡΟΣΘΕΤΟΙ ΟΡΟΙ ΓΙΑ ΚΟΛΑ ΤΥΠΟΥ Β(Υ) ΚΑΙ ΤΥΠΟΥ Β(Μ)

(I) Εκτός ως προβλέπεται εις περιθώριον 3603(I)(α) και 3604(2) αντιστοίχως, τα κόλα Τύπου Β(Υ) και Τύπου Β(Μ) 3602 θα σχεδιάζονται ώστε να πληρούν τους πρόσθετους όρους τους οριζόμενους για κόλα Τύπου Α εις περιθώριον 360I(I) έως (I5) συμπεριλαμβανομένων.

(2) Η συσκευασία θα είναι έτσι σχεδιασμένη ώστε εάν υποβληθεί στις δοκιμές του περιθωρίου 3637 θα συγκρατούσε αρκετήν ακτινοβολίαν εις τρόπον ώστε να εξασφαλίζεται ότι το επίπεδον ακτινοβολίας εις I M από της επιφανείας του κόλου δεν θα υπερβαίνει I REM/H (ωριαίως) εάν το κόλον

πρέπει είχε αρκετό ιρίδιο-192 ώστε να παραχθεί επίπεδον ακτινοβολίας 10 MREM/H εις 1 M από της επιφανείας προ των δοκιμών. Οσάκις η χρήση της συσκευασίας πρόκειται να περιορισθεί εις συγκεκριμένα ραδιονουκλεΐδια, τα ραδιονουκλεΐδια αυτά μπορούν να χρησιμοποιούνται ως πηγή παραπομπής (αναφοράς) αντί του ιρίδιο-192. Επιπροσθέτως, εάν η συσκευή πρόκειται να χρησιμοποιηθεί για πομπούς ουδετερονίων (NEUTRON EMITTERS), κατάλληλος πηγή παραπομπής (αναφοράς) εις ουδετερόνια θα πρέπει επίσης να χρησιμοποιείται. Δεν απαιτείται όπως γίνει απαραίτητως μέτρησις με δοκιμαστικήν πηγήν ακτινοβολίας αλλά όπως υπολογισμοί γίνουν εν σχέσει με την εξεταζομένην συγκεκριμένην παραπομπήν πηγής ακτινοβολίας.

Τύπου

(3) Τα κόλλα/B(U), και Τύπου B(M) θα είναι έτσι σχεδιασμένα, κατασκευασμένα και προετοιμασμένα για φόρτωσιν όπως, υπό συνθήκας περιβάλλοντος οριζομένης στην παράγραφον (4), να ικανοποιούν (πληρούν) τους κατωτέρω όρους (α) και (β):

- (α) Θερμότης παραγομένη εντός του κόλου υπό του ραδιενεργού περιεχομένου δεν θα επηρεάζει δυσμενώς, υπό κανονικής συνθήκας μεταφοράς (ως εδείχθη δια των δοκιμών του περιθωρίου 3635), το κόλον κατά τοιούτον τρόπον ώστε τούτο να μη πληροί τους ισχύοντας όρους για υποδοχείς και προστασίαν εάν αφεθεί απαρακλούθητον δια χρονικήν περίοδον μίας εβδομάδος. Ιδιαίτερη προσοχή θα δίδεται στις επιδράσεις της θερμότητος που μπορούν:-



- (ι) να τροποποιήσουν την διευθέτησιν, την γεωμε- 3602  
τρικήν μορφήν ή την φυσικήν κατάστασιν του (Συνεχίζε-  
ραδιενεργού περιεχομένου ή, εάν το υλικόν ται)  
κλεισθελ σε μπιτόνι ή δοχείον (π.χ. επενδεδυ-  
μένα στοιχεία καυσίμου), να προκαλέσουν το  
λυώσιμον του μπιτονιού, δοχείου ή υλικού·
- (ιι) να ελαττώσουν την αποτελεσματικότητα της  
συσκευασίας δια διαφορικής θερμικής διαστολής  
η ραγίσματος ή λυώματος του προστατευτικού  
κατα της ακτινοβολίας υλικού·
- (ιιι) εν συνδυασμώ με την υγρασίαν να επιταχύνουν την  
διάβρωσιν.
- (β) Η θερμοκρασία των προσιτών επιφανειών κόλου Τύπου  
B(U) ή Τύπου B(M) δεν θα υπερβαίνει τους 50°C υπό  
σκιάν εκτός εάν το κόλον μεταφερθελ ως πλήρες φορ-  
τίον.
- (4) Εφαρμόζοντες την παράγραφον (3)(α) θα πρέπει:
- (α) η θερμοκρασία του περιβάλλοντος να είναι 38°C  
(β) η εις τον ήλιον έθεσις να είναι σύμφωνος  
προς τον κατωτέρω Πίνακα I.
- Εφαρμόζοντες την παράγραφον (3)(β), προϋποτίθεται η  
ύπαρξις του κατωτέρω όρου:
- Θερμοκρασία περιβάλλοντος 38°C.
- Προκειμένου περί κόλων Τύπου B(M) τα οποία πρόκειται  
να μεταφερθούν αποκλειστικώς μεταξύ ορισμένων χωρών, εναλ-  
λακτικοί όροι μπορούν να γίνουν δεκτοί από συμφώνου μετά  
των αρμοδίων αρχών των χωρών αυτών.

3602  
(Συνεχίζεται)

## ΠΙΝΑΞ Ι

## ΣΤΟΙΧΕΙΑ ΕΚΘΕΣΕΩΣ ΕΙΣ ΤΟΝ ΗΛΙΟΝ

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Σχήμα και επιφάνεια Έκθεσις εις ήλιον σε GCAL/CM<sup>2</sup>  
για 12 ώρες ημερησίως  
-----

Επίπεδοι επιφάνειαι μετα-  
φερόμεναι οριζοντίως:

- βάσις ουδεμία  
- λοιπά επιφάνειαι 800

Επίπεδοι επιφάνειαι μη-μετα-  
φερόμεναι οριζοντίως:

- κάθε επιφάνεια 200 α/  
Κυρταί επιφάνειαι 400 α/

-----  
α/ Εναλλακτικώς, ημιτονοειδής συνάρτησις δύναται να χρη-  
σιμοποιηθελ, υιοθετούντες συντελεστήν απορροφήσεως και  
αδιαφορούντες δια τα αποτελέσματα πιθανής ανακλάσεως  
εκ γειτνιαζόντων αντικειμένων.

(5) Συσκευασία η οποία περιλαμβάνει θερμικήν προ-  
στασίαν με τον σκοπόν της ικανοποιήσεως των όρων της θερμι-  
κής δοκιμής της οριζομένης εις περιθώριον 3637(3) θα είναι  
έτσι σχεδιασμένη ώστε η τοιαύτη προστασία να παραμένει απο-  
τελεσματική εάν η συσκευασία υποβληθελ εις τις δοκιμές τις  
οριζόμενες εως περιθώριον 3635 και περιθώριον 3637(2).  
Οποιαδήποτε τέτοια προστασία επί του εξωτερικού του κελου  
θα καθίσταται αποτελεσματική έναντι συνθηκών κοινώς (συνήθως)

αντιμετωπιζομένων κατά τον κανονικόν χειρισμόν ή εις 3602  
 ατυχήματα και μη εμφανιζομένων εις τας ανωτέρω ανα- (Συνεχίζε-  
 φερομένας δοκιμάς, π.χ. σχίσιμον, κοπήν, ολίσθησιν, ται)  
 εκτριβήν ή ανώμαλον χειρισμόν.

Δ.- ΕΙΔΙΚΟΙ ΠΡΟΣΘΕΤΟΙ ΟΡΟΙ ΓΙΑ ΚΟΛΑ ΤΥΠΟΥ Β(Υ)

(Ι) Το κέλον θα είναι έτσι σχεδιασμένον ώστε, εάν  
 υπεβάλετο στις ανωτέρω αναφερόμενες δοκιμές:

- (α) θα περιώριζε, αναφορικώς με τις δοκιμές τις οριζό-  
 μενες στο περιθώριο 3635 την απώλειαν του ραδιενερ-  
 γού περιεχομένου εις όχι άνω των  $A_2 \times 10^{-6}$  ωριαίως.  
 (β), θα περιώριζε, αναφορικώς με τις δοκιμές του περι-  
 θωρίου 3637, την συσσωρευθείσαν απώλειαν του ραδιε-  
 νεργού περιεχομένου εις όχι άνω των  $A_2 \times 10^{-3}$  σε  
 χρονικήν περίοδον μιάς εβδομάδος.

Οσάκις μίγματα διαφορετικών ραδιονουκλεϊδίων (RADIO-  
 NUCLIDES) υπάρχουν, θα ισχύουν οι όροι του περιθωρίου 369I.

Δια την (α) ανωτέρω, η εκτίμησις θα λάβει υπόψιν τα  
 όρια της εξωτερικής μόλυνσεως, του περιθωρίου 365I. Δι' αμφο-  
 τερα τα (α) και (β) ανωτέρω, αι τιμαί  $A_2$  ευγενών αερίων θα  
 είναι εκείναι της μη-πεπιεσμένης καταστάσεως.

(2) Η συμμόρφωσις προς τα επιτρεπόμενα όρια αφέσεως  
 της δράσεως δεν θα εξαρτάται ούτε από τα φίλτρα ούτε από  
 σύστημα μηχανικής φύξεως.

(3) Το κέλον δεν θα ενσωματώνει χαρακτηριστικόν το ο-  
 ποίον αποσκοπεί εις το να επιτρέπει συνεχή εξαερισμόν διαρ-  
 κούσης της μεταφοράς.

(4) Το κέλον δεν θα περιλαμβάνει σύστημα αναηουφίσεως

της πίεσεως εκ του συστήματος υποδοχέων (CONTAINMENT SYSTEM) το οποίο θα επέτρεπε την ελευθέρωσιν ραδιενεργών υλών εις το περιβάλλον υπό τους όρους των δοκιμών τους οριζομένους εις τα περιθώρια 3635 και 3637. 3603 (Συνεχίζεται)

(5) Οσάκις η ανωτάτη συνήθης λειτουργική πίεσις (βλέπε περιθώριον 2700(2)) του συστήματος υποδοχέων (CONTAINMENT SYSTEM) προστιθεμένη εις οιαδήποτε διαφορική πίεσιν κάτω της μέσης ατμοσφαιρικής πίεσεως της επιφανείας της θάλασσης εις την οποίαν οιονδήποτε συστατικόν μέρος της συσκευασίας οριζόμενον ως τμήμα του συστήματος υποδοχέων μπορεί να υποβληθεί υπερβαίνει τα  $0.35 \text{ KG/CM}^2$ , το συστατικόν τούτο μέρος θα είναι ικανόν να αντέξει εις πίεσιν όχι μικροτέραν της μιας και ημίσεος φοράς του αθροίσματος των πιέσεων αυτών· η έντασις της τελευταίας αυτής πίεσεως δεν θα είναι μεγαλύτερα του 75 ~~επα~~ εκατό της κατωτάτης αντοχής διαρροής (υλικού) και όχι μεγαλύτερα του 40 ~~επα~~ εκατό της μεγίστης αντοχής του συστατικού τούτου μέρους στην ανωτάτην αναμενομένην λειτουργικήν θερμοκρασίαν.

(6) Με το κδλον εις την ανωτάτην συνήθη λειτουργικήν πίεσιν (βλέπε περιθώριον 2700(2)) υποβαλλόμενον εις την θερμικήν δοκιμήν την οριζομένην εις το περιθώριον 3637(3), η πίεσις οιονδήποτε συστατικού μέρους της συσκευασίας οριζόμενου ως τμήματος του συστήματος υποδοχέων θα εμφανίζεται ως μη υπερβαίνουσα την πίεσιν η οποία αντιστοιχεί/την <sup>εις</sup> κατωτάτην αντοχήν διαρροής του συστατικού τούτου μέρους εις την ανωτάτην θερμοκρασίαν εις την οποίαν θα ανεμένετο να φθάσει κατά την δοκιμήν.

(7) Το κέλυφος δεν θα έχει ανωτάτην συνθήκη (κανονικήν) 3603 λειτουργικήν πίεσιν (βλέπε περιθώριον 2700(2)) πλέον των (Συνεχίζεται)  $7 \text{ KG/CM}^2$  (GAUGE).

(8) Η ανωτάτη θερμοκρασία οιασδήποτε επιφανείας ευχερώς προσιτής διαρκούσης της μεταφοράς του κέλυφου δεν θα υπερβαίνει τους  $82^{\circ}\text{C}$  υπό σκιάν υπό κανονικής συνθήκας μεταφοράς (βλέπε επίσης περιθώριο 3602(3)(β) ανωτέρω).

(9) Το σύστημα υποδοχέων (CONTAINMENT SYSTEM) ενός κέλυφου περιεχόντων υγρόν δεν θα εξασθενεί εάν το κέλυφος υποβληθεί εις θερμοκρασίαν  $-40^{\circ}\text{C}$  υπό κανονικής συνθήκας μεταφοράς.

#### Ε.- ΠΡΟΣΘΕΤΟΙ ΟΡΟΙ ΓΙΑ ΚΩΛΑ ΤΥΠΟΥ Β(Μ)

3604

(I) Επιπροσθέτως των όρων του περιθωρίου 3602, τα κώλα Τύπου Β(Μ), όσον είναι πρακτικώς δυνατόν, θα πληρούν τους πρόσθετους ειδικούς όρους των κέλυφου Τύπου Β(Υ) τους διδομένους εις τὸ περιθώριον 3603.

(2) Κέλυφος του Τύπου Β(Μ) θα είναι έτσι σχεδιασμένον ὥστε, εάν υπεβάλετο εις τὰς δοκιμὰς τὰς αναφερομένας εις τον Πίνακα II θα απηγόρευε τὴν ἀπώλειαν του ραδιενεργοῦ περιεχομένου εις ὄχι ἄνω των ἐν Πίνακι II ὀριζομένων ὀρίων δράσεως. Ἡ ἐκτίμησις ὅσον ἀφορὰ τὰς δοκιμὰς τὰς ὀριζομένας εις τὸ περιθώριον 3635 θα λαμβάνει ὑπόψη τὰ ἐν περιθωρίῳ 365I αναφερόμενα ὀρια ἐξωτερικῆς μόλυνσεως.

ΠΙΝΑΞ ΙΙ.- ΟΡΙΑ ΔΡΑΣΕΩΣ (ΕΝΕΡΓΟΤΗΤΟΣ) ΔΙΑ ΤΗΝ  
ΑΠΩΛΕΙΑΝ ΡΑΔΙΕΝΕΡΓΟΥ ΠΕΡΙΕΧΟΜΕΝΟΥ  
ΕΚ ΤΩΝ ΚΟΛΩΝ ΤΥΠΟΥ Β(Μ)

3604

(Συνεχίζεται)

Συνθήκαι	Κόλα Τύπου Β(Μ) μη-σχεδιασμένα δια συνεχή αερισμόν	Κόλα τύπου Β(Μ) ειδικώς σχεδιασμέ- να να επιτρέπουν συνεχή αερισμόν
Μετά τις δοκιμές του περιθωρίου 3635	$A_2 \times 10^{-6}$ ωριαίως	$A_2 \times 5 \times 10^{-5}$ ωριαίως
Μετά τις δοκιμές του περιθωρίου 3637	Κρυπτόν-85: 10 000 Ci σε I εβδομάδα Άλλα ραδιονουκλεΐ- δια: $A_2$ σε I εβδο- μάδα	Κρυπτόν-85: 10 000 Ci σε I εβδομάδα Άλλα ραδιονουκλεΐδια: $A_2$ σε I εβδομάδα

Αι τιμαί  $A_2$  αι χρησιμοποιούμεναι για ευγενή αέρια θα είναι για μη-πεπιεσμένη κατάσταση. Οσάντις μίγματα ραδιονουκλεϊδίων είναι παρόντα θα ισχύουν οι διατάξεις του περιθωρίου 3691.

(3) Εάν η πίεση στο σύστημα υποδοχέων (CONTAINMENT SYSTEM) κόλου Τύπου Β(Μ) θα μπορούσε να καταλήξει σε ένταση υπερβαίνουσαν, υπό τας συνθήκας των δοκιμών των περιθωρίων 3635 και 3637, την κατωτάτην αντοχήν διαρροής οιοδήποτε κατασκευαστικού υλικού του συστήματος υποδοχέων (CONTAINMENT SYSTEM), στη θερμοκρασία στην οποία ανεμένετο να φθάσει κατά τις δοκιμές, η συσκευασία θα είναι εφοδιασμένη με σύστημα ανακουφίσεως της πίεσεως δια να εξασφα-

λισθεί ότι δεν υπερβαίνεται η κατωτάτη αντοχή διαρροής.

3605-

3609

## ΚΕΦΑΛΑΙΟΝ ΙΙ - ΔΙΑΣΠΑΣΤΕΣ ΥΛΕΣ

Α.- ΕΞΑΙΡΕΣΕΙΣ ΔΙΑΣΠΑΣΤΩΝ ΥΛΩΝ ΑΠΟ ΣΥΝΤΑΓΕΣ ΚΟΛΩΝ ΔΙΑ-  
ΣΠΑΣΤΗΣ ΚΛΑΣΕΩΣ

Κόλα περιέχοντα ραδιενεργείς ύλες που είναι ε- 3610  
πίσης διασπαστές ύλες εκτός δια τα αέρια τα οριζόμενα εις  
(α) και (ζ) κατωτέρω, θα σχεδιάζονται κατά τρόπον σύμφωνον  
προς τους όρους του παρόντος κεφαλαίου.

(α) Κόλα περιέχοντα ατομικώς όχι περισσότερα των  
15 γραμ. ουρανίου-233, ουρανίου-235, πλουτονίου-238, πλου-  
τονίου-239, πλουτονίου-241, ή 15 γραμ. οιοδήποτε συνδυα-  
σμού των ραδιονουκλεϊδίων αυτών, εφ' όσον η κατωτάτη εξωτε-  
ρική διάστασις του κόλου δεν είναι μικρότερη των 10 CM.  
Οσάκις το υλικόν μεταφέρεται εις χύμα, τα όρια ποσοτήτων  
θα ισχύουν δια το όχημα.

(β) Κόλα περιέχοντα μόνον φυσικόν ή εξασθενημένον  
(DEPLETED) ουράνιον που έχει υποστεί ακτινοβολίαν σε θερ-  
μούς αντιδραστήρες μόνον.

(γ) Κόλα περιέχοντα ομοιογενή υδρογονώδη διαλύματα  
ή μίγματα πληρούντα τους όρους τους αναφερομένους στον Πί-  
νακα ΙΙΙ. Όταν το υλικόν μεταφέρεται εις χύμα, οι περιορισμοί  
ποσοτήτων θα ισχύουν δια το όχημα.

ΠΙΝΑΞ ΙΙΙ.-  
ΠΕΡΙΟΡΙΣΜΟΙ ΟΜΟΙΟΓΕΝΩΝ ΥΔΡΟΓΟΝΙΚΩΝ ΔΙΑΛΥΜΑΤΩΝ  
Η ΜΙΓΜΑΤΩΝ

3610  
(Συνεχίζεται)

Παράμετροι	Οποιοσδήποτε άλλες δια- σπαστές ύλες (συμπερι- λαμβανομένων των μιγμά- των)	$^{235}\text{U}$ μόνον
Κατωτάτη, $\text{H/X}^{\alpha/}$	5200	5200
Ανωτάτη συμπύκνωσης διασπαστού νουκλεΐδου σε G/L	5	5
Ανωτάτη μάζα διασπα- στού νουκλεΐδου σε G/κδλον	500	$800^{\beta/}$

$\alpha/$  Όπου  $\text{H/X}$  είναι ο λόγος του αριθμού των ατόμων υδρογόνου προς τον αριθμό των ατόμων διασπαστού νουκλεΐδου.

$\beta/$  Με ανοχήν δια PU και  $^{233}\text{U}$  όχι μεγαλύτεραν του I τοις εκατόν της μάζας του  $^{235}\text{U}$ .

(δ) Κόλα περιέχοντα ουράνιον εμπλουτισμένον με ουράνιον-235 το ανώτατον I ετα εκατό κατά βάρος, και με ολικόν εις πλουτόνιον και ουράνιον-233 περιεχόμενον μέχρι του I ετα εκατό της μάζας ουρανίου-235, εφ' όσον, οι διασπαστές ύλες διανέμονται ομοιογενώς καθ' όλον το υλικόν. Επιπροσθέτως, εάν ουράνιον-235 είναι παρόν υπό μεταλλικήν μορφήν ή υπό μορφήν οξειδίου, δεν θα σχηματίζει δικτύωμα εντός του κδλου.



(ε) Κόλα περιέχοντα οιοσδήποτε διασπαστές ύλες 36ΙΟ  
εφ' όσον δεν περιέχουν άνω των 5 γραμ. διασπαστών υλών (Συνεχίζε-  
σε οιοδήποτε όγκον ΙΟ-λιτρών. Οι ύλες θα συσκευάζον-  
ται σε κόλα τα οποία θα διατηρούν τους περιορισμούς επί  
της διανομής των διασπαστών υλών διαρκούσης της κανονικής  
μεταφοράς.)

((στ) Κόλα περιέχοντα ατομικώς όχι άνω του Ι ΚΓ  
ολικού πλουτονίου, εκ του οποίου όχι περισσότερον του  
20 εκατο εκατό κατά μάζα μπορεί να αποτελείται από πλου-  
τόνιον-239, πλουτόνιον-24Ι, ή οιοιδήποτε συνδυασμόν των  
ραδιονουκλειδίων αυτών.

(ζ) Κόλα περιέχοντα υγρά διαλύματα νιτρικού ουρα-  
νυλίου εμπλουτισμένα εις ουράνιον-235 μέχρι το ανώτατον  
2 εκατο εκατό κατά βάρος, με ανοχήν δια πλουτόνιον και  
ουράνιον-233 μέχρι του 0.Ι εκατο της μάζης ουρανί-  
ου-235.

Τα κόλα θα είναι επίσης σύμφωνα με τα λοιπά οικεία τμήματα της παρούσης Προσθήκης.

#### Β.- ΓΕΝΙΚΟΙ ΟΡΟΙ/ΔΙΑΤΑΞΕΙΣ ΠΥΡΗΝΙΚΗΣ ΑΣΦΑΛΕΙΑΣ

(Ι) Όλες οι διασπαστές ύλες θα συσκευάζονται 36ΙΙ  
και φορτώνονται κατά τοιούτον τρόπον ώστε να μην είναι δυ-  
νατόν να φθάσουν εις σημείον κρισιμότητος υπό οιασδήποτε  
δυναμένας να προβλεφθούν συνθήκας μεταφοράς. Ειδικώτερον,  
αι κατωτέρω απρόβλεπτοι περιπτώσεις θα λαμβάνονται υπόψη:-

(α) διαρροή ύδατος εντός ή εκτός των κόλων

(β) η απώλεια της αποδοτικότητος ενσωματωμένων  
απορροφητών ή μετριάστων νετρονίων

- (γ) δυνατή διάταξις του περιεχομένου σε περισσότερο ενεργούς σειρές, είτε εντός του κό- (Συνεχίζεται)  
λου είτε σαν αποτέλεσμα απωλειών εκ του κό-  
λου·
- (δ) ελάττωσις των χώρων μεταξύ κόλων ή περιεχο-  
μέχου·
- (ε) κόλα βυθιζόμενα στο ύδωρ ή θαπτόμενα στο χιόνι·
- (στ) γενική αύξησις της δραστηκότητας λόγω αλλαγών  
στη θερμοκρασία·

(2) Επιπροσθέτως, για ακτινοβολούν πυρηνικόν καύσιμον (IRRADIATED NUCLEAR FUEL) ή μη καθοριζόμενες (απροσδιόριστες) διασπαστέες ύλες θα υπάρχουν οι παρακάτω προϋποθέσεις:-

- (α) Ακτινοβολούν πυρηνικόν καύσιμον δια το οποίον ο βαθμός ακτινοβολίας δεν είναι γνωστός και του οποίου η δραστηκότης μειούται όταν καεί θα θεωρείται ως μη ακτινοβολούν για τον έλεγ-  
χον του σημείου κρισιμότητος. Εάν η δραστηκότης του αυξηθελ όταν καεί, θα θεωρείται ως ακτι-  
νοβολούν μέχρι του σημείου της ανωτάτης δρα-  
στηκότητος. Η δραστηκότης του πυρηνικού καυ-  
σίμου δια το οποίο ο βαθμός ακτινοβολίας εί-  
ναι γνωστός μπορεί να εκτιμηθελ καταλλήλως.
- (β) Για απροσδιόριστες διασπαστέες ύλες όπως κατά-  
λοιπα ή παλιοσίδερα των οποίων ο εμπλουτισμός,  
η μάζα, η συμπύκνωσις, ο λόγος επιβραδύνσεως  
ή η πυκνότης είναι άγνωστα ή δεν μπορούν να  
εξακριβωθούν, η προϋπόθεσις θα είναι ότι κάθε

παράμετρος η οποία δεν είναι γνωστή έχει την 36II τιμήν η οποία δίδει την ανωτάτη δραστηκότητα (Συνεχίζεται) υπό αξιοπίστους συνθήκας.

(3) Κόλα διασπαστών υλών, εντός ως προβλέπεται εις περιθώριον 36IO, θα ταξινομούνται ως κάτωθι:-

- (α) Κλάσις Διασπαστών Υλών I: κόλα τα οποία είναι πυρηνικώς ασφαλή οιοιδήποτε αριθμού και οιασδήποτε διατάξεως υφ'όλας τας προβλεπομένας συνθήκας μεταφοράς.
- (β) Κλάσις Διασπαστών Υλών II: κόλα τα οποία, εις περιωρισμένον αριθμόν, είναι πυρηνικώς ασφαλή σε οποιαδήποτε διάταξη υφ'όλας τας προβλεπομένας συνθήκας μεταφοράς.
- (γ) Κλάσις Διασπαστών Υλών III: κόλα τα οποία είναι πυρηνικώς ασφαλή υφ'όλας τας προβλεπομένας συνθήκας μεταφοράς έννεκον ειδικών προφυλάξεων, ή ειδικών διοικητικών ή λειτουργικών ελέγχων επιβληθέντων κατά την μεταφοράν της αποστολής.

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I/ Εφαρμόζοντες τα στοιχεία σημείου κρισιμότητας (CRITICALITY DATA), τα ληφθέντα είτε κατόπιν υπολογισμού είτε πειραματικώς, επί του διακένου κρισιμότητας των μεταφερομένων κόλων, θα πρέπει να υπάρχει ανοχή χωριστά για οποιαδήποτε ανακρίβεια των στοιχείων ή αβεβαιότητα αναφορικώς με την ισχύ των.

## Γ.- ΕΙΔΙΚΑΙ ΔΙΑΤΑΞΕΙΣ ΓΙΑ ΚΟΛΑ ΔΙΑΣΠΑΣΤΩΝ ΥΛΩΝ

## ΚΛΑΣΕΩΣ Ι

(1) Κάθε κόλον Διασπαστών Υλών Κλάσεως Ι θα είναι 3612 έτος σχεδιασμένο ώστε εάν υπεβλήτο στις δοκιμές τις οριζόμενες στο περιθώριο 3635:-

- (α) το νερό δεν θα διέρρει εντός ή εκτός οιαδήποτε εξαρτήματος του κολου εκτός εάν το νερό διέρρει εις, ή διέρρει εκ, του τμήματος αυτού, εις τον βέλτιστον προβλεπόμενον βαθμόν, ως προϋπόθεσις για τους σκοπούς του περιθωρίου 3614(1) και
- (β) η διαμόρφωσις του περιεχομένου και η γεωμετρία του συστήματος υποδοχέων (CONTAINMENT SYSTEM) δεν θα ετροποποιείτο κατά τρόπον ώστε να αυξάνεται η δραστηκότης σημαντικώς.

(2) Κόλα Διασπαστών Υλών Κλάσεως Ι θα ικανοποιούν τα κριτήρια της πυρηνικής ασφαλείας τα οριζόμενα στα περιθώρια 3613 και 3614.

I.- Για το ατομικό κόλον εξεταζόμενον μεμονομένως

- (1) Οι κάτωθι όροι θα θεωρούνται ως δεδομένοι:- 3613
- (α) το κόλον είναι "κατεστραμμένο" (προς τον σκοπόν αυτόν "κατεστραμμένο" θα εννοεί την εκτιμηθείσαν ή επιδειχθείσαν κατάστασιν του κολου εάν τούτο υπεβλήθη είτε στις δοκιμές τις οριζόμενες στα περιθώρια 3635 και 3637(1), έως (3), τις ακολουθούμενες από τις δοκιμές τις οριζόμενες στο περιθώριο 3638, είτε στις δοκιμές τις οριζόμε-

μενες στα περιθώρια 3635 και 3637(4), οποιοσ- 3613  
δήποτε συνδυασμός είναι πιο περιοριστικός. (Συνεχίζε-  
ται)  
και

(β) το νερό μπορεί να διαρρέει εις ή έξω από όλους  
τους κενούς χώρους του κόλου συμπεριλαμβανομέ-  
νων των εντός του συστήματος υποδοχέων (CONTAIN-  
MENT SYSTEM) τούτων, εκτός του ότι, οσάκις το  
σχέδιον του κόλου ενσωματώνει ειδικά χαρακτηρι-  
στικά για να αποφευχθεί η διαρροή του ύδατος  
εις ή έξω από ωρισμένους κενούς χώρους ακόμη και  
ως αποτέλεσμα ανθρώπινου σφάλματος, η έλλειψις  
διαρροής μπορεί να θεωρηθεί ως δεδομένη εν σχέ-  
σει με τους κενούς τούτους χώρους. Τέτοια ειδικά  
χαρακτηριστικά μπορούν να περιλαμβάνουν είτε:-

(I) πολλαπλούς υψηλού επιπέδου φραγμούς νερού,  
ο καθένας των οποίων θα παρέμενε στεγανός  
εάν το κόλον υπεβάλετο στους συνδυασμούς  
των δοκιμών των οριζομένων στην παράγραφον  
(I)(α)· είτε

(II) υψηλού βαθμού ποιοτικός έλεγχος της παραγω-  
γής και συντηρήσεως της συσκευασίας, μαζί  
με ειδικές δοκιμές για να καταδειχθεί το  
κλείσιμον κάθε κόλου προ της φορτώσεως.

(2) Το κόλον θα είναι δευτεροβάθμια ασφαλέ (SUB-CRITICAL)  
δυνάμει καταλλήλου περιθωρίου<sup>2/</sup> υπό τας συνθήκας της παραγρά-  
φου (I), των φυσικών και χημικών χαρακτηριστικών λαμβανομέ-  
νων υπόψει, συμπεριλαμβανομένης οιασδήποτε αλλαγής των χαρα-

κτηριστικών αυτών τα οποία θα μπορούσαν να προκύψουν υπό 3613 τας συνθήκας της παραγράφου (I), και με τους όρους επι- (Συνεχίζε-  
βραδύνσεως (MODERATION) και ανακλάσεως ως ορίζονται κατω-  
τέρως:

2/ Π.χ., εάν η μάζα διασπαστής ύλης είναι μία κατάλληλος παράμετρος για έλεγχο, κατάλληλο περιθώριο θα αντιπροσωπεύετο δια περιορισμού της μάζης εις 80 ~~ετα~~ εκατό της μάζης εκείνης η οποία θα ήτο ακροσφαλής (CRITICAL) σε παρόμοιο σύστημα.

(α) με τις ύλες εντός του συστήματος υποδοχέων (CONTAINMENT SYSTEM):

(I) η πλέον δραστική διαμόρφωσις και επιβράδυνσις (MODERATION) που είναι δυνατόν να προβλεφθούν υπό τας συνθήκας της παραγράφου (I)·

(II) τελεία πλήρους ύδατος ανάκλασις του συστήματος υποδοχέων (CONTAINMENT SYSTEM) ή τοιαύτη μεγαλύτερα ανάκλασις του συστήματος υποδοχέων ως ήθελε επιπροσθέτως παρασχεθεί υπό του περιβάλλοντος την συσκευασίαν υλικού, και, επί πλέον,

(β) εάν οιονδήποτε τμήμα των υλών διαφύγει από το σύστημα υποδοχέων (CONTAINMENT SYSTEM) υπό τας συνθήκας της παραγράφου (I):

(I) η πλέον δραστική διαμόρφωσις και επιβράδυνσις που θεωρείται πιστευτή·

## (II) τελεία πλήρους ύδατος ανάκλασις των υλών.

2.- Για αποστολές ενδός ή περισσοτέρων κόλων

(I) Οιοσδήποτε αριθμός μη κατεστραμμένων κόλων ενδός 3614 σχεδίου οιασδήποτε διατάξεως θα είναι δευτερευόντως ακροσφαλής (SUB-CRITICAL), για τον σκοπόν αυτόν με τον όρον "μη κατεστραμμένον" θα νοείται η κατάσταση στην οποία τα κόλα έχουν σχεδιασθεί να παρουσιασθούν για μεταφορά.

(2) 250 τέτοια κόλα όταν (είναι) "κατεστραμμένα" θα είναι δευτερευόντως ακροσφαλή (SUB-CRITICAL) εάν συσσωρευθούν ομού με οποιανδήποτε διάταξιν και (είναι) στενώς ανακλώμενα σε όλες τις πλευρές της σωρού υπό του ισοδυναμού ύδατος (δια τον σκοπόν αυτόν με τον όρον "κατεστραμμένον" θα νοείται η εκτιμηθείσα ή επιδειχθείσα κατάστασις του κόλου εάν είχε τούτο υποβληθεί είτε στις δοκιμές τις οριζόμενες στα περιθώρια 3635 και 3637(I) έως (3), ακολουθούμενες από εκείνες του περιθωρίου 3638, είτε στις δοκιμές τις οριζόμενες στα περιθώρια 3635 και 3637(4), οποιοσδήποτε των συνδυασμών είναι περισσότερο περιοριστικός). Υδρογονική επιβράδυνσις (MODERATION) 3/ μεταξύ κόλων, και διαρροή ύδατος εντός ή εκτός των κόλων συμφώνως προς τα αποτελέσματα της δοκιμής θα εικάζεται μέχρι του σημείου που καταλήγει στη μεγαλύτερα δραστηκότητα.

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3/ Η υδρογονική επιβράδυνσις μπορεί να θεωρηθεί ότι αποτελείται είτε από ομοιόμορφον στρώμα ύδατος πλήρους πυκνότητος περιβάλλοντος κάθε κόλον είτε από ύδωρ καταλλήλου πυκνότητος ομοιογενώς διεσπαρμένου μεταξύ των κόλων.

3.- Παραδείγματα σχεδίων κόλων απαιτούντων πολύπλευρον έγκρισιν

Παράδειγμα I

Ο υπολογισμός θα βασισθεί επί των κάτωθι προϋ- 36I5  
ποθέσεων:-

(α) Κάθε ένα κόλον θα συμμορφούται προς τα κριτήρια των περιθωρίων 36I2 και 36I3.

(β) Το κόλον, είτε κατεστραμμένον είτε μη κατεστραμμένον θα είναι τέτοιο ώστε να προστατεύει το διασπαστόν περιεχόμενον από θερμικά νετρόνια.

(γ) Όταν μία παράλληλος δέσμη νετρονίων έχουσα φάσμα ενεργείας ως ορίζεται στον Πίνακα IV προσπίπτει <sup>οιανδήποτε</sup> με/γωνίαν επί μη κατεστραμμένου κόλου ο παράγων πολλαπλασιασμού επιφανείας για επιθερμικά νετρόνια, τ.έ. ο λόγος του αριθμού των επιθερμικών νετρονίων των εγναταλειπόντων το κόλον προς τον αριθμόν των επιθερμικών νετρονίων των εισερχομένων εις το κόλον, θα είναι ολιγώτερος του ενός, και το φάσμα ενεργείας των νετρονίων τα οποία εκπέμπονται υπό του κόλου σε άπειρο σειρά δεν θα είναι εντονώτερον (σκληρότερον) εκείνου του παρεπίμπτοντος νετρονίου.

(δ) Το σχέδιον του κόλου θα συμμορφούται προς τα κριτήρια του περιθωρίου 36I4(2).

4.- Παραδείγματα σχεδίων κόλων απαιτούντων μονομερή έγκρισιν

Παράδειγμα I

(I) Η συσκευασία θα είναι έτσι κατασκευασμένη ώστε το 36I6 διασπαστόν περιεχόμενον να περιβάλεται από στρώμα υλικού



ικανού να απορροφήσει όλα τα παρεπίμπτοντα θερμικά νε- 3616  
 τρώνια 4/ και το απορροφητικόν τούτο στρώμα νετρονίων (Συνεχίζε-  
 περιβληθεί ακολούθως από ξύλον πάχους τουλάχιστον 10.2 CM ται)  
 έχοντος κατώτατον περιεχόμενον υδρογόνου 5.5 άτομα εκατό  
 κατά βάρος, εις τρόπον ώστε η κατωτάτη εξωτερική διάστα-  
 σεις υπεράνω του ξύλου να είναι 30.5 CM.

ΠΙΝΑΞ IV - ΦΑΣΜΑ ΕΝΕΡΓΕΙΑΣ ΝΕΤΡΟΝΙΩΝ α/

Ενέργεια νετρονίου E	Κλάσματα νετρονίων με ενέργειαν κάτω του E
11.0 MeV	1.000
2.4 MeV	0.802
1.1 MeV	0.590
0.55 MeV	0.460
0.26 MeV	0.373
0.13 MeV	0.319
43 KeV	0.263
10 KeV	0.210
1.6 KeV	0.156
0.26 KeV	0.111
42 eV	0.072
5.5 eV	0.036
0.4 eV	0

α/ Το φάσμα είναι το επιθερμικόν τμήμα του φάσματος ισορρο-  
 πίας του αναδυομένου εκ κόλων ενσωματούντων ξύλον πάχους 5 CM  
 σε ακροσφαλή σειρά τοιούτων κόλων.

-----  
 4/ Το στρώμα τούτο μπορεί να αποτελείται από κάδμιον πάχους τουλάχιστον 0.38 MM ισοδύναμον προς 0.325 γραμμ. καδμίου ανά CM<sup>2</sup>.  
 -----

(2) Η συσκευασία θα είναι έτσι κατασκευασμένη 3616  
 ώστε όταν "κατεστραμμένη" (για τον σκοπόν αυτόν "κατα- (Συνεχίζεται)  
 στραμμένη" θα έχει την έννοϊαν την διδομένην στο περι-  
 θώριο 3613(I)) το διασπαστόν περιεχόμενον θα παραμένει  
 περιβαλλόμενον από το απορροφητικόν στρώμα νετρονίων, το  
 απορροφητικόν στρώμα νετρονίων θα παραμένει περιβαλλόμενον  
 από το ξύλον, και το ξύλον δεν θα χαθεί σε βαθμό ώστε να ε-  
 λαττωθεί το πάχος του υπολοίπου ξύλου κάτω των 9.2 CM  
 ή ελαττωθεί ή κατωτάτη εξωτερική διάσπασις υπεράνω του υπο-  
 λοίπου ξύλου σε ολιγώτερον των 28.5 CM.

(3) Το περιεχόμενον δεν θα υπερβαίνει την επιτρεπτή  
 μάζα των διασπαστών υλών την εικονιζομένην στους Πίνακες  
 V έως XIII η οποία είναι σύμφωνος προς: (α) την φύσιν των  
 υλών· (β) την ανωτάτην επιβράδυνσιν· και (γ) την ανωτάτην  
 διάμετρον (ή δγκον), ο οποίος/οποία θα μπορούσε να προκύψει  
 εάν το κέλον ή το "κατεστραμμένον" (για τον σκοπόν αυτόν  
 ο όρος "κατεστραμμένον" θα έχει την έννοϊαν την διδομένην  
 στο περιθώριο 3613(I)).

Σημείωσις:- Λεπτομερής υπολογισμός για δεδομένο σχέδιον  
 κέλου συμφώνως προς την μέθοδον την εκτιθεμέ-  
 νην στο περιθώριο 3615 μπορεί να δώσει ολι-  
 γώτερον περιοριστικές τιμές εκείνων των τιμών  
 των Πινάκων V έως XIII.

Προσθήκη Α.6.-

ΠΙΝΑΞ Ψ

ΥΔΑΤΩΔΗ ΔΙΑΛΥΜΑΤΑ ΘΕΩΡΙΟΥΧΟΥ ΟΥΡΑΝΥΑΙΟΥ<sup>α/</sup> Η ΝΙΤΡΙΚΟΥ ΟΥΡΑΝΥΑΙΟΥ<sup>α/</sup>Επιτρεπτή μάζα ουρανίου ανά κέλον ως συνάρτησις της πυκνότητος  
του ξύλου της συσκευασίαςI.- Περιορισμένη κατά ανωτάτην εσωτερικήν διάμετρον εσωτερικού  
δοχείου

Διάμετρος εσωτερικού δοχείου μη υπερβαίνου- σα (CM)	Πυκνότης ξύλου μη υπερβαίνουσα τα 1.25 G/CM <sup>3</sup> και όχι μικροτέρα των (G/CM <sup>3</sup> )
	0.6 0.65 0.7 0.75 0.8 0.85 0.9 0.95 1.0 1.1
	1.15 1.2 1.25

KG ουρανίου ανά κέλον

10.16	Ουδέν όριον									
Ουδέν όριον	0.084	0.120	0.157	0.193	0.231	0.267	0.301	0.335	0.370	0.400
	0.456	0.478	0.498							

2.- Περιορισμένη κατά ανώτατον εσωτερικόν όγκον εσωτερικού δοχείου

Όγκος εσωτερικού δοχείου μη υπερβαίνου- νων (I)	Πυκνότης ξύλου μη υπερβαίνουσα τα 1.25 G/CM <sup>3</sup> και όχι μικροτέρα των (G/CM <sup>3</sup> )
	0.6 0.65 0.7 0.75 0.8 0.85 0.9 0.95 1.0 1.05
	1.1 1.15 1.2 1.25

KG ουρανίου ανά κέλον

2  
3  
κλπ.  
Ουδέν όριον

Αριθμός: ως ο Πίνακας

<sup>α/</sup> Ουράνιο το οποίον δεν περιλαμβάνει U<sup>233</sup> και όχι περισσότερο των 93<sup>I</sup>/2<sup>0</sup>/ο U<sup>235</sup> κατά βάρος.

Προσθήκη Α.6

ΠΙΝΑΞ VI

ΜΗ-ΥΔΡΟΓΟΝΙΚΑΙ ΕΝΩΣΕΙΣ ΟΥΡΑΝΙΟΥ (α) Η ΜΙΓΜΑΤΑ ΣΤΑ ΟΠΟΙΑ Η ΣΥΜΠΥ-  
ΚΝΩΣΙΣ ΤΟΥ ΟΥΡΑΝΙΟΥ-235 ΔΕΝ ΥΠΕΡΒΑΙΝΕΙ ΤΑ 4.8 G/CM<sup>3</sup> (β)

(Συμπεριλαμβανομένου UNMODERATED URANIUM METAL (μετάλλου ουρα-  
νίου) εμπλουτισμού ουρανίου-235 μη υπερβαίνοντος το 25 τοις ε-  
κατόν κατά βάρος))

Επιτρεπτή μάζα ουρανίου ανά κόνον ως συνάρτησις της πυκνότητος  
του ξύλου της συσκευασίας

I.- Περιορισμένη κατά ανωτάτην εσωτερικήν διάμετρον εσωτερικού  
δοχείου

Διάμετρος εσωτερικού δοχείου μη υπερβαίνουσα τα 1.25 G/CM<sup>3</sup>  
και όχι μικροτέρα 0.6 G/CM<sup>3</sup>  
σα (CM)

KG ουράνιον ανά κόνον

10.16

Ουδέν όριον

Ουδέν όριον

0.69

2.- Περιορισμένη κατά ανώτατον εσωτερικόν όγκον εσωτερικού δοχείου

Όγκος εσωτερικού δοχείου μη υπερβαίνουσα τα 1.25G/CM<sup>3</sup>  
και όχι μικροτέρα των (G/CM<sup>3</sup>)  
ων (I):

0.65      0.7      0.75      0.8      0.85      0.9

KG ουρανίου ανά κόνον

3

4 κλπ.

Ακολουθούν αριθμοί .....

Ουδέν όριον

- (α) Ουράνιον το οποίον/περιλαμβάνει  $U^{233}$  και όχι περισσότερον των  $93^{I}/2$  τοις εκατόν  $U^{235}$  κατά βάρος.
- (β) Μίγματα περιέχοντα βηρύλλιο ή δευτέριο αποκλείονται και η μάζα του άνθρακος δεν θα υπερβαίνει πέντε φορές την εγριθείσα μάζαν ουρανίου.

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 Προσθήκη Α.6

ΠΙΝΑΞ VII

ΜΗ-ΥΔΡΟΓΟΝΙΚΑΙ ΕΝΩΣΕΙΣ ΟΥΡΑΝΙΟΥ<sup>α</sup>/ Η ΜΙΓΜΑΤΑ ΣΤΑ ΟΠΟΙΑ Η ΣΥΜΠΥΚΝΩΣΙΣ ΤΟΥ ΟΥΡΑΝΙΟΥ-235 δεν υπερβαίνει τα  $9.6 \text{ G/CM}^3$  β/

(Συμπεριλαμβανομένου UNMODERATED URANIUM METAL (μετάλλου ουρανίου) εμπλουτισμού ουρανίου-235 μη υπερβαίνοντος το 50 τοις εκατόν κατά βάρος))

Επιτρεπτή μάζα ουρανίου ανα κόνον ως συνάρτησις της πυκνότητος του ξύλου της συσκευασίας

I.- Περιορισμένη κατά ανωτάτην εσωτερικήν διάμετρον εσωτερικού δοχείου

Διάμετρος εσωτερικού δοχείου μη υπερβαίνουσα (CM) Πυκνότης ξύλου μη υπερβαίνουσα τα  $1.25 \text{ G/CM}^3$  και όχι μικροτέρα των ( $\text{G/CM}^3$ )

0.6 0.65 κλπ. αριθμοί

KG ουρανίου ανά κόνον

Αριθμοί .7.5 κλπ.=

Ουδέν όριον

Ουδέν όριον

Ουδέν όριον

Ουδέν όριον

Ουδέν όριον

2.- Περιορισμένη κατά ανώτατον εσωτερικόν όγκον εσωτερικού δοχείου

Όγκος εσωτερικού Πυκνότης ξύλου μη υπερβαίνουσα τα  $1.25 \text{ G/CM}^3$   
 δοχείου μη υπερβαίνουσα και όχι μικρότερα των ( $\text{G/CM}^3$ )  
 των (I) 0.65 0.7 0.75 0.8 0.85 0.9 0.95 1.0

3  
 4 κλπ.- Ακολουθούν αριθμοί .....  
 Ουδέν όριον

- α/ Ουράνιον το οποίον δεν περιλαμβάνει  $\text{U}^{233}$  και όχι περισσό-  
 τερο των  $93\text{I}/20\%$   $\text{U}^{235}$  κατά βάρος
- β/ Μείγματα περιέχοντα βηράλλιο ή δευτέριο αποκλείονται και η  
 μάζα του άνθρακος δεν θα υπερβαίνει πέντε φορές την εγκρι-  
 θείσα μάζα του ουρανίου.

Προσθήκη Α.6

ΠΙΝΑΞ VIII

ΟΥΡΑΝΙΟΝ "UNMODERATED URANIUM" α/ ΜΕΤΑΛΛΟ

Επιτρεπτή μάζα ουρανίου ανά κόλον ως συνάρτησις της πυκνότητος  
του ξύλου της συσκευασίας.

I.- Περιωρισμένη κατά ανώτατον εσωτερικήν διάμετρον εσωτερικού  
 δοχείου

Διάμετρος εσωτερικού Πυκνότης ξύλου μη υπερβαίνουσα τα  $1.25$   
 δοχείου μη υπερβαίνου-  $\text{G/CM}^3$  και όχι μικρότερα των ( $\text{G/CM}^3$ )  
 σα τα (CM) 0.6 0.65 κλπ. ....

KG ουρανίου ανά κόλον

αριθμοί ..... Ουδέν όριον .....  
 ..... Ουδέν όριον .....  
 ..... Ουδέν όριον

2.- Περιορισμένη κατά ανώτατον εσωτερικόν όγκον εσωτερικού δο-  
χείου

Όγκος εσωτερικού δοχείου μη υπερβαίνων (I) Πυκνότης ξύλου μη υπερβαίνουσα τα 1.25 G/CM<sup>3</sup> και όχι μικροτέρα των (G/CM<sup>3</sup>)  
0.6 0.65 κλπ. ....

KG ουρανίου ανά κόλον

2

3 κλπ.-

Ουδέν όριον

Ουδέν όριον β/

α/ Ουράνιον το οποίον δεν περιλαμβάνει U<sup>233</sup> και όχι περιδωότερο των 93<sup>I</sup>/2<sup>0</sup>/0 U<sup>235</sup> κατά βάρος

β/ Αυτές οι αυξημένες μάζες έχουν εφαρμογήν οσάντις οι διασπαστές ύλες είναι υπό μορφήν συμπαγών μεταλλικών τεμαχίων ζυγιζόντων όχι κάτω των 2 KG το καθένα και ελευθέρων από εισέχουσών επιφανειών.

## Προσθήκη Α.6

## ΠΙΝΑΞ ΙΧ

ΕΝΩΣΕΙΣ ΟΥΡΑΝΙΟΥ<sup>α/</sup> Η ΜΙΓΜΑΤΑ ΣΤΑ ΟΠΟΙΑ Η ΣΥΜΠΥΚΝΩΣΙΣ ΤΟΥ ΟΥΡΑΝΙΟΥ  
ΔΕΝ ΥΠΕΡΒΑΙΝΕΙ ΤΑ 26.44 G/CM<sup>3</sup>  
H/U ≠ I.4I

Επιτρεπτή μάζα ουρανίου ανά κόλον ως συνάρτησις της πυκνότητος  
του ξύλου της συσκευασίας

I.- Περιωρισμένη κατά ανωτάτην εσωτερικὴν διάμετρον εσωτερικοῦ  
δοχείου

Διάμετρος εσωτερικοῦ δοχείου μη υπερβαίνουσα τα (CM) Πυκνότης ξύλου μη υπερβαίνουσα τα I.25 G/CM<sup>3</sup> και ὄχι μικροτέρα των (G/CM<sup>3</sup>)  
0.6 0.65 κλπ.-

KG ουρανίου ανά κόλον

6 αριθμοί .....  
6.5 κλπ.- ..... Ουδέν ὄριον .....  
..... Ουδέν ὄριον .....  
..... Ουδέν ὄριον..

2.- Περιωρισμένη κατ' ανώτατον εσωτερικόν ὄγκον εσωτερικοῦ δοχείου

Όγκος εσωτερικοῦ δοχείου μη υπερβαίνων (I) Πυκνότης ξύλου μη υπερβαίνουσα τα I.25 G/CM<sup>3</sup> και ὄχι μικροτέρα των (G/CM<sup>3</sup>)

KG ουρανίου ανά κόλον

2 αριθμοί .....  
3 κλπ.- .....  
Ουδέν ὄριον

<sup>α/</sup> Ουράνιον το οποίον δεν περιλαμβάνει U<sup>233</sup> και ὄχι περισσότερο των 93<sup>I</sup>/2 τοις εκατόν U<sup>235</sup> κατά βάρος.



Προσθήκη Α.6

ΠΙΝΑΞ Χ

ΜΗ-ΥΔΡΟΓΟΝΙΚΑΙ ΕΝΩΣΕΙΣ ΠΛΟΥΤΩΝΙΟΥ Η ΜΙΓΜΑΤΑ ΣΤΑ ΟΠΟΙΑ Η ΣΥΜΠΥΚΝΩΣΗ ΤΟΥ ΠΛΟΥΤΩΝΙΟΥ-239 ΔΕΝ ΥΠΕΡΒΑΙΝΕΙ τα 10 G/CM<sup>3</sup><sub>α/</sub>

Επιτρεπτή μάζα πλουτωνίου ανά κόλον ως συνάρτησις της πυκνότητος του ξύλου της συσκευασίας.-

1.- Περιορισμένη κατά ανωτάτην εσωτερικήν διάμετρον εσωτερικού δοχείου

Διάμετρος εσωτερικού δοχείου μη υπερβαίνουσα τα I.25 G/CM<sup>3</sup> και όχι μικροτέρα των (G/CM<sup>3</sup>)  
 0.6 0.65 κλπ.-

KG πλουτωνίου ανά κόλον

6	..... Ουδέν όριον .....
6.5	αριθμοί ..... Ουδέν όριον .....
7	..... Ουδέν όριον .....
7.5	..... Ουδέν όριον .....
10	.....
Ουδέν όριον	.....

2.- Περιορισμένη κατ' ανώτατον εσωτερικόν όγκον εσωτερικού δοχείου

Όγκος εσωτερικού δοχείου μη υπερβαίνων G/CM<sup>3</sup> και όχι μικροτέρα των (G/CM<sup>3</sup>)  
 (I) 0.6 0.65 0.7 0.75 0.8

KG πλουτωνίου ανά κόλον

3	.....
4 κλπ.-	αριθμοί .....
Ουδέν όριον	.....

α/ Μίγματα περιέχοντα βηρύλλιο και δευτέριο αποκλείονται και η μάζα του άνθρακος δεν θα υπερβαίνει το I/10 της εγκριθείσης μάζας πλουτωνίου.

## Προσθήκη Α.6

## ΠΙΝΑΞ ΧΙ

## ΠΛΟΥΤΩΝΙΟΝ "UNMODERATED PLUTONIUM" ΜΕΤΑΛΛΟ

Επιτρεπτή μάζα πλουτωνίου ανά κέλον ως συνάρτησις της πυκνότητος του ξύλου της συσκευασίας.

I.- Περιορισμένη κατ' ανωτάτην εσωτερικήν διάμετρον εσωτερικού δοχείου

Διάμετρος εσωτερικού δοχείου μη υπερβαίνουσα τα (CM)	Πυκνότης ξύλου μη υπερβαίνουσα τα 1.25 G/CM <sup>3</sup> και όχι μικροτέρα των (G/CM <sup>3</sup> )					
	0.6	0.65	0.7	0.75	0.8	0.85
	KG πλουτωνίου ανά κέλον					
4	3.20	.....	.....	.....	.....	.....
10	3.20	3.60	3.90	4.2	4.4	4.5
ουδέν δριον	0.405	0.405	0.405	0.405	0.405	0.405
ουδέν δριον <sup>α/</sup>	3.20	3.60	3.90	4.2	4.4	4.5

2.- Περιορισμένη κατ' ανώτατον εσωτερικόν όγκον εσωτερικού δοχείου

Όγκος εσωτερικού δοχείου μη υπερβαίνων (I)	Πυκνότης ξύλου μη υπερβαίνουσα τα 1.25 G/CM <sup>3</sup> και όχι μικροτέρα των (G/CM <sup>3</sup> )					
	0.6	0.65	0.7	0.75	0.8	0.85
	KG πλουτωνίου ανά κέλον					
3	3.20	3.60	3.90	4.2	4.4	4.5
4	3.20	3.60	3.84	3.84	3.84	3.84
κλπ.-	.....	.....	.....	.....	.....	.....
ουδέν δριον	.....	.....	.....	.....	.....	.....
ουδέν δριον <sup>α/</sup>	.....	.....	.....	.....	.....	.....

<sup>α/</sup> Αυτές οι αυξημένες μάζες έχουν εφαρμογήν οσάντις οι διασπαστές ύλες είναι υπό μορφήν συμπαγών μεταλλικών τεμαζίων ζυγίζόντων όχι κάτω των 2 KG το καθένα και ελευθέρων από εισέχουσες επιφάνειες.

Πρόσθηκη Α.6

## ΠΙΝΑΞ XII

ΕΠΙΤΡΕΠΤΕΣ ΠΛΟΥΤΩΝΙΟΥ Η ΜΙΓΜΑΤΑ ΣΤΑ ΟΠΟΙΑ Η ΣΥΜΠΥΚΝΩΣΗ ΤΟΥ ΠΛΟΥΤΩ-

ΝΙΟΥ ΔΕΝ ΥΠΕΡΒΑΙΝΕΙ τα  $\frac{26.56}{\text{H/PU} \times 1.35}$  G/CM<sup>3</sup>

Επιτρεπτή μάζα πλουτωνίου ανά κδλον ως συνάρτησις της πυκνότητος του ξύλου της συσκευασίας

I.- Περιορισμένη κατά ανωτάτην εσωτερικήν διάμετρον εσωτερικού δοχείου:

Διάμετρος εσωτερικού δοχείου μη υπερβαίνουσα τα (CM)	Πυκνότης ξύλου μη υπερβαίνουσα τα 1.25 G/CM <sup>3</sup> και όχι μικροτέρα των (G/CM <sup>3</sup> )
	0.6 0.65 0.7 κλπ.-

KG πλουτωνίου ανά κδλον

4	..... Ουδέν δριον -----
5	..... Ουδέν δριον ....
6 κλπ.-	αριθμοί .....
Ουδέν δριον	.....

2.- Περιορισμένη κατ' ανώτατον εσωτερικόν δγκον εσωτερικού δοχείου

Όγκος εσωτερικού δοχείου μη υπερβαίνων (I)	Πυκνότης ξύλου μη υπερβαίνουσα τα 1.25 G/CM <sup>3</sup> και όχι μικροτέρα των (G/CM <sup>3</sup> )
	0.6 0.65 0.7 κλπ.-

KG πλουτωνίου ανά κδλον

2	0.152 0.309 0.52 0.80 κλπ. ....
3	0.047 0.133 0.247 0.380 κλπ.- .....
4	0.022 0.076 0.095 0.133 κλπ.- .....
5	0.022 0.053 0.085 0.118 κλπ.- .....
7	0.022 0.053 0.084 0.114 κλπ.- .....
Ουδέν δριον	0.022 0.053 0.084 0.114 κλπ.- .....

Προσθήκη Α.6

ΠΙΝΑΞ ΧΙΙΙ

ΥΔΑΤΩΔΗ ΔΙΑΛΥΜΑΤΑ ΝΙΤΡΙΚΟΥ ΟΥΡΑΝΙΟΥ-233 Η ΦΘΟΡΙΟΥΧΟΥ ΟΥΡΑ-  
ΝΙΟΥ-233

Επιτρεπτή μάζα ουρανίου ανά κέλον ως συνάρτησις της πυκνότητος  
του ξύλου συσκευασίας

I.- Περιορισμένη κατά ανωτάτην εσωτερικήν διάμετρον εσωτερικού  
δοχείου

Διάμετρος εσωτερικού δοχείου μη υπερβαίνουσα (CM) Πυκνότης ξύλου μη υπερβαίνουσα τα 1.25 G/CM<sup>3</sup> και όχι μικροτέρα των (G/CM<sup>3</sup>) 0.6 0.65 0.7 κλπ.-

KG ουρανίου ανά κέλον

9	..... ουδέν δριον .....
9.5	..... ουδέν δριον .....
10	..... ουδέν δριον ..
ουδέν δριον	..... αριθμοί .....

2.- Περιορισμένη κατ'ανώτατον εσωτερικόν όγκον εσωτερικού δοχείου

Όγκος εσωτερικού δοχείου μη υπερβαίνων (I) Πυκνότης ξύλου μη υπερβαίνουσα τα 1.25 G/CM<sup>3</sup> και όχι μικροτέρα των (G/CM<sup>3</sup>) 0.6 0.65 0.7 κλπ.-

KG ουρανίου ανά κέλον

2	0.152 0.309 0.475 κλπ.- .....
3	0.085 0.133 0.180 κλπ.- .....
4	0.085 0.109 0.133 κλπ.- .....
5	0.035 0.076 0.114 κλπ.- .....
7	0.035 0.073 0.109 κλπ.- .....
ουδέν δριον	0.035 0.067 0.100 κλπ.- .....

Προσθήκη Α.6

3617

## - ΕΙΔΙΚΑΙ ΔΙΑΤΑΞΕΙΣ ΓΙΑ ΚΟΛΑ ΔΙΑΣΠΑΣΤΩΝ ΥΛΩΝ ΚΛΑΣΕΩΣ ΙΙ

(I) Κάθε κόλον Διασπαστών Υλών Κλάσεως ΙΙ θα σχεδιάζεται κατά τοιούτον τρόπον ώστε εάν υπεβάλετο στις δοκιμές τις οριζόμενες στο περιθώριο 3635:

(α) Ουδέ ο όγκος ουδέ οιοσδήποτε χώρος βάσει του οποίου η πυρηνική ασφάλεια δια την εφαρμογήν του περιθωρίου 3619(α) εξετιμήθη, θα υφίστατο μείωσιν άνω του 5 ετοί εκατό, και η κατασκευή του κόλου δεν θα επέτρεπε την είσοδον κύβου 10 CM.

(β) Το νερό δεν θα διέρρει εντός ή εκτός οιοσδήποτε εξαρτήματος του κόλου εκτός εάν το νερό διέρρει εις, ή διέρρει εκ, του τμήματος αυτού, εις τον βέλτιστον προβλεπόμενον βαθμόν ως προϋπόθεσις δια την εκτίμησιν του επιτρεπομένου αριθμού δια την εφαρμογήν του περιθωρίου 3619(α).

(γ) Η διαμόρφωσις του περιεχομένου και η γεωμετρία του συστήματος υποδοχών (CONTAINMENT SYSTEM) δεν θα ετροποποιείτο κατά τρόπον ώστε να αυξάνεται η δραστηκότης σημαντικώς.

(2) Κόλα Διασπαστών Υλών Κλάσεως ΙΙ θα ικανοποιούν τα κριτήρια της πυρηνικής ασφαλείας τα περιγραφόμενα εις τα περιθώρια 3618 και 3619.

I.- Το ατομικόν κόλον εξεταζόμενον μεμονωμένως

3618

(I) Οι κάτωθι όροι λαμβάνονται ως δεδομένοι:-

(α) το κόλον είναι "κατεστραμμένον" (δια του όρου "κατεστραμμένον" θα νοείται η εκτιμηθείσα ή επιδειχθείσα

κατάστασις του κόλου εάν έχει υποβληθεί είτε 3618  
στις δοκιμές τις οριζόμενες στα περιθώρια (Συνεχί-  
3635 και 3637(I) έως (3), ακολουθούμενες από ζεται)  
της δοκιμής του περιθωρίου 3638 είτε στις δοκι-  
μές τις οριζόμενες στα περιθώρια 3635 και 3637  
(4), οποιοσδήποτε συνδυασμός είναι περισσότερο  
περιοριστικός)\* και

(β) το νερό μπορεί να διαρρέει εις ή έξω από όλους  
τους κενούς χώρους του κόλου συμπεριλαμβανομένων  
των εντός του συστήματος υποδοχών (CONTAINMENT  
SYSTEM) τολούτων, εκτός του ότι, οσάκις το σχέ-  
διον του κόλου ενσωματώνει ειδικά χαρακτηριστι-  
κά για να αποφευχθεί η διαρροή του νερού εις ή  
έξω από ωρισμένους κενούς χώρους ακόμη και ως  
αποτέλεσμα ανθρωπίνου σφάλματος, η έλλειψις διαρ-  
ροής μπορεί να θεωρηθεί ως δεδομένη εν σχέσει με  
τους κενούς τούτους χώρους. Τέτοια ειδικά χαρα-  
κτηριστικά μπορούν να περιλαμβάνουν είτε:-

(I) πολλαπλούς υψηλού επιπέδου φραγμούς νερού  
ο καθένας των οποίων θα παρέμενε στεγανός  
εάν το κόλον υπεβάλετο στους συνδυασμούς  
των δοκιμών των οριζομένων στην παράγραφον  
(I)(α)\* είτε

(II) υψηλού βαθμού ποιοτικός έλεγχος της παραγω-  
γής και συντηρήσεως της συσκευασίας, μαζί  
με ειδικές δοκιμές για να καταδειχθεί το  
κλεισιμον κάθε κόλου προ της φορτώσεως.

(2) Το κέλον θα είναι δευτερεύοντως ακροσφαλές 3618  
(SUB-CRITICAL) δυνάμει καταλλήλου περιθωρίου (βλέπε (Συνεχίζεται)  
σημείωσιν 2) υπό τας συνθήκας τας οριζομένας εις την  
παράγραφον (I), των φυσικών και χημικών χαρακτηριστικών  
λαμβανομένων υπόψη, συμπεριλαμβανομένης οιασδήποτε αλ-  
λαγής των χαρακτηριστικών αυτών τα οποία θα μπορούσαν  
να προκύψουν υπό τας συνθήκας της παραγράφου (I), και με  
τους δρους επιβραδύνσεως (MODERATION) και ανακλάσεως ως  
ορίζονται κατωτέρω

(α) με τας ύλες εντός του συστήματος υποδοχέων  
(CONTAINMENT SYSTEM):

- (I) η πλέον δραστική διαμόρφωσις και επιβρά-  
δυνσις (MODERATION) που είναι δυνατόν  
να προβλεφθούν υπό τας συνθήκας της παρα-  
γράφου (I)·
- (II) τελεεία πλήρους ύδατος ανάκλασις του συστή-  
ματος υποδοχέων ως ήθελεν επιπροσθέτως παρα-  
σχεθεί υπό του περιβάλλοντος την συσκευασίαν  
υλικού, και, επί πλέον,

(β) εάν οιονδήποτε τμήμα των υλών διαφύγει από το  
σύστημα υποδοχέων (CONTAINMENT SYSTEM) υπό τας συνθήκας της  
παραγράφου (I)·

- (I) η πλέον δραστική διαμόρφωσις και επιβράδυν-  
σις που θεωρείται πιστευτή·
- (II) τελεεία πλήρους ύδατος ανάκλασις των υλών.

## 2.- Αποστολαί ενός ή πλειόνων κόλων

Ο "επιτρεπόμενος αριθμός" θα εξάγεται δι'έκαστον 3619 σχέδιον κόλου Διασπαστών Υλών Κλάσεως II, κατά τρόπον ώστε:

(α) πέντε φορές ο επιτρεπόμενος αριθμός μη κατεστραμένων κόλων θα είναι δευτερευόντως ακροασφαλής εάν συσσωρευθούν ομού σε οποιαδήποτε διάταξιν χωρὶς τίποτε θεωρουμένης ως δεδομένης της κλειστής ανακλάσεως εφ'όλων των μεταξύ των κόλων. Για τον σκοπόν αυτόν με τον όρον "μη πλευρών της σωρού υπό ισοδυναμίου ύδατος. κατεστραμένον" θα νοείται η κατάσταση στην οποία τα κόλα έχουν σχεδιασθεί να παρουσιασθούν για μεταφορά.

(β) δύο φορές ο επιτρεπόμενος αριθμός των τοιούτων κόλων όταν είναι κατεστραμένα θα είναι δευτερευόντως ακροασφαλής (SUB-CRITICAL) εάν συσσωρευθούν με οποιαδήποτε διάταξιν και είναι στενώς ανακλώμενα σε όλες τις πλευρές της σωρού υπό του ισοδυναμίου ύδατος (δια τον σκοπόν αυτόν με τον όρον "κατεστραμένον" θα νοείται η εκτιμηθείσα ή επιδειχθείσα κατάστασις του κόλου εάν είχε τούτο υποβληθεί είτε στις δοκιμές τις οριζόμενες στα περιθώρια 3635 και 3637(I) έως (3), ακολουθούμενες από εκείνες του περιθωρίου 3638, είτε στις δοκιμές τις οριζόμενες στα περιθώρια 3635 και 3637(4), οποιοσδήποτε των συνδυασμών είναι περισσότερο περιοριστικός)\* υδρογονικά επιβραδύνσεις (MODERATIONS)<sup>3/</sup> μεταξύ κόλων, και διαρροή ύδατος εντός ή εκτός των κόλων συμφώνως προς τα αποτελέσματα της δοκιμής θα εικάζεται μέχρι του σημείου που καταλήγει στη μεγαλύτερα δραστηκότητα.

## 3.- Παραδείγματα σχεδίων κόλων μη απαιτούντων την έγκρισιν



αρμοδίας αρχής

Παράδειγμα I (απαιτούν πολύπλευρον έγκρισιν 3620 φορτώσεως). Κόβλα δια Διασπαστές Ύλες Κλάσεως II δεν απαιτούν την έγκρισιν του σχεδίου του κόβλου υπό αρμοδίας αρχής, εφ' όσον τηρούνται οι κατωτέρω όροι:-

(α) Συσκευασίας:- η ασφάλεια κρισιμότητας των αποστολών αυτών δεν εξαρτάται εκ της ακεραιότητας της συσκευασίας. Κάθε συσκευασία η οποία πληροί τους λοιπούς οικειούς όρους της Κλάσεως IVβ εν σχέσει με μη-διασπαστά ραδιενεργά χαρακτηριστικά δύναται, επομένως, να χρησιμοποιηθεί.

(β) Περιεχόμενον - μέταλλο ουρανίου, ενώσεις ή και μίγματα:-

το περιεχόμενον οιασδήποτε αποστολής αποτελουμένης εκ του "επιτρεπομένου αριθμού" των κόβλων δεν θα υπερβαίνει την επιτρεπτήν μάζα του ουρανίου-235 την αναγραφομένην εις τον Πίνακα XIV ανά αποστολήν ως συνάρτησιν εμπλουτισμού δι' ύλης ικανοποιούσας (πληρούσας) τους κατωτέρω όρους:-

- (I) Δεν θα πρέπει να υπάρχει ουράνιον-235.
- (II) Δεν θα πρέπει να υπάρχουν βυρήλλιο ή υδρογονικόν υλικόν εμπλουτισμένον με δευτέριον.
- (III) Η ολική μάζα του υπάρχοντος γραφίτου δεν θα υπερβαίνει 150 φορές την ολική μάζα του ουρανίου-235.
- (IV) Δεν θα πρέπει να υπάρχουν μίγματα δια-

σπαστών υλών με ύλες που έχουν υψηλό- 3620  
 τέραν πυκνότητα υδρογόνου της του δ- (Συνεχί-  
 δατος, π.χ., μερικά έλαια υδρογονανθρά- ζεται)  
 κων. Τούτο δεν θα αποκλείει την χρήση  
 πολυαιθυλενίου δια συσκευασίας ή περι-  
 τύλιγμα.

ΠΙΝΑΞ ΧΙΥ.- ΕΠΙΤΡΕΠΤΗ ΜΑΖΑ ΟΥΡΑΝΙΟΥ-235

ΑΝΑ ΑΠΟΣΤΟΛΗΝ

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Εμπλουτισμός ουρανίου εις βάρος στοι εκατό ουρανίου-235 μη υπερβαίνον	Επιτρεπτή μάζα ανα αποστολήν γραμμάριων ουρανίου-235
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93	160
75	168
80	176
40	184
30	192
20	203
15	224
11	240
10	256
9.5	262
9	270
8.5	276
8	284
7.5	294
7	300
6.5	312
6	324
5.5	340
5	360
4.5	380
4	400
3.5	440

Εμπλουτισμός ουρανίου εις βάρος Επιτρεπτή μάζα ανά αποστολήν  
 εις εκατόν ουρανίου-235 μη γραμμαρίων ουρανίου-235  
 υπερβαίνον

( Σ υ ν έ χ ε ι α )

3	500
2.5	600
2	820
1.5	1360
1.35	1600
I	3400
0.92	6000

(γ) Περιεχόμενον - μέταλλο ουρανίου, ενώσεις ή και μίγ-  
 ματα μη δημιουργούντα κίγκλιδα (LATTICE): το περιεχόμενον  
 οιασδήποτε αποστολής αποτελουμένης εκ του επιτρεπομένου α-  
 ριθμού κόλων δεν θα υπερβαίνει την επιτρεπτήν μάζα ουρανίου-  
 235 την αναφερομένην εις τον Πίνακα XV. ανά αποστολήν ως  
 συνάρτησιν του εμπλουτισμού διά ύλες πληρούσας τους κάτωθι  
 όρους:-

- (I) Δεν θα υπάρχει ουράνιον-233.
- (II) Δεν θα υπάρχουν βερύλλιον και υδρογονικόν  
 υλικόν εμπλουτισμένον εις δευτέριον.
- (III) Η υπάρχουσα ολική μάζα του γραφίτου δεν θα  
 υπερβαίνει την ολικήν μάζα του ουρανίου-235.
- (IV) Δεν θα υπάρχουν μίγματα διασπαστών υλών με  
 ύλες που έχουν πυκνότητα υδρογόνου υψηλοτέ-  
 ραν της του ύδατος, π.χ., μερικά έλαια υδρο-  
 γονανθράκων. Τοúτο δεν αποκλείει την χρήσιν  
 πολυαιθυλενίου δια συσκευασίαν ή περιτύλιγμα.

(V) Οι διασπαστές ύλες θα διανέμονται ομοιογενώς εις ολόκληρον το περιεχόμενον. Επιπροσθέτως, οι ύλες δέν θα σχηματίζουν διάταξιν κηκλίδος εντός του κόλου. (Συνεχίζεται)

ΠΙΝΑΞ ΧV.- ΕΠΙΤΡΕΠΤΗ ΜΑΖΑ ΟΥΡΑΝΙΟΥ-235

ΑΝΑ ΑΠΟΣΤΟΛΗΝ

Εμπλουτισμός ουρανίου εις βάρος στα εκατό ουρανίου-235 μη υπερβαίνον	Επιτρεπτή μάζα ανά αποστολήν γραμμαρίων ουρανίου-235
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4	420
3.5	460
3	560
2.5	740
2	1200
1.5	2800
1.35	4000

(δ) Περιεχόμενον - μέταλλον ουρανίου ή και πλουτωνίου, ενώσεις ή και μίγματα: οι ύλες θα πληρούν τους κάτωθι δρους:

- (I) Δεν θα υπάρχουν βηρύλλιον και υδρογονικόν υλικόν εμπλουτισμένον με δευτέριον.
- (II) Η υπάρχουσα ολική μάζα του γραφίτου δεν θα υπερβαίνει 150 φορές την ολική μάζα του ουρανίου και πλουτωνίου.
- (III) Δεν θα υπάρχουν μίγματα διασπαστών υλών με ύλες που έχουν πυκνότητα υδρογόνου υψηλοτέρα της του ύδατος, π.χ., μερικά έλαια υδρογονανθράκων, κλπ.. Τοúτο δεν αποκλείει την χρήση πολυαιθυλενίου δια συσκευασίαν ή περιτύλιγμα.

Η ολική μάζα των διασπαστών υλών ανά αποστολήν θα είναι 3620

τέτοια ώστε:-

(Συνεχίζεται)

$$\frac{(\text{γρ.μ.}) \text{ } ^{235}\text{U}}{160} \neq \frac{(\text{γρ.μ.}) \text{ PU}}{90} \neq \frac{(\text{γρ.μ.}) \text{ } ^{233}\text{U}}{100}$$

δεν είναι μεγαλύτερα της I

(ε) Επιτρεπόμενος αριθμός:- ο επιτρεπόμενος αριθμός δια συγκεκριμένον κδλον της προδιαγραφής αυτής θα εξαρτάται εκ του πραγματικού περιεχομένου και θα είναι ίσον προς το όριον διασπαστής μάζας ανά αποστολήν διηρημένον δια της υπάρχουσας εις το κδλον πραγματικής διασπαστής μάζας. Στη περίπτωση των μικτών νουκλεϊδίων της (δ) ανωτέρω, ο επιτρεπόμενος αριθμός είναι:

$$\frac{160}{235\text{U} \neq 1.6 \times 233\text{U} \neq 1.778 \times \text{PU}}$$

όπου τα  $^{235}\text{U}$ ,  $^{233}\text{U}$  και PU είναι οι αριθμοί των γραμμαρίων των  $^{235}\text{U}$ ,  $^{233}\text{U}$  και PU που υπάρχουν εις το κδλον. Οσάκις το κδλον σχηματίζει τμήμα μικτής αποστολής θα πρέπει να τηρούνται οι όροι της σημειώσεως I του περιθωρίου 2700(2).

(στ) Η φόρτωση θα υπόκειται εις μόνοπλευρον έγκρισιν.

#### Ε.- ΕΙΔΙΚΑΙ ΔΙΑΤΑΞΕΙΣ ΔΙΑ ΚΟΛΑ ΔΙΑΣΠΑΣΤΩΝ ΥΛΩΝ ΚΛΑΣΕΩΣ III

Τα κδλα διασπαστών υλών Κλάσεως III πρέπει 362I να πληρούν τους γενικούς όρους του περιθωρίου 36II και θα εγκρίνονται συμφώνως προς τα περιθώρια 3674 και 375.

#### I.- Παράδειγματα σχεδίων κδλων απαιτούντων πολύπλευρον

##### Έγκρισιν

Παράδειγμα I (απαιτούν πολύπλευρον έγκρισιν της φορτώσεως)

Κόλα της κατωτέρω προδιαγραφής απαιτούν μόνον 3622  
μόνοπλευρον έγκρισιν του σχεδίου του κόλου εφ' όσον πλη-  
ρούν τους κάτωθι όρους:-

(α) Ο αριθμός των κόλων οιασδήποτε μιάς αποστολής  
θα είναι έτσι περιωρισμένος ώστε-

(I) δύο φορές ο αριθμός αυτός των μη κατεστρα-  
μένων κόλων θα είναι δευτερευόντως ακρο-  
ασφαλής (SUB-CRITICAL) εάν συσσωρευθούν  
ομού σε οιαδήποτε διάταξιν με τλίποτε μετα-  
ξύ των κόλων, δεδομένης της κλειστής ανα-  
κλάσεως εφ' όλων των πλευρών της σωρού υπό  
του ισοδυναμού ύδατος· δια τον σκοπόν αυτόν  
δια του όρου "μη κατεστραμένον" θα νοείται  
η κατάστασις εις την οποίαν τα κόλα έχουν  
σχεδιασθεί να παρουσιαστούν προς φόρτωσιν·  
και

(II) ο αριθμός αυτός των κόλων όταν (είναι) αυτά  
"κατεστραμένα" θα είναι δευτερευόντως ακρο-  
ασφαλής (SUB-CRITICAL) εάν συσσωρευθούν ομού  
σε οιαδήποτε διάταξιν και στενώς ανακλώνται  
εφ' όλων των πλευρών της σωρού υπό του ισοδυ-  
νάμου ύδατος (δια τον σκοπόν αυτόν. δια του  
όρου "κατεστραμένον" θα νοείται η εκτιμηθεί-  
σα ή επιδειχθείσα κατάστασις εκάστου κόλου  
εάν τούτο είχεν υποβληθεί είτε εις τας δοκιμάς  
τας οριζομένας στα περιθώρια 3635 και 3637(I)  
έως (3) ακολουθημένας υπό των δοκιμών του

περιθώριου 3638 ή των δοκιμών των οριζομένων 3622  
 στα περιθώρια 3635 και 3637(4), οποιοσδήποτε (Συνεχίζε-  
 ται).  
 συνδυασμός είναι περισσότερο περιοριστικός).  
 Υδρογονικά επιβραδύνσεις 3/ μεταξύ κόλων, και  
 διαρροή νερού εντός ή εκτός των κόλων συμφώνως  
 προς τα αποτελέσματα της δοκιμής θα εικάζονται  
 (θεωρούνται ως δεδομένα) μέχρι του σημείου που  
 καταλήγει στη μεγαλύτερα δραστηριότητα.

(β) Η φόρτωση των κόλων αυτών θα ενεργείται μόνον  
 κατόπιν ενεργειών εγκριθεισών υπό των αρμόδιων αρχών συμ-  
 φώνως προς το περιθώριον 3675, εις τρόπον ώστε να αποφεύγε-  
 ται η φόρτωση, μεταφορά ή αποθήκευσις των κόλων αυτών μετ'  
 άλλων κόλων ραδιενεργού υλικού.

2.- Παραδείγματα σχεδίου κόλου διασπαστής ύλης μη απαιτούν-  
τος έγκρισιν της αρμόδιας αρχής

Παράδειγμα I (απαιτούν πολύπλευρον έγκρισιν της φορτώσεως).

Κόλα της κατωτέρω προδιαγραφής για διασπαστές ύλες 3623  
 Κλάσεως III δεν απαιτούν έγκρισιν του σχεδίου του κόλου υπό  
 της αρμόδιου αρχής εφ' όσον πληρούνται οι κάτωθι όροι:-

(α) Το κόλον έχει ήδη εγκριθεί ως κόλον Διασπαστής  
 Ύλης Κλάσεως II και ο αριθμός οποιοσδήποτε αποστολής δεν υπερ-  
 βάλλει δύο φορές τον επιτρεπόμενον αριθμόν δια την έγκρισιν  
 (κόλου) Διασπαστής Ύλης Κλάσεως II.

(β) Η φόρτωση των κόλων αυτών θα ενεργείται μόνον  
 κατόπιν ενεργειών εγκριθεισών υπό των αρμόδιων αρχών συμφώ-  
 νως προς το περιθώριον 3675, εις τρόπον ώστε να αποφεύγεται  
 η φόρτωση, μεταφορά ή αποθήκευσις των κόλων αυτών μετ' άλλων

κόλων Διασπαστών Υλών Κλάσεως II ή Κλάσεως III. Παραφεύγ- 3623

ματα τοιούτων ενεργειών είναι:-

(Συνεχι-  
ζεται)

- (I) ουδέν φέρον ένδειξειν κόλον ραδιενεργού ύλης μπορεί να μεταφέρεται στο αυτό όχημα με την αποστολήν, και
- (II) οιαδήποτε μεταφορά θα ενεργείται απ' ευθείας εις τον παραλήπτην άνευ οιασδήποτε ενδιαμέσου κατά την διαμετακώμισιν αποθηκεύσεως ή έλεγχου θα επιβάλλωνται, δια της παροχής συνοδείας, ώστε να αποφεύγεται η στοιβάσις των κόλων της αποστολής μετά ή κατά μήκος οιασδήποτε άλλων κόλων ραδιενεργών υλών μετά από ατύχημα, ή οποτεδήποτε άλλοτε.

Η συνοδεία θα ταξιδεύει με χωριστόν όχημα.

Παράδειγμα II (απαιτούν πολύπλευρον έγκρισιν της φορ- 3624  
τώσεως)

Κόλα Διασπαστών Υλών Κλάσεως III δεν απαιτούν την έγκρισιν του σχεδίου του κόλου υπό της αρμοδίου αρχής εφ' όσον τηρούνται οι κάτωθι όροι:-

(α) Συσκευασία:- η ασφάλεια κρισιμότητος των αποστολών αυτών δεν εξαρτάται εκ της ακεραιότητος της συσκευασίας. Οιαδήποτε συσκευασία η οποία συμμορφούται προς τας λοιπάς οικείας διατάξεις της παρούσης Προσθήκης μπορεί, όθεν, να χρησιμοποιείται, εφ' όσον δεν ενσωματώνει προστατευτικόν κάλυμμα εκ μολύβδου πάχους άνω των 5 CM, βολφραμιου ή ουρανίου.

(β) Περιεχόμενον - μέταλλον ουρανίου, ενώσεις ή και μίγματα:- το περιεχόμενον οιασδήποτε αποστολής δεν



θα υπερβαίνει την επιτρεπτήν μάζα ουρανίου-235 την αναφε- 3624  
ρμένην εις τον Πίνακα XVI ανά αποστολήν ως συνάρτισιν (Συνεχί-  
ζεται)  
του εμπλουτισμού για όλες πληρούσας τους κατωτέρω όρους:-

- (I) Δεν θα υπάρχει ουράνιον-233.
- (II) Δεν θα υπάρχουν βηρύλλιον και υδρογονικόν ολικόν εμπλουτισμένον με δευτέριον.
- (III) Η υπάρχουσα ολική μάζα του γραφίτου δεν θα υπερβαίνει 150 φορές την ολικήν μάζα ουρανίου-235.
- (IV) Δεν θα υπάρχουν μίγματα διασπαστών υλών με όλες που έχουν πυκνότητα υδρογόνου υψηλοτέρα της τοιαύτης του ύδατος, π.χ., μερικά έλαια υδρογονανθράκων. Τούτο δεν αποκλείει την χρήσιν πολυαιθυνίου δια συσκευασίαν ή περιτύλιγμα.

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## ΠΙΝΑΞ ΧVI.- ΕΠΙΤΡΕΠΤΗ ΜΑΖΑ ΟΥΡΑΝΙΟΥ-235

ΑΝΑ ΑΠΟΣΤΟΛΗΝ

3624

----- (Συνεχίζεται)

Εμπλουτισμός Ουρανού εις βάρος ~~του~~ εκατό ουρανού-235 μη υπερβαίνον      Επιτρεπτή μάζα ανά αποστολήν γραμμαρίων Ουρανού-235

-----

93	400
75	420
60	440
40	460
30	480
20	520
15	560
11	600
10	640
9.5	655
9	675
8.5	690
8	710
7.5	730
7	750
6.5	780
6	810
5.5	850
5	900
4.5	950
4	1000
3.5	1100
3	1250
2.5	1500
2	2050
1.5	3400
1.35	4000
1	8500
0.92	15000

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(γ) Περιεχόμενον - μέταλλο ουρανίου, ενώσεις ή/και 3624  
μίγματα μη σχηματίζοντα κίγκλιδα (LATTICE):- Ο Πίναξ (Συνεχίζεται)  
 XVII δίδει την επιτρεπτήν μάζα του ουρανίου-235 ανά  
 αποστολήν ως συνάρτησιν εμπλουτισμού, για όλες πληρού-  
 σασ τους κάτωθι όρους:-

- (I) Δεν θα υπάρχει ουράνιον-233.
- (II) Δεν θα υπάρχουν βηρύλλιο και υδρογονικόν  
 υλικόν εμπλουτισμένον με δευτέριον.  
 (υπάρχουσα)
- (III) Η παρούσα/ολική μάζα του γραφίτου δεν θα  
 υπερβαίνει τις 150 φορές την ολικήν μάζα του  
 ουρανίου-235.
- (IV) Δεν θα υπάρχουν μίγματα διασπαστών υλών με  
 όλες που έχουν πυκνότητα υδρογόνου υψηλοτέ-  
 ραν της τοιαύτης του ύδατος, π.χ., μερικά  
 έλαια υδροφονανθράκων. Τούτο δεν αποκλείει  
 την χρήσιν πολυαιθυλενίου δια συσκευασίαν ή  
 περιτύλιγμα.
- (V) Οι διασπαστές όλες θα κατανέμονται ομοιογενώς  
 εις ολόκληρον το περιεχόμενον. Επιπροσθέτως,  
 οι όλες δεν θα σχηματίζουν διάταξιν κίγκλιδος  
 (LATTICE ARRANGEMENT) εντός του κελού.

ΠΙΝΑΞ ΧVII.- ΕΠΙΤΡΕΠΤΗ ΜΑΖΑ ΟΥΡΑΝΙΟΥ-235 ΑΝΑ ΑΠΟΣΤΟΛΗΝ

Εμπλουτισμός ουρανίου εις βάρος Επιτρεπτή μάζα ανα αποστολήν  
 τοις εκατόν ουρανίου-235 μη χιλιογράμμων ουρανίου-235  
 υπερβαίνον

4	1.05
3.5	1.15
3	1.4
2.5	1.8
2	3
1.5	7
1.35	10

(δ.) Περιεχόμενον - μέταλλο ουρανίου ή και πλουτωνίου, ενώσεις ή και μίγματα: οι ύλες θα πληρούν τους κάτωθι όρους:-

- (I) Δεν θα υπάρχει βηρύλλιον και υδρογονικόν υλικόν εμπλουτισμένον με δευτέριον.
- (II) Η ολική μάζα του υπάρχοντος γραφίτου δεν θα υπερβαίνει τις 150 φορές την ολικήν μάζα του ουρανίου και πλουτωνίου.
- (III) Δεν θα υπάρχουν μίγματα διασπαστών υλών με ύλες που έχουν πυκνότητα υδρογόνου υψηλότεραν της τοιαύτης του ύδατος, π.χ., μερικά έλαια υδρογονανθράκων. Τούτο δεν αποκλείει την χρήσιν πολυαιθυλενίου δια συσκευασίαν ή περιτύλιγμα.

Η ολική μάζα διασπαστών υλών δι' αποστολήν θα είναι τέτοια ώστε:

$$\frac{235_{\text{U}} \text{ (γραμμάρια.)}}{400} \neq \frac{\text{Pu} \text{ (γραμμ.)}}{225} \neq \frac{233_{\text{U}} \text{ (γραμμ.)}}{\text{-----}}$$

ναι μεγαλύτερα της I.

(ε). Όροι μεταφοράς:- οι κατωτέρω διοικητικοί έλεγχοι θα εφαρμόζονται καθ' όλην την μεταφοράν της αποστολής:-

- (I) η ποσότης των υλών μιάς αποστολής δεν θα υπερβαίνει την ποσότητα την οριζομένην εις (β), (γ) ή (δ) ανωτέρω.
- (II) η μεταφορά θα γίνεται απ' ευθείας εις τον παραλήπτην, άνευ οιασδήποτε ενδιαμέσου κατά την διαμετακίνησιν αποθηκείσεως.

(βτ) Η φόρτωση θα υπόκειται εις πολύπλευρον έγκρισιν.

3625-

3629

ΚΕΦΑΛΑΙΟΝ ΙΙΙ - ΔΙΑΔΙΚΑΣΙΑΙ ΕΛΕΓΧΟΥ ΚΑΙ ΕΠΙΘΕΩΡΗΣΕΩΣ

Α.- ΕΠΙΔΕΙΞΙΣ ΣΥΜΜΟΡΦΩΣΕΩΣ ΠΡΟΣ ΤΟΥΣ ΟΡΟΥΣ ΕΛΕΓΧΟΥ

(Ι) Η επίδειξις της συμμορφώσεως προς τους δ- 3630  
ρους ελέγχου του παρόντος κεφαλαίου μπορεί να πραγματο-  
ποιηθεί δι' οιασδήποτε των μεθόδων των αναφερομένων κατω-  
τέρω ή δια συνδυασμού τούτων.

(α) Εκτέλεσις ελέγχων με πρωτότυπα ή δείγματα της  
συσκευασίας η οποία συνήθως παρουσιάζεται προς μεταφοράν,  
οπότε το περιεχόμενον της συσκευασίας δια τον έλεγχον θα  
προσποιείται (SIMULATE) όσον είναι περισσότερον πρακτικώς  
δυνατόν το αναμενόμενον κανονικόν ραδιενεργόν περιεχόμενον.

(β) Αναφορά εις προηγουμένας ικανοποιητικάς επιδει-  
ξεις ομοίας επαρκώς φύσεως.

(γ) Εκτέλεσις ελέγχων με μοντέλα (πρότυπα) καταλλήλου  
κλίμακος ενσωματούντα τα χαρακτηριστικά εκείνα τα οποία εί-  
ναι σημαντικά εν σχέσει με το υπό έρευνα στοιχείον, οσάντις  
η μηχανική πέτρα έχει καταδείξει ότι τα αποτελέσματα των τοι-  
ούτων ελέγχων είναι κατάλληλα δια σκοπούς σχεδίου. Οσάντις  
χρησιμοποιείται μοντέλο (πρότυπο) κλίμακος, η ανάγκη της  
ρυθμίσεως ωρισμένων παραμέτρων ελέγχου, ως η διάμετρος διεισ-  
δύσεως (PENETRATOR DIAMETER), ή το φορτίο συμπίεσεως, θα λαμ-  
βάνεται υπόψη.

(δ) Υπολογισμός, ή δικαιολογημένον επιχείρημα, οσάντις  
οι διαδικασίαι υπολογισμού και οι παράμετροι, συμφωνείται

γενικώς, ότι είναι αξιόπιστοι ή συντηρητικέ.

3630

(2) Αναφορικώς με τους αρχικούς όρους δια τους  
ελέγχους του παρόντος κεφαλαίου εκτός εκείνων των περι-

(Συνεχί-  
ζεται)

θωρών 3637(4) έως 3639, η επίδειξις της συμμορφώσεως θα βασισθελ επί της υποθέσεως ότι το κόλον είναι **εξ** ισορροπία (ισορροπημένον) **εξ** θερμοκρασίαν περιβάλλοντος 38°C. *Αναφορικά* με τον θερμικόν έλεγχο, οι συνέπειαι της ηλιακής ακτινοβολίας μπορούν να αγνοούνται προ και διαρκούντος του ελέγχου αλλά θα λαμβάνωνται υπόψη κατά την μεταγενεστέραν εκτίμησιν των αποτελεσμάτων του ελέγχου.

## B.- ΕΛΕΓΧΟΙ ΣΥΣΚΕΥΑΣΙΑΣ

### I.- Αριθμός υποβληθησομένων εις έλεγχο δειγμάτων

Ο αριθμός των δειγμάτων που πρόκειται *πράγματι* 3631 να υποβληθούν εις τους ελέγχους πρέπει να αναφέρεται εις τον αριθμόν των συσκευασιών του τύπου τούτου αι οποσαι πρόκειται να γίνουν, εις την συχνότητα χρήσεως και την δαπάνην. Τα αποτελέσματα των ελέγχων ενδέχεται να αναγκαιούν αύξησιν του αριθμού των δειγμάτων προς αντιμετώπισιν των όρων των διαδικασιών του ελέγχου **εξ** σχέσιν με την ανωτάτην ζημίαν.

### 2.- Προετοιμασία δειγματος δια τον έλεγχο

(I) Άπαντα τα δειγματα θα εξετάζωνται προ του ε- 3632 λέγχου δια την αναγνώρισιν (εξακριβωσιν) και καταχώρησιν βλαβών ή ζημιών συμπεριλαμβανομένων των κάτωθι:-

- (α) εκτροπής εκ των προδιαγραφών ή των σχεδίων\*
- (β) ελαττωμάτων κατά την κατασκευήν\*

(γ) διαβρώσεως ή ετέρας φθοράς\* και

(δ) παραμορφώσεως των χαρακτηριστικών.

3632  
(Συνεχίζεται)

(2) Το σύστημα υποδοχέων (CONTAINMENT SYSTEM) της συσκευασίας θα καθορίζεται σαφώς.

(3) Τα εξωτερικά χαρακτηριστικά του δειγματος θα αναγνωρίζωνται (εξακριβοούνται) σαφώς εις τρόπον ώστε η

αναφορά να μπορεί να γίνεται απλώς και σαφώς εις ιοινοδή-  
ποτε τμήμα του τολούτου δειγματος.

3.- Έλεγχος της ακεραιότητας του υποδοχέως (CONTAIN-  
MENT) και του προστατευτικού καλύμματος (SHIELD-  
ING)

Μετά από οιοινοδήποτε των εφαρμοστέων ελέγχων των 3633  
οριζομένων εις τα περιθώρια 3635 έως 3637, θα καταδεικνύε-  
ται περαιτέρω ότι η ακεραιότης του υποδοχέως (CONTAINMENT),  
ή του υποδοχέως και του προστατευτικού καλύμματος, διετηρήθη  
εις τον βαθμόν τόν προβλεπόμενον υπό των περιθωρίων 3601(I5)  
έως (I7), 3602(2), 3603(I) και 3604(2) δια την υπό έλεγχον  
συσκευασίαν.

4.- Στόχος των ελέγχων ρίψεως (DROP TESTS) των οριζο-  
μένων υπό των περιθωρίων 3635(4), 3636(2),  
3637(2) και 3641(I)

Ο στόχος θα είναι επίπεδος, οριζοντία επιφάνεια 3634  
τοιαύτης φύσεως ώστε οιαδήποτε αύξησις της αντιστάσεώς της  
εις μετατόπισιν ή παραμόρφωσιν θα πρόσκρούσει του δειγμα-  
τος δεν θα ηβξανε σημαντικώς την ζημίαν του δειγματος.

5.- Έλεγχοι καταδεξεως της ικανότητας(της)αντοχής  
εις τας κανονικάς συνθήκας μεταφοράς

(I) Οι έλεγχοι είναι:- έλεγχος με' εκτοξεύσει νερού,  
έλεγχος δι' ελευθέρας ρίψεως (FREE DROP TEST), έλεγχος 3635  
συμπιέσεως, και έλεγχος διεισδύσεως. Πρωτότυπα του κδλου  
θα υποβάλωνται εις τον έλεγχον ελευθέρας ρίψεως, τον έλεγ-  
γον συμπιέσεως και τον έλεγχον διεισδύσεως, προηγουμένη  
σε κάθε περίπτωση του ελέγχου δια ψεκάσεως (εκτοξεύσεως)  
νερού. Ένα πρωτότυπον μπορεί να χρησιμοποιειται δι' άλλους  
τους ελέγχους, υπό τον όρον ότι θα τηρούνται οι όροι της  
παραγράφου (2).

(2) Το χρονικόν διάστημα μεταξύ της περατώσεως του ελέγχου δια ψεκασμού (εκτοξεύσεως) νερού και του επομένου ελέγχου θα είναι τοιούτον ώστε το νερό να διεισδύσει εις τον ανώτατον βαθμόν, χωρίς αισθητόν στέγνωμα του εξωτερικού του δείγματος. Ελλείψει οιασδήποτε περι του αντιθέτου αποδείξεως, το χρονικόν τούτο διάστημα θα θεωρείται ότι είναι περίπου δύο ώρες εάν το ψέκασμα (εκτόξευσις) του νερού εφαρμοσθελ εκ τεσσάρων κατευθύνσεως ταυτοχρόνως.

Ουδέν χρονικόν διάστημα θα διαρρέει, εάν το ψέκασμα του νερού εφαρμοσθελ από τις μεθ. μια από τις τέσσερις κατευθύνσεις διαδοχικά.

(3) Έλεγχος δι' εκτοξεύσεως (ψεκασμού) νερού :-

Οιασδήποτε έλεγχος δι' εκτοξεύσεως (ψεκασμού) νερού θα θεωρείται ικανοποιητικός εφ' όσον :-

(α) το ποσόν (ποσότης) του νερού ανά μονάδα εδαφικής περιοχής είναι περίπου ισοδύναμος με ρυθμόν βροχοπτώσεως 5 CM ωριαίως.

(β) το νερό προσκρούει εις το δείγμα με γωνίαν περίπου 45° εκ του οριζοντίου.

(γ) το διανέμεται κατά προσέγγισιν ομοιομόρφως, 3635 δπώς επί βροχοπτώσεως, εις ολόκληρον την επιφάνειαν του δείγματος με την κατεύθυνσιν του ψεκασμού. (Συνεχίζεται)

(δ) η διάρκεια του ψεκασμού είναι τουλάχιστον μία ώρα.

(ε) η διάταξις της συσκευασίας είναι τοιαύτη ώστε αι συνέπειαι να αναμένωνται να είναι αι πλέον αυστηραί δια τα υπό έρευνα χαρακτηριστικά, και το δείγμα να υποστηρίζεται κατά τρόπον ώστε να μη είναι βουτηγμένο στο

(4) Έλεγχος δι' ελευθέρας ρίψεως :- Το δείγμα θα ρίπτεται εις τον στόχον κατά τρόπον ώστε να υφίσταται την ανωτάτην ζημίαν σε σχέση με τα υπό έλεγχον χαρακτηριστικά ασφαλείας.



(α) Το ύψος της ριψεως μετρούμενον εκ του κατωτάτου σημείου του κόλου μέχρι της άνω επιφανειας του στόχου θα είναι ως τούτο ορίζεται εις τον Πίνακα ΧVΙΙΙ.

ΠΙΝΑΞ ΧVΙΙΙ.- ΑΠΟΣΤΑΣΙΣ ΕΛΕΥΘΕΡΑΣ-ΡΙΨΕΩΣ ΓΙΑ ΚΟΛΑ

Βάρος Κόλου (KG)	Απόστασις Ελευθέρας Ριψεως (M)
κάτω των 5.000	1.2
5.000 έως < 10.000	0.9
10.000 έως < 15.000	0.6
15.000 και μεγαλύτερον	0.3

(β) Για κόλα Διασπαστών Υλών Κλάσεως ΙΙ, η ελευθέρα ριψις η οριζομένη ανωτέρω θα έπεται ελευθέρας ριψεως ~~μπο~~ ύψους 0.3 M από ~~κάθε~~ γωνία ή, προκειμένου περι κυλινδρικού κόλου ~~από κάθε ένα από~~ <sup>τα</sup> τέταρτα ~~κάθε~~ χελους (RIM).

Για ορθογώνια κόλα από υνοσανίδα ή ξύλο μη υπερ- 3635 βαρυντά τα 50 KG εις βάρος, χωριστόν δείγμα θα υποβάλλεται εις ελευθέραν ριψιν ~~για~~ <sup>τα</sup> ~~κάθε~~ γωνιαν ~~από~~ ύψους 0.3 M.

(δ) Για κυλινδρικά κόλα από υνοσανίδα μη υπερβαλνοντα τα 100 KG εις βάρος, χωριστόν δείγμα θα υποβάλλεται εις ελευθέραν ριψιν ~~από~~ <sup>τα</sup> ~~κάθε~~ ~~ένα από~~ <sup>τα</sup> τέταρτα ~~κάθε~~ χελους (RIM) εξ ύψους 0.3 M.

(5) Έλεγχος συμπίεσεως:- το δείγμα θα υποβάλλεται, επί χρονικήν περίοδον 24 ωρών, εις φορτίον συμπίεσεως ίσιν προς το μεγαλύτερον των κάτωθι:-

(α) του ισοδυνάμου των 5 φορών το βάρος του πραγματικού κόλου·

(β) του ισοδυνάμου των  $1300 \text{ KG/M}^2$  πολλαπλασιαζομένου

επί της κατακορύφου προβεβλημένης επιφανείας του κόλου.

Το φορτίον θα εφαρμόζεται ομοιομόρφως επί των δύο αντιθέτων πλευρών του δείγματος, η μία των οποίων θα είναι η βάση επί της οποίας το κόλον θα βστατο κανονικώς.

(6) Έλεγχος διεισδύσεως:- το δείγμα θα τοποθετηθεί επί ακάμπτου, επιπέδου, οριζοντίου επιφανείας η οποία δεν θα μετακινείται σημαντικώς κατά την διεξαγωγή του ελέγχου.

(α) Ράβδος διαμέτρου 3.2 CM με ημισφαιρικό άκρον και ζυγίζουσα 6 KG θα ρίπτεται και κατευθύνεται να πέσει, με τον επιμήκη άξονα αυτής καθέτως, εις το κέντρον του ασθενέστερος τμήματος του δείγματος, εις τρόπον ὅστε, εάν διεισδύσει αρκούντως μακράν, θα κτυπήσει το αγγεῖον υποδοχής (CONTAINMENT VESSEL). Η ράβδος δεν θα παραμορφούται σημαντικά εκ της εκτελέσεως του ελέγχου.

(β) Το ὕψος ρίψεως της ράβδου μετρούμενον εκ του κάτω άκρου αυτής μέχρι της άνω επιφανείας του δείγματος θα είναι I M. (Συνεχίζεται)

6.- Πρόσθετοι έλεγχοι δια συσκευασίαν Τύπου Α προοριζομένην δια υγρά και αέρια

(I) Χωριστά δείγματα θα υποβάλλονται εις έκαστον των κατωτέρω ελέγχων εκτός εάν μπορεί να καταδειχθεί ότι ένας έλεγχος είναι αυστηρότερος για το περι ού πρόκειται δείγμα από τον άλλον, οπότε ένα δείγμα θα υποβάλλεται εις τον αυστηρότερον έλεγχον.

(2) Έλεγχος Ελευθέρας Ρίψεως:- το δείγμα θα πέφτει στον στόχον ώστε να υφίσταται την ανωτάτη ζημία σε σχέση με τον υποδοχέα. Το ὕψος της πτώσεως μετρούμενον από το κάτω μέρος του δείγματος μέχρι της άνω επιφανείας του στόχου θα είναι

(γ) Έλεγχος Διεισδύσεως:- το δείγμα θα υποβάλεται εις τον έλεγχον τον οριζόμενον ~~επί~~ περιθώριω 3635(6) εκτός τού ότι το ύψος της πτώσεως θα αυξάνεται εις 1.7 M εκ του 1 M που ορίζεται ~~επί~~ περιθώριω 3645(6)(β).

7.- Έλεγχοι καταδελξέως της ικανότητας αντοχής εις τας κατά την μεταφοράν συνθήκας ατυχήματος

(I) Το δείγμα θα υποβάλεται εις τα σωρευτικά αποτελέσματα των μηχανικών ελέγχων των οριζομένων ~~επί~~ παραγράφω (2) και του θερμικού ελέγχου του οριζομένου ~~επί~~ παράγράφω (3) κατά την σειράν αυτήν. Χωριστόν δείγμα θα υποβάλεται στο αποτέλεσμα του ελέγχου εμβυθίσεως ύδατος (WATER IMMERSION) της παραγράφου (4).

~~(2)~~ Μηχανικός Έλεγχος:- ο έλεγχος θα αποτελείται εκ 3637 δύο ρίξεων εις στόχον. Η σειρά με την οποίαν το δείγμα (Συνεχίζεται) υποβάλεται εις τας δύο ρίψεις θα είναι τέτοια ώστε, με το πέρας του μηχανικού ελέγχου, το δείγμα να έχει υποστεί τέτοιαν ζημίαν η οποία θα οδηγήσει εις την ανωτάτην ζημίαν του θερμικού ελέγχου ο οποίος ακολουθεί.

(α) Δια την ρίψιν I, το δείγμα θα πέσει στον στόχον κατά τρόπον ώστε να υποστεί την ανωτάτην ζημίαν, και το ύψος της πτώσεως ~~μετρούμενον~~ εκ του κατωτάτου σημείου του δείγματος μέχρι της άνω επιφανείας του στόχου θα είναι 9 M.

(β) Δια την ρίψιν II, το δείγμα θα πέσει στον στόχον κατά τρόπον ώστε να υποστεί την ανωτάτην ζημίαν, και το ύψος της πτώσεως ~~μετρούμενον~~ εκ του προβλεπομένου σημείου της κρούσεως του δείγματος μέχρι της άνω επιφανείας του στόχου θα είναι 1 M. Ο στόχος στη περίπτωση αυτή θα είναι το άνω άκρον στερεάς εκ μαλακού χάλυβος ράβδος κυκλικής τομής, διαμέτρου

15 CM  $\pm$  0.5 CM. Η επιφάνεια του στόχου θα είναι επίπεδος και οριζόντια με τα άκρα της στρογγυλευόμενα εις ακτίνα όχι μεγαλύτεραν των 6 MM. Η ράβδος θα έχει ανάμπτως συναρμολογηθεί καθέτως επί του στόχου του περιγραφομένου εις περιθώριον 3634 και θα είναι μήκους 20 CM εκτός εάν μακρυτέρα ράβδος θα προεκάλει μεγαλύτεραν ζημίαν· στη περίπτωση αυτή, ράβδος καταλλήλου μήκους δια να προκαλέσει την ανωτάτην ζημίαν θα χρησιμοποιείται.

(3) Θερμικός Έλεγχος:- οιοσδήποτε θερμικός έλεγχος θα θεωρείται ικανοποιητικός, εφ' όσον η επί του δείγματος θερμική ροή (HEAT FLUX) είναι μικρότερα εκείνης που θα προέκυπτε εκ της καύσεως επί 30 λεπτά ολοκλήρου του δείγματος εις περιβάλλον ακτινοβολίας εξ 800°C με συντελεστήν εκπομπής (EMISSIVITY COEFFICIENT) τουλάχιστον 0.9. Δια σκοπούς υπολογισμού, η απορροφητικότητα της επιφανείας θα είναι είτε η τιμή εκείνη την οποίαν το κέλον ενδέχεται να αναμένεται να κατέχει εάν εξετίθετο εις το πύρ ή 0.8, οιασδήποτε τούτων όψης μεγαλύτερας. Επιπροσθέτως, οσάκις είναι σημαντικόν, εισαγωγή θερμότητας επαφής (CONVECTIVE HEAT INPUT) θα συμπεριλαμβάνεται επί τη βάσει αέρος περιβάλλοντος εις 800°C διαρκούσης της τριανταλέπτου χρονικής περιόδου. Μετά την παύσιν της εισαγωγής εξωτερικής θερμότητας εις το δείγμα:

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(Συνεχίζεται)

(α) το δείγμα δεν θα ψυχθεί τεχνητώς μέχρι της παρελεύσεως ετέρων τριών ωρών ή μέχρις ότου καταδειχθεί ότι ολοκληρός η εσωτερική θερμοκρασία έχει αρχίσει να πέφτει, οιοσδήποτε τούτων ήθελε συμβεί ενωρίτερον, και

(β) οιαδήποτε καύσις υλικών του δείγματος θα επιτρέπεται επί τριών μετά την παύσιν της εξωτερικής θερμάνσεως του δείγματος εκτός εάν λήξει φυσιολογικά ενωρίτερον.

(4) Έλεγχος Εμβυθίσεως στο νερό, το δείγμα θα εμβυθίζεται από στήλην νερού τουλάχιστον 15 M επί χρονικήν περίοδον όχι μικρότεραν των οκτώ ωρών. Δια τους σκοπούς του ελέγχου, εξωτερική πίεσις νερού από 1.5 KG/CM<sup>2</sup> (GAUGE) θα λαμβάνεται υπόψη για την αντιμετώπισιν των δρών αυτών.

8.- Έλεγχος εσωτερικής διαρροής νερού (WATER IN-LEAKAGE) για κόλα περιέχοντα διασπαστές ύλες

(1) Κόλα πλην των κόλων Διασπαστών Υλών Κλάσεως I ή 3638 Κλάσεως II και οιαδήποτε κόλα δια τα οποία η εσωτερική ή εξωτερική διαρροή νερού (WATER IN-LEAKAGE OR OUT-LEAKAGE) καθ' ό μέτρον καταλήγει εις την μεγαλύτερα δραστηκότητα υπήρξε δεδομένη για τους σκοπούς εκτιμήσεως τους αναφερομένους εις τα περιθώρια 3614(2) και 3619(β) θα εξαιρούνται του ελέγχου.

(2) Προτού το δείγμα υποβληθεί εις τον έλεγχον της εσωτερικής (προς τα έσω) διαρροής του νερού (WATER IN-LEAKAGE TEST) τον οριζόμενον κατωτέρω, τούτο θα υποβληθεί εις τους ελέγχους των περιθωρίων 3637(2) και (3).

(3) Το δείγμα θα εμβυθίζεται υπό στήλην νερού τουλάχιστον 0.9 M επί χρονικήν περίοδον όχι μικρότεραν των οκτώ ωρών και δια την ανωτάτην αναμενομένην διαρροήν. Δια τον έλεγχον αυτόν θερμοκρασία περιβάλλοντος εκ 38°C δεν απαιτείται.

9.- Έλεγχοι ακεραιότητας υποδοχέως και προστατευτικού καλύμματος (CONTAINMENT AND SHIELDING)

Πάσα μέθοδος ελέγχου ή επιθεωρήσεως μπορεί να χρησι-3639 μοποιηθεί προς καθορισμόν του εάν οι δροι του παρόντος Κεφαλαίου έχουν τηρηθεί μετά την υποβολήν του δείγματος εις τους ελέγχους των περιθωρίων 3635 έως 3637, υπό τον δρον

ὅτι ἡ μέθοδος δύναται νὰ ἐπιδειχθῆ διὰ τὴν ἐκπλήρωσιν τῶν ὁρῶν τῶν περιθωρίων 3601 ἕως 3604.

Γ.- ΕΛΕΓΧΟΙ ΓΙΑ ΕΙΔΙΚΟΥ ΤΥΠΟΥ ΡΑΔΙΕΝΕΡΓΙΟΥΣ ΥΛΕΣ

Ι.- Γενικά

(1) Οἱ ἐλέγχοι εἶναι:- ἐλέγχος κρούσεως, ἐλέγχος ἐπι- 3640 κρούσεως, ἐλέγχος κάμψεως καὶ ἐλέγχος θερμότητος.

(2) Δείγματα (στερεές ραδιενεργεῖς ὕλες ἢ κάψουλες) 3640 υποβαλλόμενα εἰς ἐλεγχὸν θὰ ετοιμάζονται ὅπως αὐτές (Συνεχίζεται) κανονικῶς παρουσιάζονται γιὰ μεταφορὰ. Οἱ ραδιενεργεῖς ὕλες θὰ ἀντιγράφονται ὅσον εἶναι πρακτικῶς περισσότερον δυνατὸν.

(3) Διαφορετικὸν δεῖγμα μπορεῖ νὰ χρησιμοποιηθῆ γιὰ καθένα ἀπὸ τοὺς ἐλέγχους.

(4) Το δεῖγμα δὲν θὰ σπάει ἢ θρυμματίζεται ὅταν υποβληθῆ εἰς κρούσιν, ἐπικρούσιν ἢ ἐλεγχὸν κάμψεως.

(5) Το δεῖγμα δὲν θὰ λιώνει ἢ διαχωρίζεται ὅταν υποβληθῆ εἰς τὸν ἐλεγχὸν θερμότητος.

(6) Μετὰ ἀπὸ κάθε ἐλεγχὸν, ἐκτίμησις δι' ὕλσεως (φιλτραρίσματος) θὰ ἐκτελεῖται ἐπὶ τοῦ δείγματος διὰ μεθόδου ὀχι ὀλιγώτερον εὐπαθοῦς τῶν μεθόδων τῶν ἀναφερομένων εἰς τὸ περιθώριον 3642.

2.- Μέθοδοι Ἐλέγχου

3641

(1) Μέθοδος Κρούσεως:- Το δεῖγμα θὰ πέσει εἰς <sup>τὸν</sup> στόχον <sup>ἐπι</sup> ὕψους 9 M. Ὁ στόχος θὰ εἶναι ὅπως καθορίζεται εἰς περιθώριον 3634.

(2) Μέθοδος Ἐπικρούσεως:- Το δεῖγμα θὰ τοποθετηθῆ ἐπάνω σὲ φύλλον ἀπὸ μὲλυβδο τὸ ὁποῖον υποστηρίζεται ἀπὸ μίαν λεῖαν στερεὰ ἐπιφάνεια καὶ κτυπάται ἀπὸ τὴν ἐπίπεδο ὀψη μίαν χαλύβδινη ράβδου (βέργας) ὥστε νὰ παραχθῆ ἐπι-

κρουσις ισοδύναμος με εκείνην που προκύπτει από ελευθέραν ρίψιν (πτώσιν) 1.4 KG από 1 M. Η επίπεδος όψις της ράβδου θα είναι διαμέτρου 25 MM με τα άκρα στρογγυλευμένα σε ακτίνα 3 MM  $\pm$  0.3 MM. Ο μόλυβδος, αριθμού σκληρότητας 3.5 έως 4.5 της κλίμακος VICKERS και πάχους όχι μεγαλύτερου των 25 MM, θα καλύπτει επιφάνειαν μεγαλύτεραν εκείνης που καλύπτει το δείγμα. Νέα επιφάνεια μολύβδου θα χρησιμοποιείται για κάθε επίκρουση. Η ράβδος θα κτυπά το δείγμα με τρόπον ώστε να προκαλεί την ανωτάτην ζημίαν.

(3) Έλεγχος κάμψεως:— Ο έλεγχος έχει εφαρμογήν μόνον επί μακρών, λεπτών πηγών με κατώτατον μήκος 10 CM και αναλογικών μήκους και κατωτάτου πλάτους όχι μικροτέραν των 10. Το δείγμα θα σφιχθεί στερεά σε οριζόντια θέση εις τρόπον ώστε το ήμισυ του μήκους του να προεξέχει της όψεως του σφιγκτήρος. Η διάταξις του δείγματος θα είναι τέτοια ώστε το δείγμα να υποστεί την ανωτάτην ζημίαν όταν το ελεύθερό του άκρον κτυπηθεί από την επίπεδο όψι της χαλύβδινης ράβδου. Η ράβδος θα κτητύσει το δείγμα εις τρόπον ώστε να παραχθεί επίκρουσις ισοδύναμος με εκείνην που προκύπτει εξ ελευθέρου κατακορύφου πτώσεως 1.4 KG από 1 M. Η επίπεδος επιφάνεια της ράβδου θα είναι διαμέτρου 25 MM με τα άκρα στρογγυλευμένα σε ακτίνα 3 MM έως  $\pm$  0.3 MM.

(4) Έλεγχος θερμότητος:— Το δείγμα θα θερμανθεί στον αέρα σε θερμοκρασία 800°C και θα κρατηθεί στη θερμοκρασία αυτή για χρονική περίοδο 10 λεπτών και ακολούθως θα επιτραπεί να ψυχθεί.

364I  
(Συνεχίζεται)

3. Μέθοδοι Εκτιμήσεως Διύλισεως (Φιλτραρίσματος)  
(LEACHING ASSESSMENT METHODS)

- (I) Για αδιάλυτες (INDISPERSIBLE) στερεές ύλες: 3642
- (α) Το δείγμα θα βυθίζεται επί επτά ημέρες στο νερό σε θερμοκρασία περιβάλλοντος. Το νερό θα έχει pH 6 έως 8, και ανωτάτη αγωγιμότητα  $10 \mu\text{S}/\text{CM}$  εις  $20^\circ\text{C}$ . 3642
- (β) Το νερό μαζί με το δείγμα θα θερμανθούν ακολουθώντας εις θερμοκρασίαν  $50^\circ \pm 5^\circ\text{C}$  και διατηρηθούν εις την θερμοκρασίαν αυτήν επί τέσσερες ώρες. (συνεχίζεται)
- (γ) Θα καθορισθελ ακολουθως η δράσις του νερού.
- (δ) Το δείγμα ακολουθως θα αποθηκευθελ επί επτά ημέρες τουλάχιστον εις σταθερόν αέρα υγρασίας όχι κάτω των 90 στα εκατό εις  $30^\circ\text{C}$ .
- (ε) Το δείγμα ακολουθως θα βυθισθελ εις νερό της αυτής προδιαγραφής ως εν (α) ανωτέρω και το νερό μαζί με το δείγμα θα θερμανθούν εις  $50^\circ\text{C} \pm 5^\circ\text{C}$  και διατηρηθούν εις την θερμοκρασίαν αυτήν επί τέσσερες ώρες.
- (στ) Θα καθορισθελ ακολουθως η ενέργεια (δράσις) του

Αι δράσεις (ενέργειαι) αι καθοριζόμεναι εν (γ) και (στ) ανωτέρω δεν θα υπερβαίνουν τα  $0.05 \mu\text{Ci}$ .

(2) Για καψουλαρισμένες ύλες (ENCAPSULATED SUBSTANCES):-

- (α) Το δείγμα θα βυθισθελ σε νερό σε θερμοκρασία περιβάλλοντος. Το νερό θα έχει pH 6-8 με ανωτάτην αγωγιμότητα  $10 \mu\text{S}/\text{CM}$ . Το νερό και το δείγμα θα θερμανθούν εις θερμοκρασίαν  $50^\circ\text{C} \pm 5^\circ\text{C}$  και διατηρηθούν εις την θερμοκρασίαν αυτήν επί τέσσερες ώρες.
- (β) Θα καθορισθελ ακολουθως η ενέργεια (δράσις) του νερού.



(γ) Το δείγμα ακολούθως θα αποθηκευθεί επί επτά τουλάχιστον ημέρες σε σταθερό (ήρεμο, ακίνητο) αέρα σε θερμοκρασία όχι μικρότερη των 30°C.

(δ) Επαναλάβετε (α).

(ε) να καθορισθεί ακολούθως η ενέργεια (δράσεις) του νερού.

3642

(Συνεχίζεται)

Αι ενέργειαι (δράσεις) αι καθοριζόμεναι εν (β) και (ε) ανωτέρω δεν θα υπερβαίνουν τα 0.05μCi.

Δ.- ΟΡΟΙ ΕΠΙΘΕΩΡΗΣΕΩΣ ΥΠΟ ΕΚΠΛΗΡΩΣΙΝ ΠΡΟ ΤΗΣ ΠΡΩΤΗΣ ΧΡΗΣΕΩΣ ΚΑΙ ΠΡΟ ΕΚΑΣΤΗΣ ΦΟΡΤΩΣΕΩΣ ΣΥΓΚΕΚΡΙΜΕΝΩΝ ΤΥΠΩΝ ΚΟΛΩΝ

I.- Προ της πρώτης χρήσεως

Προ της πρώτης χρήσεως οιοδήποτε κόλου, οι κώ- 3643 τωθι δροι θα πληρούνται υπό του αποστολέως:-

(α) Για κάθε κόλον τύπου B(U) και τύπου B(M), θα εξασφαλίζεται ότι η αποδοτικότητα του προστατευτικού του καύματος και υποδοχέως, και, οσάνκι αναγκαιοί, τα χαρακτηριστικά της μεταφοράς θερμότητας, είναι εντός των ιευθύνων ή των οριζομένων δια το εγκριθέν σχέδιον ορίων.

(β) Εάν η πίεσις σχεδίου (DESIGN PRESSURE) του συστήματος υποδοχέων (CONTAINMENT SYSTEM) υπερβαίνει τα 0.35 KG/CM<sup>2</sup> (GAUGE), θα εξασφαλίζεται ότι το σύστημα υποδοχέων (CONTAINMENT SYSTEM) κάθε κόλου συμφωνεί με τους όρους του εγκριθέντος σχεδίου τους διέποντας την ικανότητα του συστήματος να διατηρεί την ακεραιότητα του υπό πίεσιν.

(γ) Οσάνκι, δια την συμμόρφωσιν προς τα κριτήρια πυρηνικής ασφαλείας, δηλητήρια νετρονίου ειδικώς συμπεριλαμβάνονται ως συστατικά μέρη της συσκευασίας βασικώς

· δια τον σκοπόν τούτον, έλεγχοι θα εκτελούνται προς επι-  
· βεβαίωσιν της παρουσίας και διανομής των δηλητηρίων τούτων.

2η ~~και~~ εκάστης φορτώσεως

Πριν από κάθε φόρτωση οιοδήποτε κόλου, θα τηρούν- 3644  
ται οι κάτωθι όροι υπό του αποστολέως:-

(α) Κόλα Τύπου Β(Υ) και Τύπου Β(Μ), θα κρατούνται μέχρις  
ότου υπάρξει αρκετά στενή προσέγγιση των συνθηκών ισορρο-  
πίας προς κατάδειξη της συμμορφώσεως προς τους δια την φόρ-  
τωσιν όρους θερμοκρασίας και πιέσεως εκτός εάν εξαίρεση  
από τωσ όρων τούτων έτυχεν μονοπλεύρου (ετεροβαρούς) εγκρι-  
σεως.

(β) Θα εξασφαλίζεται ότι ετηρήθησαν όλοι οι όροι οι καθο-  
ριζόμενοι εις τα πιστοποιητικά εγκρίσεως.

(γ) Θα εξασφαλίζεται βε' εξετάση ή με κατάλληλους ελέγ-  
χους ότι όλα τα κλεισίματα (πώματα), βαλβίδες και λοιπά α-  
νοίγματα (οπαί) του συστήματος υποδοχών (CONTAINMENT  
SYSTEM) δια των οποίων το ραδιενεργόν περιεχόμενον ενδέχε-  
ται να διαφύγει, είναι κανονικώς κλεισμένα και, οσάκις α-  
παιτείται, σφραγισμένα με σπίελ τρόπον εγέναν οι επιδείξεις των  
περιθωρίων 3603(Ι) και 3604(2).

(δ) Θα εξασφαλίζεται ότι αι διατάξεις του περιθωρίου  
3600(5), αναφορικώς με τας συνδέσεις ανυψώσεως έχουν τηρη-  
θει.

3645-

3649

ΠΙΝΑΞ IV.- ΕΛΕΓΧΟΙ ΓΙΑ ΜΕΤΑΦΟΡΑ ΚΑΙ ΑΠΟΘΗΚΕΥΣΗ ΥΠΟ ΔΙΑΜΕΤΑΚΟ-  
ΜΙΣΙΝ (IN TRANSIT)

A.- ΜΙΚΤΗ ΣΥΣΚΕΥΑΣΙΑ

Κόλον περιέχον ραδιενεργές ύλες δεν πρέπει να 3650  
περιέχει οιαδήποτε άλλα είδη εκτός από τέτοια είδη και έγ-  
γραφα τα οποία είναι απαραίτητα για τη χρήση των ραδιενερ-  
γών υλών. Τέτοια είδη μπορούν να συμπεριληφθούν, υπό τον ό-  
ρον ότι δεν θα υπάρξει αλληλεπίδραση μεταξύ των και της  
συσκευασίας ή του περιεχομένου η οποία θα εμείωνε την ασφάλεια του κόλου.

B.- ΜΗ-ΩΡΙΣΜΕΝΗ ΡΑΔΙΕΝΕΡΓΟΣ ΜΟΛΥΝΣΙΣ

Η μη-ωρισμένη ραδιενεργός μόλυνση επί οιασδήποτε 3651  
εξωτερικής επιφανείας του κόλου θα διατηρείται όσο είναι  
πρακτικώς δυνατόν χαμηλή και ουδέποτε διαρκούσης της κανο-  
νικής μεταφοράς θα υπερβαίνει τα επίπεδα τα οριζόμενα εις τον  
Πίνακα XIX. Το επίπεδον της μη-ωρισμένης ραδιενεργού μόλυνσε-  
ως μπορεί να καθορισθελ δια καθαρισματος (σκουπισματος)  
εκτάσεως 300 CM<sup>2</sup> της προκείμενης επιφανείας δια της  
χειρός με διηθητικόν χάρτην, ή στουπί από βαμβάκι-μαλλί ή  
με οποιοδήποτε άλλο υλικό ομοίας φύσεως.

Κόλα χρησιμοποιηθέντα δια την μεταφοράν ραδιενερ-  
γών υλών όπως υποστάν ακτινοβολίαν καθύσιμον, θα εξετάζων-  
τα βία να καθορισθελ εάν η ενέργεια (ενεργότητα) μπορεί  
να διυλισθελ στην επιφάνεια, π.χ. δια της βροχής. Η συχνό-  
της τοιαύτης εκτιμήσεως θα σχετίζεται με το ενδεχόμενον η  
ραδιενεργός μόλυνσις να έχει απορροφηθελ από την επικάλυψιν  
της επιφανείας, ειδικώτερον της βαφής (χρώματος). Οσάκις

Ενέργεια ενδέχεται να διυλισθεί στην επιφάνεια του κδλου, η συνεχιζόμενη χρήση του τολούτου κδλου θα υποκείται εις την εκτίμησιν ασφαλείας ακτινοβολίας γενομένην υπό του αρμοδίου προσώπου. 3651 (Συνεχιζέται)

ΠΙΝΑΧ ΧΙΧ.- ΑΝΩΤΑΤΑ ΕΠΙΤΡΕΠΤΑ ΕΠΙΠΕΔΑ

ΜΗ-ΩΡΙΣΜΕΝΗΣ ΡΑΔΙΕΝΕΡΓΟΥ ΜΟΛΥΝΣΕΩΣ

Υψη προκαλούσα την μόλυνσιν Ανώτατον Επιτρεπτόν Επίπεδον  
(βλέπε Σημειώσιν α/ (μCi/cm<sup>2</sup>))

Φυσικόν και υποστάν εξασθένη-  
σιν ουράνιον και φυσικόν θό-  
ριον και μόνον

10<sup>-3</sup>

Βήτα και γάμα πομποί οι χαμηλής  
τοξικότητος άλφα πομποί οριζό-  
μενοι εις την Σημειώσιν β/

κάτωτέρω

10<sup>-4</sup>

Όλοι οι λοιποί άλφα πομποί

10<sup>-5</sup>

Σημειώσεις:- α/ Τα ανωτέρω επίπεδα είναι επιτρεπτά όταν υπολογίζονται επί οιασδήποτε εκτάσεως 300 cm<sup>2</sup> οιασδήποτε τμήματος της επιφανείας.

β/ Χαμηλής τοξικότητος άλφα πομποί:-

Ουράνιον-235 ή ουράνιον-238\* θόριον 232\*  
θόριον-228 και θόριον-230 όταν διαλύεται  
εις ειδικήν ενεργότητα της αυτής σειράς  
με εκείνην του φυσικού ουρανίου και φυσικού  
θόριου\* ραδιονουκλεΐδια με ημισειαν  
ζώνη κάτω των 10 ημερών.

## ΚΑΤΗΓΟΡΙΑΙ

3652

Κόλα και υποδοχείς (CONTAINERS) (δοχεία) (μεγάλα και μικρά) θα είναι της μίας των κάτωθι τριών κατηγοριών:-

I.- Κατηγορία I-ΛΕΥΚΗ

(1) Κόλα:- Όταν το επίπεδον ακτινοβολίας το προερχόμενον εκ του κόλου οποτεδήποτε διαρκούσης της κανονικής μεταφοράς δεν υπερβαίνει τα 0.5 MREM/H (ωριαώς) εις οιονδήποτε τρόπον επί της εξωτερικής επιφανείας του κόλου, και το κόλον δεν ανήκει εις κλάσιν II ή III Διασπαστών Υλών. 3653

(2) Υποδοχείς (δοχεία) (CONTAINERS):- Όταν περιέχουν κόλα ραδιενεργών υλών ουδέν των οποίων είναι κατηγορίας μεγαλύτερας της Κατηγορίας I-ΛΕΥΚΗΣ.

2.- Κατηγορία II-ΚΙΤΡΙΝΗ

(1) Κόλα:- Όταν το όριον του επιπέδου ακτινοβολίας του περιθωρίου 3653(I), υπερβαίνεται, ή το κόλον ανήκει εις την κλάσιν II Διασπαστών Υλών, υπό τον όρον ότι:- 3654

(α) το επίπεδον ακτινοβολίας το προερχόμενον εκ του κόλου οποτεδήποτε διαρκούσης της κανονικής μεταφοράς δεν υπερβαίνει τα 50 MREM/H (ωριαώς) εις οιονδήποτε τρόπον επί της εξωτερικής επιφανείας του κόλου και

(β) ο δείκτης μεταφοράς οποτεδήποτε διαρκούσης της κανονικής μεταφοράς δεν υπερβαίνει το I.O.

(2) Υποδοχείς (δοχεία) (CONTAINERS):- Όταν ο δείκτης μεταφοράς του υποδοχέως (δοχείου, CONTAINER) οποτεδήποτε διαρκούσης της μεταφοράς δεν υπερβαίνει το I.O, και όταν δεν περιέχει κόλα κλάσεως III Διασπαστών Υλών.

**Β.- Κατηγορία III-ΚΙΤΡΙΝΗ**

(I) Κόλα:- Όταν *καθένα* των δύο ορλων του περιθώ- 3655  
 ρίου 3654(I) υπερβαίνεται, ή όταν το κόλον ανήκει εις  
 την Κλάσιν II ή Κλάσιν III Διασπαστών Υλών, ή όταν το κό-  
 λον μεταφέρεται υπό ειδικήν διάταξιν, υπό τον όρον ότι:-

(α) το επίπεδον ακτινοβολίας το προερχόμενον εκ του  
 κόλου οποτεδήποτε διαρκούσης της κανονικής μεταφοράς δεν  
 υπερβαίνει τα 200 MREM/H (ωριαώς) εις οιονδήποτε τρόπον  
 επί της εξωτερικής επιφανείας του κόλου, εκτός του ότι,  
 δια φορτώσεις πλήρους φορτίου υπό τας συνθήκας τας οριζο-  
 μένας εις περιθώριον 3659(7), το ανώτατον επιτρεπτόν επί-  
 πεδον θα είναι 1000 MREM/H (ωριαώς)\* και

(β) ο δείκτης μεταφοράς οποτεδήποτε διαρκούσης της  
 κανονικής μεταφοράς δεν υπερβαίνει τα 10 εκτός εάν το κό-  
 λον μεταφέρεται ως πλήρες φορτίον.

(2) Υποδοχείς (δοχεία, CONTAINERS):- όταν ο δείκτης  
 μεταφοράς του υποδοχέως (δοχείου, CONTAINER), οποτεδήποτε  
 διαρκούσης της κανονικής μεταφοράς, υπερβαίνει τα 1.0, ή  
 όταν ο υποδοχέως (δοχείον, CONTAINER) μεταφέρει κόλα ανή-  
 κοντα εις Κλάσιν III Διασπαστών Υλών, ή όταν μεταφέρεται  
 υπό ειδικήν διάταξιν.

**Δ.- ΕΤΙΚΕΤΤΕΣ ΚΑΙ ΕΝΔΕΙΞΕΙΣ (βλέπε Προσθήκη Α.9)**

(I) *Κάθε* κόλον και υποδοχέως (δοχείον, CONTAINER) 3656  
 (μεγάλο και μικρό) θα φέρει τουλάχιστον δύο ετικέττες οι  
 οποίες θα είναι σύμφωνες με τα μοντέλα 6Α, 6Β ή 6Γ της  
 Προσθήκης Α.9 αναλόγως με την κατηγορίαν (βλέπε περιθώ-  
 ρια 3652 έως 3655) του κόλου ή υποδοχέως (δοχείου, CON-  
 TAINER) τούτου.

(2) Οι ετικέττες θα τοποθετούνται εις δύο αντίθετες 3656  
 πλευρές εξωτερικού του κόλου, ή εις το εξωτερικόν (Συνεχι-  
 και των τεσσάρων πλευρών του υποδοχέως (CONTAINER). ζεται)

(3) Οι ετικέττες θα είναι συμπληρωμένες ως κάτωθι  
 κατά σαφή και ανεξίτηλον τρόπον:-

(α) δίπλα στη λέξη "περιεχόμενον" θα σημειούται το  
 ραδιονουκλεΐδιο ή η ύλη η παρουσία της οποίας αποτελεί  
 τον κύριον κίνδυνον εν περιπτώσει βλάβης του κόλου (π.χ.:  
 στρόντιον -90, υποβληθέν εις ακτινοβολίαν ουράνιον, ρα-  
 διενεργόν ISA)°

(β) δίπλα στη λέξη "ενέργεια (δραστηκότης)" θα γρά-  
 φεται η δραστηκότης σε CURIES°

Σημειώσεις: Η δραστηκότης αυτή μπορεί επίσης να εκφρασθεί  
 εις μικρο, μιλλι ή κιλοκιουρι υπό τον όρον ότι το πρόθεμα  
 μικρο, μιλλι και κιλο γράφονται ολογράφως°

(γ) επιπροσθέτως των αριθμών μοντέλου 6B και 6Γ θα  
 γράφεται ο δείκτης μεταφοράς με όσο το δυνατόν μεγαλυτέ-  
 ρους αριθμούς εις το δια τον σκοπόν αυτόν πλαίσιον.

(4) Κάθε κόλον μικρού βάρους υπερβαίνοντος τα 50 KG  
 θα έχει το μικρό βάρος αυτού ευκρινώς και ανεξίτηλως ση-  
 μειωμένον εις το εξωτερικόν του κόλου.

(5) Κάθε κόλον το οποιον συμφωνεί με σχέδιον συ-  
 σκευασίας Τύπου Α θα είναι ευκρινώς και ανεξίτηλως δημειω-  
 μένον εις το εξωτερικόν του κόλου με "Τύπος Α".

(6) Κάθε κόλον το οποιον συμφωνεί με σχέδιον εγ-  
 κεκριμένον δυνάμει των περιθωρίων 3672 έως 3674 θα σημει-  
 ούται ευκρινώς και ανεξίτηλως εις το εξωτερικόν του κόλου

με το αναγνωριστικόν σύμβολον το καθορισθέν δια το σχέ-  
διον τούτου υπό της αρμοδίου αρχής και, στη περ  
σχέδιου κώλου Τύπου Β(Υ) ή Τύπου Β(Μ), με "Τ" υπ  
ή "Τύπος Β(Μ)".

3656

(Συνέχ-  
ζεται)

(7) <sup>19</sup> καθε κώλον το οποίον συμφωνεί με σχέδιον  
κώλου Τύπου Β(Υ) ή Τύπου Β(Μ) θα φέρει εις το εξωτερικόν  
του δοχείου το οποίον αντέχει εις τις επιδράσεις του πυρός  
και του νερού ευκρινώς σημειωμένον ~~με~~ σφραγίδος ανά-  
γλυφο ή με άλλο μέσο ανθεκτικόν εις τας επιδράσεις του  
πυρός και του νερού το σύμβολον του τριφυλλίου το εικονι-  
ζόμενον εις τις ετικέτες των μοντέλων 6Α έως 6Γ.

Ε.- ΑΠΟΣΠΑΣΙΣ (ΔΙΑΧΩΡΙΣΜΟΣ) ΡΑΔΙΕΝΕΡΓΩΝ ΥΛΩΝ

Κόλα της Κατηγορίας II-ΚΙΤΡΙΝΗΣ ή III-ΚΙΤΡΙΝΗΣ 3657

θα αποσπώνται (διαχωρίζονται) κατά την μεταφοράν ή την  
αποθήκευσιν από κόλα τα οποία φέρουν ετικέττα με την λέ-  
ξιν "FOTΦ" κατά τας αποστάσεις ασφαλείας τας διδομένας  
εις τον πίνακα του περιθωρίου 240 001 της Προσθήκης Β.4.

ΣΤ.- ΑΠΟΘΗΚΕΥΣΙΣ ΥΠΟ ΔΙΑΜΕΤΑΚΟΜΙΣΙΝ (IN TRANSIT)

(I) Κόλα ραδιενεργών υλών δεν θα αποθηκεύονται 3658  
πλησίον επικινδύνων εμπορευμάτων μετά των οποίων μικτή  
φόρτωσις απαγορεύεται (βλέπε περιθώριον 2700(3)).

(2) Ο αριθμός των κώλων και δοχείων (CONTAINERS)  
Κατηγορίας II-ΚΙΤΡΙΝΗΣ και Κατηγορίας III-ΚΙΤΡΙΝΗΣ των  
αποθηκευομένων εις οιαδήποτε μίαν αποθήκην (αποθηκευτι-  
ειδών  
κόν χώρον), ως χώρος/υπό διαμετακίμωσιν (TRANSIT AREA),  
ακραίον κέρριον, ή υπόστεγον, θα είναι τόνσον περιωρισμέ-  
νος ώστε το ολικόν άθροισμα των δεικτών μεταφοράς ολουδη-



ποτε επί μέρους ομάδος τοιούτων κόλων ή δοχείων (CONTAINERS) δεν υπερβαίνει τα 50. Ομάδες τοιούτων κόλων και δοχείων (CONTAINERS) θα αποθηκεύονται κατά τρόπον ώστε να τηρείται κενός χώρος τουλάχιστον 6 μέτρων από τους άλλους ομίλους (ομάδες) τοιούτων κόλων ή δοχείων (CONTAINERS).

(3) Οσάκις έλεγχος συσσωρευθέντων κόλων πραγματοποιείται αναφερόμενος εις ερυθρές ταινίες σημειούμενες επί των ετικεττών δεν θα υπάρχουν περισσότερα των 50 Κατηγορίας II-ΚΙΤΡΙΝΗΣ ή 5 Κατηγορίας III-ΚΙΤΡΙΝΗΣ κόλα εις οιαδήποτε μίαν ομάδα κόλων. Οσάκις υπάρχουν κόλα αμφοτέρων των κατηγοριών, ένα κόλον Κατηγορίας III-ΚΙΤΡΙΝΗΣ θα λαμβάνεται ως ισοδύναμον με δέκα Κατηγορίας II-ΚΙΤΡΙΝΗΣ κόλα.

(4) Εκτός της περιπτώσεως κόλων Διασπαστών Υλών Κλάσεως II ή Κλάσεως III, οι περιορισμοί του περιθωρίου 3658(2) δεν ισχύουν δια κόλα σημειούμενα "RADIOACTIVE (ΡΑΔΙΕΝΕΡΓΟΝ) LSA" και περιέχοντα ύλην χαμηλής ειδικής δραστηριότητος ή κόλα σημειούμενα "RADIOACTIVE (ΡΑΔΙΕΝΕΡΓΟΝ) LLS" και περιέχοντα στερεάν ραδιενεργόν ύλην χαμηλού επιπέδου όταν διατηρούνται εις συμπαγή στοιβάσαν ή εντός υποδοχείων (CONTAINERS).

(5) Ανάμιξις διαφόρων ειδών κόλων, συμπεριλαμβανομένων κόλων Διασπαστών Υλών Κλάσεως I με κόλα Διασπαστών Υλών Κλάσεως II, επιτρέπεται.

Z.- ΜΕΤΑΦΟΡΑ

I.- Κόλα

(I) Τα κόλα θα φορτώνονται κατά τέτοιο τρόπο στα οχήματα ώστε να μη μπορούν να μετακινούνται επικινδύνως,

αναποδογυρίζουν ή πέφτουν.

3659

(2) Υπό τον όρον ότι ο μέσος όρος της επιφανειακής θερμικής ροής δεν υπερβαίνει τα  $15W/M^2$ , και ότι το πέριε φορτίον δεν είναι σε σάκκους, το κόλον μπορεί να μεταφερθεί μεταξύ συσκευασμένου γενικού φορτίου άνευ οιοδήποτε ειδικών περί στοιβασίας διατάξεων εκτός ως ήθελεν ειδικώς ζητηθεί υπό της αρμόδου αρχής εις κατάλληλον πιστοποιητικόν. Εάν η θερμική ροή υπερβαίνει τα  $15W/M^2$  το κόλον πρέπει να μεταφερθεί ως πλήρες φορτίον.

(3) Κόλα Κατηγοριών I-ΛΕΥΚΗ, II ή III-ΚΙΤΡΙΝΗ δεν πρέπει να μεταφέρονται εντός διαμερισμάτων καταλαμβανομένων υπό επιβατών, εκτός εκείνων τα οποία φυλάσσονται δια μεταφορείς/συνοδούς ειδικώς εξουσιοδοτημένους να συνοδεύσουν τα τολαύτα κόλα.

(4) Η ανάμιξις διαφόρων ειδών κόλων, συμπεριλαμβανομένων των κόλων Διασπαστών Υλών Κλάσεως I με κόλα Διασπαστών Υλών Κλάσεως II, επιτρέπεται.

(5) Η συσσώρευσις κόλων και υποδοχέων (δοχείλων, CONTAINPERS) θα ελέγχεται ως κάτωθι:-

(α) Δι' αμφοτέρα τα κόλα και υποδοχείς (δοχεία, CONTAINERS), ο αριθμός των κόλων και CONTAINERS θα είναι έτσι περιορισμένος ώστε το συνολικόν άθροισμα των δεικτών μεταφοράς εις οιονδήποτε δχημα δεν θα υπερβαίνει τα 50. Οσάνις ο έλεγχος αυτός των κόλων πραγματοποιείται δι' αναφοράς εις τας ερυθράς ταινίλας τας σημειουμένας επί των κόλων βλέπε περιθώριον 3658(3).

(β). Στη περίπτωση πλήρων φορτίων τα όρια της παρα-

γράφου (5)α) θα έχουν εφαρμογήν, υπό τον όρον ότι το επίπε- 3659  
 πεδον ακτινοβολίας υπό κανονικής μεταφοράς δεν (Συνεχί-  
 υπερβαίνει τα 200 MREM/H (ωριαίως) εις οιονδήποτε σημείον ζεται)  
 επί, και 10 MREM/H (ωριαίως) εις 2M εκ της εξωτερικής επι-  
 ναυλωθέντος φανελας/υποδοχέως ή οχήματος. Δι' αποστολές Διασπαστών Υλών  
 Κλάσεως II ή III, ή μίγμάτων αυτών, το πλήρες φορτίον δεν  
 θα περιλαμβάνει περισσότερα του επιτρεπομένου αριθμού κόλα  
 (βλέπε σημειωσιν εις περιθώριον 2700).

(6) Οχήματα και μεγάλοι υποδοχείς (CONTAINERS)  
 μεταφέροντα κόλα ή δοχεία φέροντα ετικέττες M<sub>0</sub> ντέλων 6A,  
 6B ή 6Γ, ή μεταφέροντα αποστολές πλήρους φορτίου οιονδή-  
 ποτε ραδιενεργών υλών θα εκθέτουν την επιγραφήν του περι-  
 θωρίου 240 ΟΙΟ της Προσθήκης Β.4 επί του εξωτερικού εκάστης  
 των δύο πλαγιών πλευρών και του οπισθίου τοιχώματος στη  
 περίπτωση οχήματος.

(7) Στη περίπτωση πλήρων φορτίων το επίπεδον ακτι-  
 νοβολίας δεν θα υπερβαίνει:-

(α) τα 1000 MREM/H (ωριαίως) εις οιονδήποτε σημείον  
 της εξωτερικής επιφανελας οιονδήποτε κόλου, υπό τον όρον  
 ότι:-

- (καλύπτρα)
- (ι) το όχημα είναι εφωδιασμένον με κλεισιμον/το  
 οποίον διαρκούσης της μεταφοράς, εμποδίζει  
 την πρόσβασιν εις μη εξουσιοδοτημένα πρόσωπα  
 εις το εσωτερικόν του κλεισίματος (της καλύπτρας)·
- (ιι) έχουν γίνει προβλέψεις δια την ασφάλειαν των  
 κόλων, ώστε η θέσις των εντός του οχήματος  
 να παραμένει ωρισμένη διαρκούσης της κανονικής  
 μεταφοράς·

(ιιι) δεν υπάρχουν εργασίες φορτώσεως ή εκφορτώ- 3659  
σεως μεταξύ της ενάρξεως και λήξεως της (Συνεχίζε-  
ταί)  
μεταφοράς.

Υπό άλλας συνθήκας, το επίπεδον ακτινοβολίας εις οιον-  
δήποτε σημειον επί της εξωτερικής επιφανείας του κόλου  
δεν θα υπερβαίνει τα 200 MREM/H (ωριαίως).

(β) τα 200 MREM/H (ωριαίως) εις οιονδήποτε σημει-  
ον επί της εξωτερικής επιφανείας του οχήματος ή του με-  
γάλου CONTAINER, συμπεριλαμβανομένων των άνω και κάτω  
επιφανειών, και, προκειμένου περί ανοικτού οχήματος εις  
οιονδήποτε σημειον επί των καθέτων επιπέδων των προεκτει-  
νομένων (προεξεχόντων) εκ των εξωτερικών άκρων του οχήμα-  
τος, επί της άνω επιφανείας του φορτίου, και επί της κάτω  
εξωτερικής επιφανείας του οχήματος και

(γ) τα 10 MREM/H (ωριαίως) εις οιονδήποτε σημειον  
2M εκ των καθέτων επιπέδων των αντιπροσωπευομένων υπό  
των εξωτερικών πλευρικών επιφανειών του οχήματος ή μεγά-  
λου CONTAINER, και, εάν το φορτίον μεταφέρεται εντός ανοι-  
κτού οχήματος εις οιονδήποτε σημειον 2M εκ των καθέτων επι-  
πέδων των προεξεχόντων εκ των εξωτερικών άκρων του οχήματος.

(8) (α) Το επίπεδον ακτινοβολίας εις οιονδήποτε  
κανονικώς κατειλημμένην θέσιν οχήματος δεν θα υπερβαίνει  
τα 2 MREM/H (ωριαίως) διαρκούσης της μεταφοράς. Υπό τοιαύ-  
τας συνθήκας ο μεταφορέυς θα εξασφαλίζει ότι ο οδηγός ή  
οιονδήποτε συνοδεύον προσωπικόν, δεν θα περιλαμβάνει πε-  
ρισσοτέραν ακτινοβολίαν των 0.5 REM. εις οιονδήποτε 12-μηνον  
περίοδον. Διατηρούντες τας κατωτάτας αποστάσεις τας ανα-

γραφομένης εις τον πίνακα του περιθωρίου 240 000 της 3659  
 Προσθήκης Β.4, ακόμη και ελλείψει προστατευτικού καλύμ- (Συναχ-  
 ματος, θα θεωρούνται ως διατηρούμενα εντός του ορίου ζεται)  
 των 2 MREM/H (ωριαίως).

(β) Εναλλακτικώς της (α) ανωτέρω, ο μεταφορέας  
 μπορεί να θέσει σε λειτουργία πρόγραμμα εργασίας εγκε-  
 κριμένον υπό της αρμόδιας αρχής δια του οποίου στοιχεία  
 δέον να τηρούνται υπ' αυτού δια τους χρόνους τους δαπανη-  
 θέντας υπό προσώπων ταξειδευόντων εις τα οχήματά του και  
 τα επίπεδα ακτινοβολίας εις τα οποία τα πρόσωπα αυτά  
 υποβάλλονται, εις τρόπον ώστε ουδέν πρόσωπον να λαμβάνει  
 μεγαλύτεραν δόσιν των 375 MREM εις οιονδήποτε ημερολογια-  
 κόν τρίμηνον.

## 2.- Βυτιοφόρα (TANK VEHICLES)

Χαμηλής-ειδικής-δραστηκότητας ύλες, LSA (II), 3660  
 του περιθωρίου 2703, παραρτήματος/πίνακος 5, πλην του  
 εξαφθοριούχου ουρανίου και υλών υποκειμένων εις στιγμι-  
 αλαν ανάφλεξιν, μπορούν να μεταφέρονται με βυτιοφό-  
 ρα συμφώνως προς τους όρους της Προσθήκης Β.Ια.

## 3.- TANK-CONTAINERS

Χαμηλής ειδικής-δραστηκότητας ύλες, LSA (I), 366I-  
 του περιθωρίου 2703, παραρτήματος/πίνακος 5, συμπερι-  
 λαμβανομένου του φυσικού ή εξασθενημένου εξαφθοριούχου  
 ουρανίου, μπορούν να μεταφέρονται εντος TANK-CONTAINERS  
 (Δεξαμενο-Υποδοχέων) συμφώνως προς τους όρους της Προσθή-  
 κης Β.Ιβ.

3662-  
 3669

## ΚΕΦΑΛΑΙΟΝ V.- ΔΙΟΙΚΗΤΙΚΑΙ ΔΙΑΤΑΞΕΙΣ

Έγκρισις υπό των αρμοδίων αρχών δεν απαιτείται 3670  
 για σχέδια κόλων για ύλες αποσπελλόμενες δυνάμει των Πα-  
 ραρτημάτων/Πινάκων I έως 4 και, υπό τον όρον ότι το πε-  
 ρεχόμενον δεν είναι διασπαστές ύλες απαιτούσαι έγκρισιν  
 συμφώνως προς το περιθώριον 3674, δια σχέδια κόλων για  
 ύλες αποσπελλόμενες δυνάμει των Παραρτημάτων/Πινάκων  
 5 έως 8.

## Α.- ΕΓΚΡΙΣΙΣ ΕΙΔΙΚΟΥ ΤΥΠΟΥ ΡΑΔΙΕΝΕΡΓΩΝ ΥΛΩΝ

(I) Οιονδήποτε σχέδιον δι' ειδικού τύπου ραδιενεργείας 367I  
 ύλες, με την εξαίρεσιν των υλών των οριζομένων εις τα  
 Παραρτήματα/Πίνακας 3 και 4, θά απαιτεί μονόπλευρον (ετε-  
 ροβαρή) έγκρισιν. Η αίτησις δι' έγκρισιν θα περιλαμβάνει:-

(α) λεπτομερή περιγραφήν των υλών ή, προκειμένου  
 περί κάψουλας, του περιεχομένου\* ειδική μνελα θα γίνεται  
 αμφοτέρων των φυσικών και χημικών καταστάσεων\*

(β) λεπτομερή δήλωσιν του σχεδίου οιασδήποτε χρη-  
 σιμοποιηθησομένης κάψουλας, συμπεριλαμβανομένων πλήρων  
 μηχανικών σχεδίων και πινάκων υλικών και μεθόδων κατα-  
 σκευής, που πρόκειται να χρησιμοποιηθούν\*

(γ) δήλωσιν των ελέγχων οι οποίοι έχουν γίνει  
 ως και των αποτελεσμάτων αυτών, ή αποδείξεων βασιζομέ-  
 νων επί μεθόδων υπολογισμού, δια να καταδειχθεί ότι οι  
 ύλες είναι ικανές να αντιμετωπίσουν τους ελέγχους, ή ε-  
 τέρων αποδείξεων κατά τας οποίας αι ειδικού τύπου ρα-  
 διενεργείας ύλες πληρούν τους όρους και τας διατάξεις της  
 παρούσης Προσθήκης.

(2) Η αρμόδια αρχή θα καθιερώσει πιστοποιητικόν 3671  
 αναφέρον ότι το εγκριθέν σχέδιον πληροῦ τον ορισμόν (Συνεχίζεται)  
 των ειδικού τύπου ραδιενεργών υλών τον οριζόμενον εις  
 το περιθώριον 2700(2) και θα δίδει εις το σχέδιον τούτο  
 σύμβολον αναγνωρίσεως. Το πιστοποιητικόν θα καθορίζει  
 τας λεπτομερείας των ραδιενεργών υλών.

B.- ΕΓΚΡΙΣΙΣ ΣΧΕΔΙΩΝ ΚΟΛΩΝ

I.- Έγκρισις σχεδίων κόλων Τύπου Β(Υ) (συμπερι-  
λαμβανομένων των σχεδίων δια κόλα Διασπαστών  
Υλών Κλάσεως I, Κλάσεως II και Κλάσεως III  
τα οποία υπόκεινται επίσης εις το περιθώριον  
3674)

(I) Οιονδήποτε σχέδιον κόλου Τύπου Β(Υ) προερχόμε- 3672  
 νον εκ χώρας μέρους της ADR θα εγκρίνεται υπό της αρμόδιας  
 αρχής της χώρας ταύτης· εάν η χώρα ένθα το κόλον εσχεδιά-  
 σθη δεν είναι (συμπληθέν) μέλος της ADR, η μεταφορά είναι  
 δυνατή υπό τον όρον ότι:-

(α) πιστοποιητικόν έχει χορηγηθει υπό της χώρας  
 αυτής, ορίζον ότι το κόλον πληροῦ τις τεχνικές διατάξεις  
 της ADR, και ότι το πιστοποιητικόν τούτο προσυπογράφεται  
 υπό της αρμόδιας αρχής της πρώτης χώρας ADR εις την οποίαν  
 φθάνει η αποστολή·

(β) εάν ουδέν πιστοποιητικόν έχει χορηγηθει, το  
 σχέδιον κόλου εγκρίνεται υπό της αρμόδιας αρχής της πρώ-  
 τής χώρας ADR εις την οποίαν έφθασε η αποστολή·

(2) Η αίτησις ~~για~~ έγκριση θα περιλαμβάνει:-

(α) λεπτομερή περιγραφήν του προτεινομένου περιε-

χομένου με ειδικήν αναφοράν εις τας φυσικὰς και χημικὰς 3672 καταστάσεις αυτού και την φύσιν της εκπεμπομένης ακτινοβολίας. (Συνεχίζεται)

(β) λεπτομερή δήλωσις του σχεδίου, συμπεριλαμβανομένων πλήρων μηχανικών σχεδίων και πινάκων υλικών και μεθόδων κατασκευής που πρόκειται να χρησιμοποιηθούν.

(γ) δήλωσιν των ελέγχων οι οποίοι έχουν γίνει και των αποτελεσμάτων αυτών, ή αποδείξεων βασιζομένων επί μεθόδων υπολογισμού ή άλλων αποδείξεων ότι το σχέδιον του κόλου είναι κατάλληλον για να αντιμετωπίσει τις διατάξεις των περιθωρίων 3602 και 3605.

(δ) τας προτεινομένας οδηγίας λειτουργίας και συντηρήσεως για την χρήση του κόλου, ειδικώτερον, προκειμένου περί κόλων που ενδέχεται να βυθισθούν εις μολυσμένα λιμνοστάσια, τας ενσωματωμένας διατάξεις προς εξασφάλισιν ότι η επιφάνεια του κόλου δεν εμολύνθη άνω των επιτρεπομένων επιπέδων.

(ε) εάν το κόλον <sup>είναι</sup> σχεδιασθεί να έχει ανωτάτην κανονικήν λειτουργικήν πρῆσιν πλέον των 1.0 KG/CM<sup>2</sup> (GAUGE), η αίτησις δια την έγκρισιν θα αναφέρει, ειδικώτερον, εν σχέσει με τα υλικά της κατασκευής του συστήματος υποδοχέων (CONTAINMENT SYSTEM), τας προδιαγραφάς, τα ληφθησόμενα δείγματα και τους ενεργηθησομένους ελέγχους.

(στ) οσάκις το προτεινόμενον περιεχόμενον είναι καύσιμον υποβληθέν εις ακτινοβολίαν (IRRADIATED FUEL), ο αιτών θα αναφέρει και δικαιολογεί οιαδήποτε υπόθεσιν (οιονδήποτε δεδομένον) ειτη' ανάλυσις της ασφαλείας που σχετίζεται με τα χαρακτηριστικά του καυσίμου.



2.2) (ε) οιασδήποτε ειδικές διατάξεις στοιβάσας απαιτούνται για να εξασφαλισθεί ο ασφαλής διασκορπισμός της φορτίου εκ του κόλου\* θα λαμβάνεται υπόψη ο τύπος του οχήματος ή του CONTAINER (βλέπε περιθώριον 368I(I)(α)) (Συνεχίζεται)

(η) δυναμένην να αναπαράχθελ εικονογράφησις όχι μεγαλύτεραν των 21 CM X 30 CM, εικονίζουσαν την κατασκευήν του κόλου.

(3) Η αρμοδία αρχή θα καθιερώνει πιστοποιητικόν αναφέρον ότι το εγκριθέν σχέδιον πληροί τις διατάξεις των κόλων Τύπου B(U) (βλέπε περιθώρια 3677 και 3678).

2.- Έγκρισις σχεδίου κόλων Τύπου B(M) (συμπεριλαμβανομένων των σχεδίων δια κόλα Διασπαστών Υλών Κλάσεως I, Κλάσεως II και Κλάσεως III -τα οποια επίσης υπόκεινται εις το περιθώριον 3674)

(I) Έκαστον σχέδιον κόλου τύπου B(M) θα αναγκαιολ πολυπλευρον έγκρισιν. 3673

(2) Η αλτησις δι' έγκρισιν σχεδίου κόλου Τύπου B(M) θα περιλαμβάνει, επιπροσθέτως των πληροφοριών των απαιτουμένων υπό του περιθωριου 3672(2) δια κόλα Τύπου B(U):-

(α) κατάστασιν των προσθέτων ειδικών εκείνων διατάξεων δια κόλα Τύπου B(U) των οριζομένων εις το περιθώριον 3603 με τας οποιας το κόλον δεν συμφωνελ.

(β) οιοσδήποτε προτεινομένους συμπληρωματικούς λειτουργικούς ελέγχους 5/ δια να ρυθμισθούν αι αναγραφόμεναι εις (α) ανωτέρω ελλείψεις και

(γ) δήλωσιν σχετικήν με οιασδήποτε διαδικασίαν φορτώσεως, μεταφοράς, εκφορτώσεως, ή χειρισμού.

(δ) τις ανώτατες και κατώτατες συνθήκες του περι- 3673  
βάλλοντος (θερμοκρασία, ηλιακή ακτινοβολία) οι οποίες (Συνεχι-  
ζεται)  
αναμένονται να αντιμετωπισθούν διαρκούς της μεταφοράς  
και οι οποίες έχουν ληφθεί υπόψη εις το σχέδιον.

(3) Η αρμόδια αρχή θα καθιερώσει πιστοποιητικόν ανα-  
φέρον ότι το εγκριθέν σχέδιον κόλου πληροί τις διατάξεις  
τις διέπουσες τα κόλα Τύπου Β(Μ) (βλέπε περιθώρια 3677  
έως 3679).

3.- Έγκρισις σχεδίου κόλων Διασπαστών Υλών Κλάσεως I,  
Κλάσεως II και Κλάσεως III

(I) Σχέδια κόλων συμμορφούμενα προς τα παραδείγματα 3674  
των περιθωρίων 3620, 3623, ή 3624 δεν θα απαιτούν περαι-  
τέρω εγκρίσεις της αρμόδιας αρχής.

(2) Σχέδια κόλων συμμορφούμενα προς τα παραδείγματα  
των περιθωρίων 3616 και 3622 θα απαιτούν μονόπλευρον  
(ετεροβαρή) έγκρισιν.

(3) Όλα τα λοιπά σχέδια κόλων θα απαιτούν πολύπλευρον  
έγκρισιν.

(4) Η αίτησις δια την έγκρισιν θα περιλαμβάνει όλες  
τις πληροφορίες που είναι απαραίτητες δια να εξακριβώσει  
η αρμόδια αρχή ότι το σχέδιον πληροί τις διατάξεις των  
περιθωρίων 3610 έως 3624.

(5) Η αρμόδια αρχή θα καθιερώσει πιστοποιητικόν (βλέπε  
περιθώρια 3677 έως 3679) αναφέρον ότι το εγκριθέν σχέδιον  
κόλου πληροί τις διατάξεις των περιθωρίων 3610 έως 3624.

Γ.- ΕΓΚΡΙΣΙΣ ΦΟΡΤΩΣΕΩΝ

(I) Πολύπλευροι εγκρίσεις φορτώσεων θα απαιτούνται δια 3675

Κόλα/+

3675

(α) Κόλα Τύπου Β(Μ) ειδικώς σχεδιαζόμενα να επι-  
προσέχουν συνεχή εξαερισμόν.

(β) Κόλα Τύπου Β(Μ) περιέχοντα ραδιενεργείς ύλες  
με δραστηριότητα μεγαλύτεραν των  $3 \times 10^3 A_1$  ή  $3 \times 10^3 A_2$ ,  
ως ενδεικνύται, ή  $3 \times 10^4 Ci$ , οιασδήποτε τούτων ούσης μι-  
κροτέρας.

5/ (Σελίς Μεταφράσεως I45):- Δηλαδή, λειτουργι-  
κοί έλεγχοι διαρκούσης της μεταφοράς οι οποίοι δεν προ-  
βλέπονται ως ρουτίνα υπό της παρούσης Προσθήκης αλλά  
θεωρούνται απαραίτητοι δια να εξασφαλίζεται η ασφάλεια  
του κόλου διαρκούσης της μεταφοράς, όπως ανθρωπίνη επέμ-  
βαση ή μετρήσεις θερμοκρασίας ή πιέσεως ή ή για περιοδι-  
κόν εξαερισμόν. Οι έλεγχοι αυτοί θα λαμβάνουν επίσης υπόψη  
την δυνατότητα απροσδοκήτη καθυστέρησης.

(γ) Κόλα Διασπαστών Υλών Κλάσεως II συμμορφούμε-  
να προς το περιθώριον 3620.

(δ) Κόλα Διασπαστών Υλών Κλάσεως III.

Εν τούτοις, η αρμοδία αρχή δύναται να εξουσιοδοτήσει μετα-  
φοράν εις ή δια της χώρας αυτής, άνευ εγκρίσεως της φορτώ-  
σεως, με ειδική προβλέψη περιεχομένη εις την έγκρισήν  
της του σχεδίου.

(2) Η αλτήσις διά την έγκρισιν της φορτώσεως θα περι-  
λαμβάνει:-

(α) την χρονικήν περίοδον, την σχετικήν με την

φορτώσει, δια την οποίαν επιδιώκεται η έγκρισις·  
 (β) το πραγματικόν περιεχόμενον, τον τύπον  
 του οχήματος και την πιθανήν ή προτεινομένην δια-  
 δρομήν· και

3675  
 (Συνεχίζε-  
 ται)

(γ) πως αι ειδικές προφυλάξεις και οι ειδικοί  
 διοικητικοί και λειτουργικοί έλεγχοι οι αναφερθέντοι  
 εις τα πιστοποιητικά σχεδίων κόλων τα εκδοθέντα δυ-  
 νάμει των περιθωρίων 3673 και 3674, πρόκειται να τε-  
 θούν ~~σε~~ ισχύ.

(3) *Μίαμι* εγκρίσει της φόρτωσης, η αρμοδία αρχή  
 θα εκδώσει πιστοποιητικόν (βλέπε περιθώρια 3677 έως  
 3679).

(4) Τα πιστοποιητικά κόλων και φορτώσεων μπορούν  
 να συνδυάζονται σε ένα πιστοποιητικό.

Δ.- ΕΓΚΡΙΣΙΣ ΜΕΤΑΦΟΡΑΣ ΔΙ' ΕΙΔΙΚΗΣ ΕΝΕΡΓΕΙΑΣ  
 (ΤΑΚΤΟΠΟΙΗΣΕΩΣ/ΔΙΕΥΘΕΤΗΣΕΩΣ)

(I) Αποστολή ραδιενεργών υλών η οποία δεν πληροί όλες  
 τις ισχύουσες διατάξεις της παρούσης Προσθήκης θα μετα- 3676  
 φέρεται μόνον δι' ειδικής ενεργείας (τακτοποιήσεως/διευθε-  
 τήσεως), η οποία πάντοτε απαιτεί πολύπλευρον έγκρισιν.

Αι ειδικαί ενέργειαι θα είναι κατάλληλοι δια να εξασφα-  
 λίζεται <sup>ότι</sup> το γενικόν επίπεδον ασφαλείας της μεταφοράς είναι  
 τουλάχιστον ισοδύναμον με εκείνο που θα παρείχετο εάν εί-  
 χον τηρηθεί όλαι αι ισχύουσαι διατάξεις της παρούσης  
 Προσθήκης.

(2) Η αίτησις δια την έγκρισιν θα περιλαμβάνει τας  
 πληροφορίας τας απαιτούμενας δυνάμει των περιθωρίων 3672

έως 3675 και επίσης:-

3676

(α) δήλωσιν των απόψεων δια τας οποίας, και των λόγων <sup>(Συνεχίζεται)</sup> διατί, η φόρτωση δεν δύναται να γίνει με πλήρη συμφωνία με τας ισχύουσας διατάξεις της παρούσης Προσθήκης· και

(β) δήλωσιν οιαδήποτε ειδικών προφυλάξεων ή ειδικών διοικητικών ή λειτουργικών ελέγχων οι οποίοι δεόν να ληφθούν διαρκούσης της μεταφοράς για την ρύθμιση της αδυναμίας αντιμετώπισης των ισχυουσών διατάξεων της παρούσης Προσθήκης.

(3) ~~Κάθε~~ εγκρίσει η, ειδική ενέργεια (τακτοποίηση/διευθέτηση), η αρμοδία αρχή θα εκδώσει πιστοποιητικόν (βλέπε περιθώρια 3677 έως 3679).

Ε.- ΙΙΣΤΟΠΟΙΗΤΙΚΑ ΕΓΚΡΙΣΕΩΣ ΑΡΜΟΔΙΑΣ ΑΡΧΗΣ

Ι.- Σύμβολα αναγνώρισεως (αναγνωριστικά σύμβολα)  
της Αρμοδίας Αρχής

(Ι) ~~Κάθε~~ πιστοποιητικόν εγκρίσεως εκδοθέν υπό της 3677 αρμοδίας αρχής θα αναγνωρίζεται δι' αναγνωριστικής ενδειξεως.

Η ένδειξις θα είναι του κάτωθι γενικευμένου τύπου:-

Σύμβολον εθνικότητος της χώρας 6/ /Κωδικός

Αριθμός/Τύπος

(α) Ο αριθμός θα εκχωρείται υπό της αρμοδίας αρχής, και θα είναι μοναδικός και ειδικός αναφορικώς με το συγκεκριμένον σχέδιον ή φόρτωσιν. Η ένδειξις αναγνώρισεως της εγκρίσεως της φορτώσεως θα καθορίζεται σαφώς με το αναγνωριστικόν σύμβολον εγκρίσεως του σχεδίου του κόλου.

(β) Οι κατωτέρω κωδικοποιημένοι τύποι θα χρησιμοποιούνται με την με την αναγραφομένην σειράν προς καθο-

ρισμότητων τύπων των εκδοθέντων πιστοποιητικών εγκρί-  
σεως:

3677

(Συνεχίζε-  
ται)

- Σχέδιον κόλου Τύπου Α (καθώς και δια κόλον κλάσεως διασπαστής ύλης)
- B(U) Σχέδιον κόλου Τύπου Β(Υ)
- B(M) Σχέδιον κόλου Τύπου Β(Μ)
- F Σχέδιον κόλου κλάσεως διασπαστής ύλης
- S Έγκρισις ύλης ειδικού τύπου
- T Φόρτωσης
- X Ειδική Ενέργεια (Τακτοποιήσεως/Διευθετήσεως).

(2) Οι ανωτέρω κωδικοποιημένοι τύποι θα ισχύουν ως  
κάτωθι:-

(α) ~~Κάθε~~ πιστοποιητικόν και ~~κάθε~~ κόλο θα φέρει την κατάλληλον ένδειξιν αναγνώρισεως την αποτελουμένην εκ των εν παραγράφω (I) προβλεπομένων συμβόλων εκτός του ότου δια τα κόλα θα εμφανίζεται μόνον ο ισχύων κωδικοποιημένος τύπος σχεδίου του κόλου μετα την δευτέραν κάθετον, ήτοι, τα "S", "T" και "X" δεν θα εμφανίζονται εις την επί του κόλου ένδειξιν αναγνώρισεως. Όταν έχουν συνδυασθεί η έγκρισις του σχεδίου του κόλου και η έγκρισις της φορτώσεως, οι ισχύοντες κωδικοποιημένοι τύποι δεν χρειάζεται να επαναλαμβάνονται. Π.χ.:-

A/I32/B(M)F:- Κόλον κλάσεως Διασπαστής Ύλης Τύπου B(M) εγκεκριμένον υπό της Αυστρίας δια σχέδιον κόλου αριθμός I32 (θα σημειούται τόσον εις αυτό τούτο το κόλον όσον και εις το πιστοποιητικόν εγκρίσεως του σχεδίου του κόλου).

A/I32/B(M)FT:- Η αναγνωριστική ένδειξη <sup>Μ</sup> πιστοποιητικού εγκρίσεως της φορτώσεως η εκδο- (Συνεχίζεται)  
θείσα δια το σχέδιον του κόλου (θα σημειούται μόνον εις το πιστοποιητικόν).

A/I37/X:- Η αναγνωριστική ένδειξη <sup>Μ</sup> πιστοποιητικού εγκρίσεως της φορτώσεως εκδοθείσα δι' Αυστριακόν σχέδιον I37 δυνάμει ειδικής ενεργείας (τακτοποιήσεως) της φορτώσεως (θα σημειούται εις το πιστοποιητικόν μόνον).

6/ (Σελίς Μεταφράσεως I49):- Τα αναφερόμενα σήματα (ενδείξεις) είναι τα εθνικά διακριτικά σήματα δι' αυτοκίνητα διεθνούς κυκλοφορίας.

(β) Όταν πολύπλευρος έγκρισις παρέχεται δι' επικυρώσεως, μόνον αι αναγνωριστικά ενδείξεις αι εκδιδόμεναι υπό της χώρας της προελεύσεως του σχεδίου ή της φορτώσεως θα χρησιμοποιούνται. Οσάκις πολύπλευρος έγκρισις παρέχεται <sup>με</sup> ~~φ~~ <sup>ε</sup> εκδόσει πιστοποιητικών υπό διαδοχικών χωρών, <sup>μάτε</sup>

πιστοποιητικόν θα φέρει την κατάλληλον ένδειξιν και το κóλου του οποίου το σχέδιον ενεκρίθη θα φέρει όλα τα κατάλληλα αναγνωριστικά σύμβολα (ενδείξεις). Π.χ., τα

(A/I32/B(M)F)

(CH/28/B(M)F)

θα ήσαν αι αναγνωριστικά ενδείξεις (σύμβολα) κóλου το οποίον αρχικώς ενεκρίθη υπό της Αυστρίας και μετέπειτα ενε-

φάση, δια χωριστού πιστοποιητικού, υπό της Ελβετίας. 3677  
Συμπληρωματικοί αναγνωριστικοί ενδείξεις θα γραφούν (Συνεχίζε-  
καθ' όμοιον τρόπον επί του κόλου. ται)

(γ) Η αναθεώρησης των αριθμών των πιστοποιητι-  
κών θα σημειούται εντός παρενθέσεως μετά την επί του πι-  
στοποιητικού αναγνωριστικήν ένδειξιν. Π.χ., A/I32/B(U)F.  
(Αναθ.2) θα καθορίζει αναθεώρησιν 2 του πιστοποιητικού  
του εγκριθέντος υπό της Αυστρίας σχεδίου του κόλου, ή  
A/I32/B(U)F. (Αναθ. 0) θα καθορίζει την αρχικήν έκδοσιν  
του πιστοποιητικού του εγκριθέντος υπό της Αυστρίας σχε-  
δίου του κόλου. Δια την αρχικήν έκδοσιν η έτη παρένθέ-  
ση διατύπωση είναι προαιρετική και άλλαι λέξεις όπως  
"(αρχική έκδοσις)" μπορούν επίσης να χρησιμοποιηθούν  
αντί της "(Αναθ.0)". Αναθεωρηθέντες αριθμοί πιστοποιητι-  
κών δύνανται μόνον να εκδίδωνται υπό της χώρας της εκδι-  
δούσης τον αρχικόν αριθμόν πιστοποιητικού. Η αναθεώρη-  
σις υπό χώρας άλλης από την εκδώσασα θα απαιτεί νέον πι-  
στοποιητικόν και αριθμόν αναγνωρίσεως.

(δ) Πρόσθετα σύμβολα (που ενδέχεται να απαιτούν-  
ται υπό εθνικών διατάξεων) μπορούν να προστεθούν εντός  
παρενθέσεως εις το τέλος της ενδείξεως αναγνωρίσεως.  
Π.χ., A/I32/B(U)F (SP503).

(ε) Δεν είναι απαραίτητον να τροποποιείται η επί  
του κόλου ένδειξις αναγνωρίσεως κάθε φορά που γίνεται ανα-  
θεώρησις του πιστοποιητικού του κόλου. Μία τέτοια τροπο-  
ποίησις θα γίνεται μόνον στις περιπτώσεις εκείνες που η  
η αναθεώρησις του πιστοποιητικού του σχεδίου του κόλου



αλλάγεται αλλαγή των στοιχείων των κωδικοποιημένων τύ- 3677  
 των σχεδίων κόλων, μετά την δευτέραν κάθετον (γραμμή) (συνεχίζε-  
 ται).

2. Πληροφορίες απαιτούμενες στα πιστοποιητικά

Κάθε πιστοποιητικό εγκρίσεως εκδιδόμενον υπό της 3678  
 αρμοδίας αρχής θα περιλαμβάνει τας οικείας εκ των κάτωθι  
 πληροφορίες:-

(α) Την ένδειξιν αναγνωρίσεως της αρμοδίας αρχής.

(β) Βραχείαν περιγραφήν της συσκευασίας, συμπερι-  
 λαμβανομένων υλών/κατασκευής, /μικτού βάρους, των γενικών  
 (υλικών) του  
 εξωτερικών διαστάσεων, και της εμφανίσεως. Αυτή θα περιλαμ-  
 βάνει δυναμένην να αναπαράχθαι εικονογράφησιν όχι μεγαλυ-  
 τέραν των 21 CM επί 30 CM, εικονίζουσιν την κατασκευήν του  
 κόλου.

(γ) Βραχείαν προδιαγραφήν του επιτρεπομένου περιε-  
 χομένου, συμπεριλαμβανομένων οιασδήποτε περιορισμών περιε-  
 χομένου οι οποίοι ενδέχεται να είναι εμφανείς εκ της φύ-  
 σεως της συσκευασίας. Θα πρέπει να συμπεριλάβει τους φυσι-  
 κούς και χημικούς τύπους (FORMS), τις δραστηκότητες σε CURIE  
 (συμπεριλαμβανομένων εκείνων των διαφόρων ισोटών, εάν εν-  
 δεικνυται), τα ποσά εις γραμμάρια δια διασπαστές ύλες, και  
 εάν είναι ειδικού τύπου.

(δ) Επιπροσθέτως, για κλάσσεως διασπαστών υλών:-

(I) Διασπαστή Ύλη Κλάσσεως I:- λεπτομερής περιγρα-  
 φή του επιτρεπομένου περιεχομένου και οιασδήποτε ειδικών  
 χαρακτηριστικών, επί τη βάσει των οποίων η διαρροή του νερού

σε σχέση με συγκεκριμένους κενούς χώρους ελήφθη ως δε-  
 δομένη κατά την εκτίμησιν κρισιμότητος (βλέπε περιθώριον  
 36I 3(β)).

(II) Διασπαστή Ύλη Κλάσεως II:- λεπτομερής περι- 3678  
 γραφή του επιτρεπομένου περιεχομένου, των αντιστοίχων (Συνεχι-  
 επιτρεπομένων αριθμών (ή δεικτού μεταφοράς) και οιωνδή- ζεται)  
 ποτε ειδικών χαρακτηριστικών, επί τη βάσει των οποίων  
 η διαρροή του νερού εν σχέσει με συγκεκριμένους κενούς  
 χώρους ελήφθη ως δεδομένη κατά την εκτίμησιν κρισιμότη-  
 τος (βλέπε περιθώριον 3618(β)).

(III) Διασπαστή Ύλη Κλάσεως III:- λεπτομερής περι-  
 γραφή <sup>αυθι</sup> των αποστολών συμπεριλαμβανομένων των  
 επιτρεπομένων περιεχομένων και των αντιστοίχων επιτρεπο-  
 μένων αριθμών (ή δεικτών μεταφοράς) ομού με οιασδήποτε  
 ληφθησομένης ειδικής προφυλάξεως διαρκούσης της μεταφοράς.

(ε) Δήλωσιν αναφορικώς με τας συνθήκας του περι-  
 βάλλοντος δια τους σκοπούς του σχεδίου (βλέπε περιθώ-  
 ριον 3602(4)).

(στ) Δια κόδα Τύπου Β(Μ), δήλωσιν ειδικεύουσας τας  
 διατάξεις του περιθωρίου 3603 με τας οποίας το κόλον δεν  
 συμφωνεί και οιασδήποτε ενισχυτικής πληροφορίας αι οποίαι  
 ενδέχεται να είναι χρήσιμοι δια τας λοιπές αρμοδίας αρχάς.

(ζ) Παραπομπήν (αναφοράν) εις τας κάτωθι πληροφο-  
 ρίας τας παρεχομένας υπό του αιτούντος:-

(ι) οδηγίαι επί της χρήσεως καθ' συντηρήσεως της συ-  
 σκευασίας·

(ιι) αι ενέργειαι αι ληφθησόμεναι υπό του αποστολέως  
 προ της φορτώσεως, π.χ., οιασδήποτε ειδικαί διαδικασίαι  
 απολυμάνσεως.

(η) Λεπτομερής αναγραφή οιωνδήποτε συμπληρωματικών

~~Υπο~~οργικών διατάξεων (βλέπε σημείωσιν 5) δια την 3678  
προτοιμασίαν, φόρτωσιν, μεταφοράν, αποθήκυσιν, εκ- (Συνεχίζε-  
φόρτωσιν και χειρισμόν του κβλου, συμπεριλαμβανομένων ται)  
οιωνδήποτε ειδικών διατάξεων στοιβάσεως δια τον ασφάλ-  
λή διασκεδάσμον της θερμότητος εκ του κβλου, ή δήλωσιν  
δτι ουδεις τοιούτος έλεγχος απαιτείται.

(θ) Δήλωσιν εξουσιοδοτούσαν την φόρτωσιν  
οσάκις έγκρισις φορτώσεως απαιτείται δυνάμει του περι-  
θωρου 3675.

(ι) Οιοιδήποτε περιορισμοί επί των τύπων των  
CONTAINERS (υποδοχέων) οχημάτων (VEHICLE CONTAINERS),  
και οιαιδήποτε απαράλλητοι δια την διαδρομήν οδηγεί.

(κ) Τακτοποιήσεις επειγούσης ανάγκης ειδικαί  
δια το εγκριθέν σχέδιον.

(λ) Η κάτωθι δήλωσις: "Το παρόν πιστοποιητικόν  
δεν απαλλάσσει τον αποστολέα από της συμμορφώσεώς του  
προς οιανδήποτε διάταξιν της κυβερνήσεως οιασδήποτε χώ-  
ρας δια της οποίας ή εις την οποίαν το κβλον θα μετα-  
φερθει".

(μ) Ημερομηνίαν εκδόσεως, και, εάν ενδεικνυται,  
ημερομηνίαν λήξεως.

(ν) Υπογραφή και ταυτότης του βεβαιούντος αξιω-  
ματούχου.

(ν) Προσθήκαι περιέχουσαι πιστοποιητικά ~~δία~~  
εναλλακτικόν περιεχόμενον κβλου, λοιπάς επικυρώσεις της  
αρμοδίας αρχής, ή πρόσθετα τεχνικά στοιχεία ή πληροφορίας.

Επικυρώσεις πιστοποιητικών

Πολύπλευροι εγκρίσεις μπορούν δι' επικυρώσεως 3679  
του αρχικού πιστοποιητικού του εκδοθέντος υπό της αρμοδίας  
αρχής της χώρας προελεύσεως του σχεδίου ή της φορτώσεως.

ΣΤ.- ΕΥΘΥΝΑΙ ΑΠΟΣΤΟΛΕΩΣ

I.- Λεπτομέρειαι αποστολής 3680

Ο αποστολεύς θα συμπεριλάβει εις το έγγραφον μετα-  
φοράς για καθε αποστολή ραδιενεργών υλών, ως και την περι-  
γραφήν την γενομένην εις τον κατάλληλον πίνακα (SCHEDULE),  
τις κάτωθι λεπτομέρειες:-

(α) Την δήλωσιν "Η φύσις των εμπορευμάτων και η  
συσκευασία είναι σύμφωνοι προς τις διατάξεις της ADR".

(β) Την ένδειξιν αναγνωρίσεως δι' έκαστον πιστο-  
ποιητικόν της αρμοδίας αρχής (ειδικός τύπος, σχέδιον κόλου,  
και φόρτωσις) ισχύον δια την αποστολήν.

(γ) Την ονομασίαν των ραδιενεργών υλών, ή νου-  
κλεΐδου.

(δ) Περιγραφήν του φυσικού και χημικού τύπου  
της ύλης, ή εάν είναι ειδικού τύπου.

(ε) Την δραστηκότητα των ραδιενεργών υλών σε  
καταλλήλους μονάδας CURIE.

(στ) Την κατηγορίαν του κόλου, τ.έ. I-ΛΕΥΚΗ,  
II-ΚΙΤΡΙΝΗ, III-ΚΙΤΡΙΝΗ.

(ζ) Τον δείκτην μεταφοράς (Κατηγορίαι II- και  
III-ΚΙΤΡΙΝΗ μόνον).

(η) Δι' αποστολήν διασπαστών υλών:

(I) εάν εξαιρούνται συμφώνως προς το περιθώριον

3610, αι λέξεις "ΕΞΑΙΡΟΥΜΕΝΗ ΔΙΑΣΠΑΣΤΗ ΞΛΗ" ή 3680  
(II), εάν δεν εξαιρούνται, η κλάσις της διασπαστής (Συνεχί-  
ζεται)  
ύλης του κόλου (κόλων).

2.- Πληροφορίες και γνωστοποιήσεις προς τους μεταφορείς 3681

(I) Ο αποστολεύς θα παρέχει εις το έγγραφον μεταφο-  
ράς δήλωσιν αναφορικώς με τας, τυχόν, ενεργείας, εις τας  
οποίας πρέπει να προβεί ο μεταφορεύς. Η δήλωσις θα είναι  
στις γλώσσες τις θεωρούμενες απαραίτητες δια τον μεταφο-  
ρέα ή τας περιών πρόκειται αρχάς, και θα περιλαμβάνει  
τουλάχιστον τα κάτωθι σημεία:-

(α) συμπληρωματικές λειτουργικές διατάξεις δια  
την φόρτωσιν, μεταφοράν, αποθήκευσιν, εκφόρτωσιν, χειρι-  
σμόν, και στοιβασίαν δια τον ασφαλή διασκεδασμόν της θερ-  
μότητος, ή δήλωσιν ότι ουδεμία συμπληρωματική λειτουργική  
διάταξις απαιτείται (βλέπε περιθώριον 3678(η)).

(β) οιασδήποτε απαιτήτους οδηγίας δρομολο-  
γίων (βλέπε περιθώριον 3678(κ)).

(γ) ενεργείας επειγούσης ανάγκης ειδικάς δια το  
εγκριθέν σχέδιον (βλέπε περιθώριον 3678(λ)).

(2) Σε όλες τις περιπτώσεις στις οποίες η έγκρισις  
της φορτώσεως ή προηγουμένη γνωστοποιήσις προς την αρμοδία  
αρχή απαιτείται, όλοι οι/φορείς θα πληροφορούνται περι των  
διατάξεων εκ των προτέρων, δια να μπορούν εγκαίρως να λαμ-  
βάνουν μέτρα απαιτούμενα δια την μεταφοράν.

3.- Γνωστοποιήσεις προς τας αρμοδίας αρχάς

(I) Προ της πρώτης φορτώσεως κόλου Τύπου Β(Υ) πε- 3682  
ριέχοντος ραδιενεργείς ύλες με δραστηκότητα μεγαλύτερα

των  $5 \times 10^3 A_1$  ή  $3 \times 10^3 A_2$ , ως ενδεικνύται, ή  $3 \times 10^4 Ci$ , οιασδήποτε τούτων ούσης μικροτέρας, ο αποστολεύς θα εξασφαλίζει ότι αντίγραφα εκάστου ισχύοντος πιστοποιητικού της αρμοδίας αρχής διέποντος το σχέδιον του κδλου έχουν υποβληθεί εις την αρμοδian αρχήν ~~κάθε~~ χώρας εις την επικράτειαν της οποίας η αποστολή πρόκειται να μεταφερθεί. Ο αποστολεύς δεν υποχρεούται να αναμένει αναγνώρισιν της αρμοδίας αρχής, ουδέ η αρμοδια αρχή υποχρεούται να προβεί εις την τολαύτην αναγνώρισιν παραλαβής του πιστοποιητικού.

3682  
(Συνεχίζεται)

(2) *Για κάθε* φόρτωση αναγραφομένην εις (α) έως (δ) κατωτέρω, ο αποστολεύς θα προβαίνει εις γνωστοποίησιν προς τας αρμοδίας αρχάς εκάστης χώρας εις την επικράτειαν της οποίας η αποστολή πρόκειται να μεταφερθεί. Η γνωστοποίησις αυτή θα ευρίσκεται εις χείρας εκάστης αρμοδίας αρχής προ της ενάρξεως της φορτώσεως, και κατά προτίμησιν προ 15 τουλάχιστον ημερών.

(α) Κδλα Τύπου B(U) περιέχοντα ραδιενεργείας όλες με δραστηκότητα μεγαλύτεραν των  $3 \times 10^3 A_1$  ή  $3 \times 10^3 A_2$ , ως ενδεικνύται, ή  $3 \times 10^4 Ci$ , οιασδήποτε τούτων ούσης μικροτέρας.

(β) Κδλα Τύπου B(M).

(γ) Κδλα Διασπαστής Κλης Κλάσεως IIII δυνάμει του περιθωρίου 3674(3).

(δ) Μεταφορά δι' ειδικής τακτοποιήσεως.

(3) Η περί της αποστολής γνωστοποίησις θα περιλαμβάνει:-

(α) επαρκείς πληροφορίες δια να είναι δυνατή η 3682  
 αναγνώρισις του κώλου, συμπεριλαμβανομένων όλων των εν (Συνεχίζε-  
 ισχύει αριθμών πιστοποιητικών και αναγνωριστικών ενδελ-  
 ξων και ται)

(β) πληροφορίες αναφορικώς με την ημερομηνίαν  
 φορτώσεως, τήν αναμενομένην ημερομηνίαν αφίξεως και  
 προτεινόμενον δρομολόγιον.

(4) Ο αποστολεύς δεν υποχρεούται να αποστέλει χωρι-  
 στήν γνωστοποίησιν εάν η απαιτούμενη πληροφορία έχει συμ-  
 περιληφθεί εις την αίτησιν δι' έγκρισιν της φορτώσεως  
 (βλέπε περιθώριον 3675(2)).

#### 4.- Κατοχή πιστοποιητικών

Ο αποστολεύς θα έχει εις την κατοχήν του αντίγραφον <sup>κάτω</sup>  
 πιστοποιητικού απαιτούμενου δυνάμει της παρούσης  
 Προσθήκης και αντίγραφον των οδηγιών αναφορικώς με το  
 ενδεδειγμένον κλεισιμον του κώλου και άλλην προετοιμασί-  
 αν της φορτώσεως προ της ενεργείας οιασδήποτε φορτώσεως  
 δυνάμει των όρων των πιστοποιητικών.

#### Ζ.- ΠΟΙΟΤΙΚΟΣ ΕΛΕΓΧΟΣ ΚΑΤΑΣΚΕΥΗΣ ΚΑΙ ΣΥΝΤΗΡΗΣΕΩΣ (ΔΙΑΤΗΡΗΣΕΩΣ) ΤΗΣ ΣΥΣΚΕΥΑΣΙΑΣ

Ο κατασκευαστής, αποστολεύς, ή χρήστης εγκεκριμέ-  
 νου σχεδίου κώλου θα είναι έτοιμος να καταδείξει (επιδει-  
 ξει) εις οιαδήποτε αρμόδιαν αρχήν ότι:-

(α) ~~Οι~~ μέθοδοι κατασκευής και τα υλικά που χρη-  
 σιμοποιήθησαν <sup>για</sup> την κατασκευήν της συσκευασίας είναι  
 σύμφωνα προς τας περί <sup>εγκεκριμένου</sup> σχεδίου διατάξεις. η αρμόδια αρχή  
 μπορεί να διεξάγει επιθεώρησιν της συσκευασίας διαρκούσης

(β) όλα αι συσκευασίας αι γενόμεναι συμφώνως 3684  
 προς ~~ε~~ κεκριμένον σχέδιον θα διατηρούνται εις καλήν (Συνεχίζεται)  
 κατάστασην εις τρόπον ώστε να εξακολουθούν να συμμορ-  
 ρούνται προς άπαντα τα οικεια ρυθμιστικά κριτήρια,  
 ακόμη και μετά από επανειλημμένην χρήσιν.

3685-

3689

## ΚΕΦΑΛΑΙΟΝ VI - ΟΡΙΑ ΔΡΑΣΤΙΚΟΤΗΤΟΣ

ΠΡΟΣΔΙΟΡΙΣΜΟΣ ΤΩΝ  $A_1$  ΚΑΙ  $A_2$ I.- Απλά ραδιονουκλεΐδια (SINGLE RADIONUCLIDES)

(I) Για απλά ραδιονουκλεΐδια γνωστής ταυτότητας, αι 3690  
 τιμαί των  $A_1$  και  $A_2$ , δίδονται εις τον Πίνακα ΧΧ. Οι τι-  
 μέσ των  $A_1$  και  $A_2$  ισχύουν επίσης ~~για~~ ραδιονουκλεΐδια  
 περιεχόμενα εις πηγάς νετρονίου ( $\alpha, N$ ) ή ( $\gamma, N$ ).

ΠΙΝΑΞ ΧΧ.- ΤΙΜΑΙ ΡΑΔΙΟΝΟΥΚΛΕΪΔΙΩΝ  $A_1$  και  $A_2$ 

Σύμβολον Ραδιονουκλεΐδίου	Στοιχείον και αριθμός ατόμου	$A_1$ (Ci)	$A_2$ Ci	Ειδική Δραστηκότης (Ci/G)
$^{227}_{AC}$	Ακτινιον (89)	1000	0.003	$7.2 \times 10$
$^{228}_{AC}$	Άργυρος (47)	10	4	$2.2 \times 10^6$
$^{105}_{AG}$	Άργυρος (47)	40	40	$3.1 \times 10^4$
$^{110}_{AG^M}$		7	7	$4.7 \times 10^3$
$^{111}_{AG}$		100	100	$1.6 \times 10^5$
$^{241}_{AM}$	Αμερικιον (95)	8	0.008	3.2
$^{243}_{AM}$		8	0.008	$1.9 \times 10^{-1}$
$^{37}_{AR}$ (συμπιεσμέ- νον ή ού)	Αργόν (18)	1000	1000	$1.0 \times 10^5$



3690

Σύμβολον Ραδιονουκλεΐδου	Στοιχείον και αριθμός ατόμου	$A_1(Ct)$	$A_2(Ct)$	Ειδική Δραστηκότης (Ct/G)
( Σ ω ν έ χ ε ι α )				
$4I_{AR}$ (μη-συμπιεσμένον)		20	20	$4.3 \times 10^7$
$4I_{AR}$ (συμπιεσμένον)		I	I	$4.3 \times 10^7$
$73_{AS}$	Αρσενικόν (33)	1000	400	$2.4 \times 10^4$
$74_{AS}$		20	20	$1.0 \times 10^5$
$76_{AS}$		10	10	$1.6 \times 10^6$
$77_{AS}$		300	300	$1.1 \times 10^6$
$211_{AT}$	Αστάτιον (85)	200	7	$2.1 \times 10^6$
$193_{AU}$	Χρυσός (79)	200	200	$9.3 \times 10^5$
$196_{AU}$		30	30	$1.2 \times 10^5$
$198_{AU}$		40	40	$2.5 \times 10^5$
$199_{AU}$		200	200	$2.1 \times 10^5$
$131_{BA}$	Βάριον (56)	40	40	$8.7 \times 10^4$
$133_{BA}$		40	10	$4.0 \times 10^2$
$140_{BA}$	Βάριον	20	20	$7.3 \times 10^4$
$7_{BE}$	Βηρύλλιον (4)	300	300	$3.5 \times 10^5$
$206_{Bt}$	Βισμούθιον (83)	5	5	$9.9 \times 10^4$
$207_{Bt}$		10	10	$2.16 \times 10^2$
$210_{Bt} (RaE)$		100	4	$1.2 \times 10^5$
$212_{Bt}$		6	6	$1.5 \times 10^7$
$249_{Bk}$	Μπερκέλιον (97)	1000	I	$1.8 \times 10^3$
$82_{BR}$	Βρώμιον (35)	6	6	$1.1 \times 10^6$
$14_C$	Άνθραξ (6)	1000	100	4.6
$45_{Ca}$	Ασβέστιον (20)	1000	40	$1.9 \times 10^4$

Σύμβολον Ραδίου/Πουκλεΐδου	Στοιχείον και αριθμός ατόμου	A <sub>I</sub> (Cl)	A <sub>2</sub> (Cl)	Ειδική Δραστηκότης (Cl/G)
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( Σ υ ν έ χ ε ι α )

47 <sub>Ca</sub>	Ασβέστιον (20)	20	20	5.9 X 10 <sup>5</sup>
109 <sub>CD</sub>	Κάδμιον (48)	1000	70	2.6 X 10 <sup>3</sup>
115 <sub>CD<sup>M</sup></sub>		30	30	2.6 X 10 <sup>4</sup>
115 <sub>CD</sub>		80	80	5.1 X 10 <sup>5</sup>
139 <sub>Ce</sub>	Δημήτριον (58)	100	100	6.5 X 10 <sup>3</sup>
141 <sub>Ce</sub>		300	200	2.8 X 10 <sup>4</sup>
143 <sub>Ce</sub>		60	60	6.6 X 10 <sup>5</sup>
144 <sub>Ce</sub>		10	7	3.2 X 10 <sup>3</sup>
249 <sub>CF</sub>	Καλιφδρνιον (98)	2	0.002	3.1
250 <sub>CF</sub>		7	0.007	1.3 X 10 <sup>2</sup>
252 <sub>CF</sub>		2	0.009	6.5 X 10 <sup>2</sup>
36 <sub>CL</sub>	Χλώριον (17)	300	30	3.2 X 10 <sup>-2</sup>
38 <sub>CL</sub>		10	10	1.3 X 10 <sup>8</sup>
242 <sub>CM</sub>	Κιούριον (96)	200	0.2	3.3 X 10 <sup>3</sup>
243 <sub>CM</sub>		9	0.009	4.2 X 10
244 <sub>CM</sub>		10	0.01	8.2 X 10
245 <sub>CM</sub>		6	0.006	1.0 X 10 <sup>-1</sup>
246 <sub>CM</sub>		6	0.006	3.6 X 10 <sup>-1</sup>
56 <sub>Co</sub>	Κοβάλτιον (27)	5	5	3.0 X 10 <sup>4</sup>
57 <sub>Co</sub>		90	90	8.5 X 10 <sup>3</sup>
58 <sub>Co<sup>M</sup></sub>		1000	1000	5.9 X 10 <sup>6</sup>
58 <sub>Co</sub>		20	20	3.1 X 10 <sup>4</sup>
60 <sub>Co</sub>		7	7	1.1 X 10 <sup>3</sup>

Σύμβολον Ραδιονουκλειδίου	Στοιχείον και αριθμός ατόμου	$A_1(CI)$	$A_2(CI)$	Ειδική Δραστηκότητα (CI/G)
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( Σ υ ν έ χ ε ι α )

$51_{CR}$	Χρώμιον (24)	600	600	$9.2 \times 10^4$
$131_{CS}$	Καesium (55)	1000	1000	$1.0 \times 10^5$
$134_{CS}^M$		1000	1000	$7.4 \times 10^6$
$134_{CS}$		10	10	$1.2 \times 10^3$
$135_{CS}$		1000	100	$8.8 \times 10^{-4}$
$136_{CS}$		7	7	$7.4 \times 10^4$
$137_{CS}$		30	20	$9.8 \times 10$
$64_{CU}$	Χαλκός (29)	80	80	$3.8 \times 10^6$
$165_{DY}$	Δυσπρωσιον (66)	100	100	$8.2 \times 10^6$
$166_{DY}$		1000	200	$2.3 \times 10^5$
$169_{ER}$	Έρβιον (68)	1000	300	$8.2 \times 10^4$
$171_{ER}$		50	50	$2.4 \times 10^6$
$152_{EU}^M$	Ευρώπιον (63)	30	30	$2.2 \times 10^6$
$152_{EU}$		20	20	$1.9 \times 10^2$
$154_{EU}$		10	5	$1.5 \times 10^2$
$155_{EU}$		400	90	$1.4 \times 10^3$
$18F$	Φθόριο (9)	20	20	$9.3 \times 10^7$
$52_{FE}$	Σίδηρος (26)	6	6	$7.3 \times 10^6$
$55_{FE}$		1000	1000	$2.2 \times 10^3$
$59_{FE}$		10	10	$4.9 \times 10^4$
$72_{GA}$	Γάλλιον (31)	7	7	$3.1 \times 10^6$
$153_{GD}$	Γαδολίνιον (64)	200	100	$3.6 \times 10^3$
$159_{GD}$		300	3000	$1.1 \times 10^6$

Στοιχείον Ραδιονουκλεΐδου	Στοιχείον και αριθμός ατόμου	$A_1(Ci)$	$A_2(Ci)$	Ειδική Δραστηριότης (Ci/G)
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( Σ υ ν έ χ ε ι α )

$71_{Ge}$	Γερμάνιον (32)	1000	1000	$1.6 \times 10^5$
$3_H$	Υδρογόνο (1), βλέπε T-Τρίτιον			
$181_{HF}$	Ήφνιον (72)	30	30	$1.6 \times 10^4$
$197_{HG}^M$	Υδράργυρος (80)	200	200	$6.6 \times 10^5$
$197_{HG}$		200	200	$2.5 \times 10^5$
$203_{HG}$		80	80	$1.4 \times 10^4$
$166_{Ho}$	Όλμιον (67)	30	30	$6.9 \times 10^5$
$125_I$	Ιώδιον (53)	1000	70	$1.7 \times 10^4$
$126_I$		40	10	$7.8 \times 10^4$
$129_I$		1000	2	$1.62 \times 10^{e4}$
$131_I$		40	10	$1.2 \times 10^5$
$132_I$		7	7	$1.1 \times 10^7$
$133_I$		30	30	$1.1 \times 10^6$
$134_I$		8	8	$2.7 \times 10^7$
$135_I$		10	10	$3.5 \times 10^6$
$113_{IN}^M$	Ίνδιον (49)	60	60	$1.6 \times 10^7$
$114_{IN}^M$		30	20	$2.3 \times 10^4$
$115_{IN}^M$		100	100	$6.1 \times 10^6$
$190_{IR}$	Ιρβιδιον (77)	10	10	$6.2 \times 10^4$
$192_{IR}$		20	20	$9.1 \times 10^3$
$194_{IR}$		10	10	$8.5 \times 10^5$
$42_K$	Κάλιον (19)	10	10	$6.0 \times 10^6$
$85_{KR}^M$ (μη-πεπλεγμέ- νον)	Κρυπτόν (36)	100	100	$8.4 \times 10^6$

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Σύμβολο Ραδιονουκλείου	Στοιχείο και αριθμός ατόμου	$A_1$ (Cl)	$A_2$ (Cl)	Ειδική Δραστηριότητα (Cl/G)
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( Σ υ ν έ χ ε ι α )

$85_{KR}^M$ (πεπιεσμένον)		3	3	$8.4 \times 10^6$
$85_{KR}^M$ (μη-πεπιεσμέ- νον)		1000	1000	$4.0 \times 10^2$
$85_{KR}$ (πεπιεσμένον)		5	5	$4.0 \times 10^2$
$87_{KR}$ (μη-πεπιεσμένον)		20	20	$2.8 \times 10^7$
$87_{KR}$ (πεπιεσμένον)		0.6	0.6	$2.8 \times 10^7$
$140_{La}$	Λανθάνιον (57)	30	30	$5.6 \times 10^5$
LLS	Χαμηλού-επιπέδου στερεού ραδιενεργού υλικού (ύλης) Βλέπε Περιθώριον 2450 (2)			
LSA	Χαμηλής ειδικής δραστηριότητας ύλη Βλέπε Περιθώριον 2450 (2)			
$177_{LU}$	Λουρέτιον (71)	300	300	$1.1 \times 10^5$
MFP	Προϊόντα Μικτής δια- σπαστής ύλης	10	0.4	
$28_{MG}$	Μαγνήσιον (12)	6	6	$5.2 \times 10^6$
$52_{MN}$	Μαγνήσιον (25)	5	5	$4.4 \times 10^5$
$54_{MN}$		20	20	$8.3 \times 10^3$
$56_{MN}$		5	5	$2.2 \times 10^7$
$99_{Mo}$	Μολυβδαίνιον (42)	100	100	$4.7 \times 10^5$
$22N_{\alpha}$	Νάτριον (11)	8	8	$6.3 \times 10^3$
$24_{Na}$		5	5	$8.7 \times 10^6$
$93_{NB}^M$	Νόβιον (41)	1000	200	$1.1 \times 10^3$
$95_{NB}$		20	20	$3.9 \times 10^4$
$97_{NB}$		20	20	$2.6 \times 10^7$

Σύμβολον Ραδιονουκλεΐδου	Στοιχείον και αριθμός ατόμου	$A_1(Ct)$	$A_2(Ct)$	Ειδική Δραστηκότης (Ct/G)
( Σ υ ν έ χ ε ι α )				
$^{147}_{ND}$	Νεοδύμιον (60)	100	100	$8.0 \times 10^4$
$^{149}_{ND}$		30	30	$1.1 \times 10^7$
$^{59}_{Ni}$	Νικέλιον (28)	1000	900	$8.1 \times 10^{-2}$
$^{63}_{Ni}$		1000	100	$4.6 \times 10$
$^{65}_{Ni}$		10	10	$1.9 \times 10^7$
$^{237}_{Np}$	Ποσειδώνιον (93)	5	0.005	$6.9 \times 10^{-4}$
$^{239}_{Np}$		200	200	$2.3 \times 10^5$
$^{185}_{Os}$	Όσμιον (76)	20	20	$7.3 \times 10^3$
$^{191}_{Os}$		600	400	$4.6 \times 10^4$
$^{191}_{Os}^M$		200	200	$1.2 \times 10^6$
$^{193}_{Os}$		100	100	$5.3 \times 10^5$
$^{32}_{P}$	Φωσφόρος (15)	30	30	$2.9 \times 10^5$
$^{230}_{Pa}$	Πρωτακτινιον (91)	20	0.8	$3.2 \times 10^4$
$^{231}_{Pa}$		2	0.002	$4.5 \times 10^{-2}$
$^{233}_{Pa}$		100	100	$2.1 \times 10^4$
$^{210}_{Pb}$	Μόλυβδος (82)	100	0.2	$8.8 \times 10$
$^{212}_{Pb}$		6		$1.4 \times 10^6$
$^{103}_{Pd}$	Παλλάδιον (46)	1000	700	$7.5 \times 10^4$
$^{109}_{Pd}$		100	100	$2.1 \times 10^6$
$^{147}_{Pm}$	Προμήθειον (61)	1000	80	$9.4 \times 10^2$
$^{149}_{Pm}$		100	100	$4.2 \times 10^5$
$^{210}_{Po}$	Πολώνιον (84)	200	0.2	$4.5 \times 10^3$

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Σύμβολον Ραδιονουκλειδίου	Στοιχείον και αριθμός ατόμου	$A_1$ (Ci)	$A_2$ (Ci)	Ειδική Δραστηκότητα (Ci/G)
( Σ υ ν έ χ ε ι α )				
$^{142}_{PR}$	Πρασεοδύμιον (59)	10	10	$1.2 \times 10^6$
$^{143}_{PR}$		300	200	$6.6 \times 10^4$
$^{191}_{PT}$	Λευκόχρυσος (78)	100	100	$2.3 \times 10^5$
$^{193}_{PT}$		200	200	
$^{197}_{PT^M}$		300	300	$1.2 \times 10^7$
$^{197}_{PT}$		300	300	$8.8 \times 10^5$
$^{238}_{PU}$	Πλουτώνιον (94)	3	0.003	$1.7 \times 10$
$^{239}_{PU}$		2	0.002	$6.2 \times 10^{-2}$
$^{240}_{PU}$		2	0.002	$2.3 \times 10^{-1}$
$^{241}_{PU}$		1000	0.1	$1.1 \times 10^2$
$^{242}_{PU}$		3	0.003	$3.9 \times 10^{-3}$
$^{223}_{Ra}$	Ράδιοβ (88)	50	0.2	$5.0 \times 10^4$
$^{224}_{Ra}$		6	0.5	$1.6 \times 10^5$
$^{226}_{Ra}$		10	0.05	1.0
$^{228}_{Ra}$		10	0.05	$2.3 \times 10^2$
$^{86}_{Rb}$	Ρουβίδιον (37)	30	30	$8.1 \times 10^4$
$^{87}_{Rb}$		Απεριόριστον		$6.6 \times 10^{-8}$
$Rb$ (φυσικόν)		Απεριόριστον		$1.8 \times 10^{-8}$
$^{186}_{Re}$	Ρήνιον (75)	100	100	$1.9 \times 10^5$
$^{187}_{Re}$		Απεριόριστον		$3.8 \times 10^{-8}$
$^{188}_{Re}$		10	10	$1.0 \times 10^6$
$Re$ (φυσικόν)		Απεριόριστον		$2.4 \times 10^{-8}$
$^{103}_{Rh^M}$	Ρόδιον (45)	1000	1000	$3.2 \times 10^7$

Σύμβολον Ραδιονουκλειδίου	Στοιχείον και αριθμός ατόμου	$A_1(Cl)$	$A_2(Cl)$	Ειδική Δραστηκότης (Cl/G)
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( Σ υ ν έ χ ε ι α )

$105_{RH}$		200	200	$8.2 \times 10^5$
$222_{RN}$	Ραδόνιον (86)	10	2	$1.5 \times 10^5$
$97_{RU}$	Ρουθήνιον (44)	80	80	$5.5 \times 10^5$
$103_{RU}$		30	30	$3.2 \times 10^4$
$105_{RU}$		20	20	$6.6 \times 10^6$
$106_{RU}$		10	7	$3.4 \times 10^3$
$35_S$	Θέλον (16)	1000	300	$4.3 \times 10^4$
$122_{SB}$	Αντιμόνιον (51)	30	30	$3.9 \times 10^5$
$124_{SB}$		5	5	$1.8 \times 10^4$
$125_{SB}$		40	30	$1.4 \times 10^3$
$46_{SC}$	Σκάνδιον (21)	8	8	$3.4 \times 10^4$
$47_{SC}$		200	200	$8.2 \times 10^5$
$48_{SC}$		5	5	$1.5 \times 10^6$
$75_{SE}$	Σελήνιον (34)	40	40	$1.4 \times 10^4$
$3I_{SI}$	Πυρίτιον (14)	100	100	$3.9 \times 10^7$
$147_{SM}$	Σαμάριον (62)	Απεριδριστην		$2.0 \times 10^{-8}$
$151_{SM}$		1000	90	$2.6 \times 10$
$153_{SM}$		300	300	$4.4 \times 10^5$
$113_{SN}$	Κασσίτερος (50)	60	60	$1.0 \times 10^4$
$125_{SN}$		10	10	$1.1 \times 10^5$
$85_{SR}^M$	Στρόντιον (38)	80	80	$3.2 \times 10^7$
$85_{SR}$		30	30	$2.4 \times 10^4$
$87_{SR}^M$		50	50	$1.2 \times 10^7$



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<del>Σύμβολο</del> Ραδιοσυκλεωδίου	Στοιχείον και αριθμός ατόμου	A <sub>1</sub> (Cl)	A <sub>2</sub> (Cl)	Ειδική Δραστηκότης (Cl/G)
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( Σ υ ν έ χ ε ι α )

<sup>89</sup> SR	Στρόντιον (38)	100	40	2.9 X 10 <sup>4</sup>
<sup>90</sup> SR		10	0.4	1.5 X 10 <sup>2</sup>
<sup>91</sup> SR		10	10	3.6 X 10 <sup>6</sup>
<sup>92</sup> SR		10	10	1.3 X 10 <sup>7</sup>
T (μη-πεπλεγμένον)	Τρίτιον (I)	1000	1000	9.7 X 10 <sup>3</sup>
T (πεπλεγμένον)		1000	1000	
T (ενεργοποιημένον φωτεινόν χρώμα)		1000	1000	
T (απορροφούμενον επί στερεού μεταφορέως)		1000	1000	
T (τρίτιον-ύδωρ /TRITIATED WATER/)		1000	1000	
T (άλλαι μορφαι)		20	20	
<sup>182</sup> Tα	Ταντάλιον (73)	20	20	6.2 X 10 <sup>3</sup>
<sup>160</sup> Tβ	Τέρβιον (65)	20	20	1.1 X 10 <sup>4</sup>
<sup>96</sup> T <sup>M</sup> C	Τεχνήτιον (43)	1000	1000	3.8 X 10 <sup>7</sup>
<sup>96</sup> T <sup>C</sup>		6	6	3.2 X 10 <sup>5</sup>
<sup>97</sup> T <sup>M</sup> C		1000	200	1.5 X 10 <sup>4</sup>
<sup>97</sup> T <sup>C</sup>		1000	400	1.4 X 10 <sup>-3</sup>
<sup>99</sup> T <sup>M</sup> C		100	100	5.2 X 10 <sup>6</sup>
<sup>99</sup> T <sup>C</sup>		1000	80	1.7 X 10 <sup>-2</sup>
<sup>125</sup> T <sup>M</sup> ε	Τελλούριον (52)	1000	100	1.8 X 10 <sup>4</sup>
<sup>127</sup> T <sup>M</sup> ε		300	40	4.0 X 10 <sup>4</sup>
<sup>127</sup> T <sup>ε</sup>		300	300	2.6 X 10 <sup>6</sup>
<sup>129</sup> T <sup>M</sup> ε		30	30	2.5 X 10 <sup>4</sup>

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Σύμβολον Ραδιονουκλεϊδίου	Στοιχείον και αριθμός ατόμου	$A_1(C_i)$	$A_2(C_i)$	Ειδική Δραστηκότης (Ci/G)
( Σ υ ν έ χ ε ι α )				
$^{129}_{Te}$	Τελλούριον (52)	100	100	$2.0 \times 10^7$
$^{131}_{Te}^M$		10	10	
$^{132}_{Te}$		7	7	$3.1 \times 10^5$
$^{227}_{Th}$	Θόριον (90)	200	0.2	$3.2 \times 10^4$
$^{228}_{Th}$		6	0.008	$8.3 \times 10^2$
$^{230}_{Th}$		3	0.003	$1.9 \times 10^{-2}$
$^{231}_{Th}$		1000	1000	$5.3 \times 10^5$
$^{232}_{Th}$		Απεριόριστον		$1.1 \times 10^{-7}$
$^{234}_{Th}$		10	10	$2.3 \times 10^4$
$Th$ (φωσικόν)		Απεριόριστον		(βλέπε Πίνακα XXI)
$Th$ (υποστάν ακτινοβολίαν)		$\alpha/$	$\alpha/$	
$^{200}_{Tl}$	Θάλλιον (81)	20	20	$5.8 \times 10^5$
$^{201}_{Tl}$		200	200	$2.2 \times 10^5$
$^{202}_{Tl}$		40	40	$5.4 \times 10^4$
$^{204}_{Tl}$		300	30	$4.3 \times 10^2$

$\alpha/$  Αι τιμαί των  $A_1$  και  $A_2$  θα υπολογίζωνται συμφώνως προς το περιθώριον 369I(3) λαμβανομένης υπόψει της δραστηκότητος των προϊόντων διασπαστών υλών και ουρανίου-233 επιπροσθέτως εκείνης του θορίου.

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Σύμβολον	Στοιχείον και αριθμός ατόμου	A <sub>1</sub> (Gt)	A <sub>2</sub> (Gt)	Ειδική Δραστηκότης (Gt/G)
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( Σ υ ν έ χ ε ι α )

I70 <sub>TM</sub>	Θούλιον (69)	300	40	6.0 X 10 <sup>3</sup>
I71 <sub>TM</sub>		1000	100	1.1 X 10 <sup>3</sup>
230 <sub>U</sub>	Ουράνιον (92)	100	0.1	2.7 X 10 <sup>4</sup>
232 <sub>U</sub>		30	0.03	2.1 X 10
233 <sub>U</sub>		100	0.1	9.5 X 10 <sup>-3</sup>
234 <sub>U</sub>		100	0.1	6.2 X 10 <sup>-3</sup>
235 <sub>U</sub>		100	0.2	2.1 X 10 <sup>-6</sup>
236 <sub>U</sub>		200	0.2	6.3 X 10 <sup>-5</sup>
238 <sub>U</sub>		Απεριόριστον		3.3 X 10 <sup>-7</sup>
U (φυσικόν)		Απεριόριστον		(βλέπε Πίνακα XXI)
U (εμπλουτισμένον)	(/ 20 <sup>o</sup> /o ( 20 <sup>o</sup> /o ή μεγα- λύτερον	Απεριόριστον	( " " )	
U (εξασθενημένον)		Απεριόριστον		(βλέπε Πίνακα XXI)
U (μη-ακτινωτόν)		β/	β/	
48 <sub>V</sub>	Βανάδιον (23)	6	6	1.7 X 10 <sup>5</sup>
I81 <sub>W</sub>	Βολφράμιον (74)	200	100	5.0 X 10 <sup>3</sup>
I85 <sub>W</sub>		1000	100	9.7 X 10 <sup>-3</sup>
I87 <sub>W</sub>		40	40	7.0 X 10 <sup>5</sup>
I31 <sub>Χε</sub> <sup>M</sup> (πεπιεσμένον)	Εένον (54)	10	10	1.0 X 10 <sup>5</sup>
I31 <sub>Χε</sub> <sup>M</sup> (μη-πεπιεσμένον)		100	100	1.0 X 10 <sup>5</sup>
I33 <sub>Χε</sub> (μη-πεπιεσμένον)		1000	1000	1.9 X 10 <sup>5</sup>
I33 <sub>Χε</sub> (πεπιεσμένον)		5	5	1.9 X 10 <sup>5</sup>

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Συμβολον Ραδιονουκλειδου	Στοιχειον και αριθμος ατομου	$A_1(Ci)$	$A_2(Ci)$	Ειδική Δραστικότητα (Ci/G)
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( Σ υ ν έ χ ε ι α )

$^{135}_{Xe}$ (μη-πεπλεγμένο)		70	70	$2.5 \times 10^6$
$^{135}_{Xe}$ (πεπλεγμένο)		2	2	$2.5 \times 10^6$
$^{90}_{Y}$	Υτρίλιον (39)	10	10	$5.3 \times 10^5$
$^{91}_{Y}$		30	30	$4.1 \times 10^7$
$^{91}_{Y}$		30	30	$2.5 \times 10^4$
$^{92}_{Y}$		10	10	$9.5 \times 10^6$
$^{93}_{Y}$		10	10	$3.2 \times 10^6$
$^{175}_{Yb}$	Υτέριβλιον (70)	400	400	$1.8 \times 10^5$
$^{65}_{Zn}$	Ψευδάργυρος (30)	30	30	$8.0 \times 10^3$
$^{69}_{Zn}$		40	40	$3.3 \times 10^6$
$^{69}_{Zn}$		300	300	$5.3 \times 10^7$
$^{93}_{Zr}$	Ζιρκόνιον (40)	1000	200	$3.5 \times 10^{-3}$
$^{95}_{Zr}$		20	20	$2.1 \times 10^4$
$^{97}_{Zr}$		20	20	$2.0 \times 10^6$

β/ (Σελίς Μεταφράσεως Ι7Ι):- Αι τιμαί των  $A_1$  και  $A_2$  θα υπολογίζονται συμφώνως προς το περιθώριον 369Ι(3) λαμβανομένης υπόψη της δραστικότητος των διασπαστών προϊόντων και των ισοτόπων πλουτωνίου επιπροσθέτως εκείνης του ουρανίου.

ΠΙΝΑΞ ΧΧΙ.- ΣΧΕΣΕΙΣ ΔΡΑΣΤΙΚΟΤΗΤΟΣ-ΜΑΖΗΣ ΟΥΡΑΝΙΟΥ ΚΑΙ  
ΦΥΣΙΚΟΥ ΘΟΡΛΟΥ<sup>α/</sup>

3690  
(Συνεχί-  
ζεται)

(Είς τον Πίνακα αυτόν παραπέμπει ο Πίναξ ΧΧ).

Ραδιενεργής Όλη	G/G	G/G
Ουράνιον (WT <sup>o</sup> /o <sup>235</sup> U πάροδος),		
0.45	$5.0 \times 10^{-7}$	$2.0 \times 10^6$
0.72 (φυσικόν),	$7.06 \times 10^{-7}$	$1.42 \times 10^6$
1.0	$7.6 \times 10^{-7}$	$1.3 \times 10^6$
1.5	$1.0 \times 10^{-6}$	$1.0 \times 10^6$
5.0	$2.7 \times 10^{-6}$	$3.7 \times 10^5$
10.0	$4.8 \times 10^{-6}$	$2.1 \times 10^5$
20.0	$1.0 \times 10^{-5}$	$1.0 \times 10^5$
35.0	$2.0 \times 10^{-5}$	$5.0 \times 10^4$
50.0	$2.5 \times 10^{-5}$	$4.0 \times 10^4$
90.0	$5.8 \times 10^{-5}$	$1.7 \times 10^4$
93.0	$7.0 \times 10^{-5}$	$1.4 \times 10^4$
95.0	$9.1 \times 10^{-5}$	$1.1 \times 10^4$
Φυσικόν θόρλιον	$2.2 \times 10^{-7}$	$4.6 \times 10^6$

<sup>α/</sup> Οι αριθμοί δια το ουράνιον περιλαμβάνουν την δραστηκότητα του ουρανίου-234 η οποία συμπυκνούται διαρκούσης της κατεργασίας εμπλουτισμού. Η δραστηκότης του θορλου συμπεριλαμβάνει την ισορροπημένη συμπύκνωσιν (EQUILIBRIUM CONCENTRATION) του θορλου-228.

(2) Για οποιοδήποτε απλό ραδιονουκλεϊδιο του οποίου η ταυτότης είναι γνωστή, αλλά το οποίον δεν αναγράφεται εις τον

Πίνακα XX, οι τιμές των  $A_I$  και  $A_2$  θα καθορίζονται συμφώ-  
 νως προς την κατωτέρω διαδικασία:-

3690  
 (Συνεχι-  
 ζεται)

(α) Εάν το ραδιονουκλεΐδιο εκπέμπει μόνον ένα τύ-  
 πον ακτινοβολίας, η τιμή  $A_I$  θα καθορίζεται συμφώνως προς  
 τους κατωτέρω κανόνες των (I), (II), (III) και (IV). Για  
 ραδιονουκλεΐδια εκπέμποντα διάφορα είδη ακτινοβολίας, η  
 τιμή  $A_I$  θα είναι η πλέον περιοριστική τιμή των καθορισθει-  
 σών για καθεμιά χωριστή ακτινοβολία. Εν τούτοις, εις αμφό-  
 τερες τις περιπτώσεις η  $A_I$  θα περιορίζεται εις 1000 Ci το  
 ανώτατον. Εάν το μητρικόν νουκλεΐδιο (PARENT NUCLIDE) εξα-  
 σθενίσει εις μίαν βραχυτέρας ζωής θυγατέραν, ημισείας ζωής  
 όχι μεγαλύτερας των 10 ημερών, η  $A_I$  θα υπολογισθεί τόσον  
 δια την μητέραν όσον και την θυγατέραν, και η περισσότερον  
 περιοριστική από τας δύο τιμάς πρέπει να καταλογισθεί εις  
 το μητρικόν νουκλεΐδιον.

(I) Για πομπούς γάμα, η  $A_I$  καθορίζεται δια του κάτωθι τύπου:

$$A_I = \frac{9}{F} \text{ CURIES}$$

όπου F είναι η σταθερά ακτίνος γ, η αντιστοιχούσα εις την  
 δόσιν της R/H εις I M ανά Ci· ο αριθμός 9 προκύπτει εκ της  
 εκλογής του I REM/H εις απόστασιν 3 M ως η ισοδύναμος τιμή  
 της δόσεως.

(II) Για πομπούς ακτίνος X, η  $A_I$  καθορίζεται δια του ατομι-  
 κού αριθμού (αριθμού ατόμου) του νουκλεΐδιου:-

$$\text{για } Z/55 \cdot A_I = 1000 \text{ Ci}$$

$$\text{για } Z < 55 \cdot A_I = 200 \text{ Ci}$$

(III) Για πομπούς βήτα (β), η  $A_I$  καθορίζεται δια της ανωτάτης  
 ενεργείας β ( $E_{\text{ανώτ.}}$ ) συμφώνως προς τον Πίνακα XXII.

(IV). Για πομπούς αλφα (α), η  $A_I$  καθορίζεται δια του τύ- 3690  
 πτύ:-  $A_I = 1000 A_3$  (Συνεχίζε-  
 ται)

όπου  $A_3$  είναι η τιμή η αναγραφόμενη εις τον Πίνακα XXIII.

(β),  $A_2$  θα είναι η περισσότερον περιοριστική των κάτωθι  
 τιμών:-

(1) η αντιστοιχος  $A_I$  και (2) η τιμή  $A_3$  λαμβανομένη εκ του  
 Πίνακος XXIII.

ΠΙΝΑΞ ΧΧΙΙ.- ΣΧΕΣΙΣ ΜΕΤΑΞΥ  $A_I$  ΚΑΙ  $E_{ανώτ.}$  ΓΙΑ ΠΟΜΠΟΥΣ ΒΗΤΑ (β)

$E_{ανώτ.}$ (ΜεV)	$A_I$ (Ci)
/ 0.5	1000
0.5 - / 1.0	300
1.0 - / 1.5	100
1.5 - / 2.0	30
2.0	10

ΠΙΝΑΞ ΧΧΙΙΙ.- ΣΧΕΣΙΣ ΜΕΤΑΞΥ  $A_3$  ΚΑΙ ΤΟΥ ΑΤΟΜΙΚΟΥ ΑΡΙΘΜΟΥ  
 (ΑΡΙΘΜΟΥ ΑΤΟΜΟΥ) ΤΟΥ ΡΑΔΙΟΝΟΥΚΛΕΥΔΙΟΥ

Ατομικός Αριθμός (Αριθμός Ατόμου)	$A_3$		
	Ημισεια-ζωή κάτω των 1000 ημερών	Ημισεια-ζωή 1000 ημερών μέχρι $10^6$ ετών	Ημισεια-ζωή μεγαλυτέρα των $10^6$ ετών
1 έως 81	3 Ci	50 MCi	3 Ci
82 και άνω	2 MCi	2 M(Ci)	3 Ci

(3) Για οποιοδήποτε απλό ραδιονουκλεΐδιο του οποίου η δραστηριότητα είναι άγνωστη, η τιμή της  $A_1$  θα λαμβάνεται ότι είναι 2 Ci και η τιμή της  $A_2$  θα λαμβάνεται ότι είναι 0.002 Ci. Εν τούτοις, εάν ο ατομικός αριθμός (αριθμός ατόμων) του ραδιονουκλεΐδιου είναι γνωστόν ότι είναι κάτω των 82, η τιμή της  $A_1$  θα λαμβάνεται ότι είναι 10 Ci και η τιμή της  $A_2$  θα λαμβάνεται ότι είναι 0.4 Ci.

3690

(Συνεχίζεται)

2.- Μίγματα ραδιονουκλεΐδων, συμπεριλαμβανομένης αλύσου ραδιενεργούς αποσυνθέσεως (διασπάσεως)

(1) Για μικτά διασπαστά προϊόντα τα κάτωθι όρια δραστηριότητας μπορούν να ληφθούν ως δεδομένα, εάν δεν γίνει λεπτομερής ανάλυσις του μίγματος:-

3691

$$A_1 = 10 \text{ Ci}$$

$$A_2 = 0.4 \text{ Ci}$$

(2) Απλή αλύσος ραδιενεργούς αποσυνθέσεως (διασπάσεως) εις την οποίαν υπάρχουν/ραδιονουκλεΐδια εις τας φυσικάς των αναλογίας και εις την οποίαν ουδέν θυγατρικόν νουκλεΐδιον έχει ημισειά-ζωήν είτε μεγαλυτέραν των 10 ημερών είτε μεγαλυτέραν εκείνης του μητρικού νουκλεΐδιου, θα θεωρείται ως απλό ραδιονουκλεΐδιο. Η δραστηριότης η οποία θα ληφθεί υπόψη και η τιμή των  $A_1$  ή  $A_2$  που θα ισχύσει θα είναι αι αντιστοιχοί εκείνων του μητρικού νουκλεΐδιου της αλύσου αυτής. Εν τούτοις, στη περίπτωση αλύσων ραδιενεργούς αποσυνθέσεως (αποσπάσεως) εις τας οποίας οιοδήποτε θυγατρικόν νουκλεΐδιον έχει ημισειά-ζωήν είτε μεγαλυτέρα των 10 ημερών είτε μεγαλυτέραν εκείνης του μητρικού νουκλεΐδιου, το μητρικόν και το τοιούτον θυγατρικόν νουκλεΐδιον θα θεωρούνται ως μίγματα διαφόρων νουκλεΐδων.



(3) Στη περίπτωση μίγματος διαφορετικών/νου-  
κλειδίων, εις το οποίον η ταυτότης και δραστηκότης  
εκάστου ραδιονουκλίδιου είναι γνωσταί, η επιτρεπτή  
δραστηκότης εκάστου ραδιονουκλίδιου  $R_1, R_2 \dots R_N$   
θα είναι τέτοια ώστε η  $F_1 \neq F_2 \neq \dots F_N$  να μην είναι  
μεγαλυτέρα της ενόττης, όπου

$$F_1 = \frac{\text{Ολική δραστηκότης του } R_1}{A_1 (R_1)}$$

$$F_2 = \frac{\text{Ολική δραστηκότης του } R_2}{A_1 (R_2)}$$

$$F_N = \frac{\text{Ολική δραστηκότης του } R_N}{A_1 (R_N)}$$

$A_1 (R_1), A_1 (R_2), \dots A_1 (R_N)$  είναι η τιμή των  $A_1$  ή  
 $A_2$  ως ενδεικνυται δια το νουκλίδιο  $R_1, R_2 \dots R_N$ .

(4) Όταν η ταυτότης εκάστου ραδιονουκλίδιου είναι  
γνωστή αλλά οι χωριστές δραστηκότητες ωρισμένων εκ των  
ραδιονουκλιδίων είναι άγνωστοι, ο τύπος της παραγράφου (3)  
θα ισχύσει δια των καθορισμόν των τιμών των  $A_1$  ή  $A_2$  ως  
ενδεικνυται. Όλα τα ραδιονουκλίδια των οποίων αι χωρι-  
σταί δραστηκότητες είναι άγνωστοι (ο ολική των δραστηριό-  
της, εν τούτοις, θα είναι γνωστή) θα ταξινομηθούν εις μίαν  
ομάδα και η πλέον περιοριστική τιμή της  $A_1$  και  $A_2$  η ισχύουσα  
δι' οιονδήποτε εν τούτων θα χρησιμοποιηθεί ως η τιμή της  
 $A_1$  ή  $A_2$  εις τον παρονομαστήν του κλάσματος.

(5) Οσάκις η ταυτότης εκάστου ραδιονουκλίδιου  
είναι γνωστή αλλά η χωριστή δραστηκότης ουδενός των ραδιο-

369I

(Συνεχίζεται)

νουκλεϊδων είναι γνωστή, η πλέον περιοριστική τιμή των  $A_1$  ή  $A_2$  η ισχύουσα δι' οιονδήποτε εν των ραδιονουκλεϊδων θα υιοθετηθελ ως η ισχύουσα τιμή. (Συνεχίζε-  
ται)

(6) Όταν η ταυτότης ουδενός ή μόνον μερικών εκ των νουκλεϊδων είναι γνωστή, η τιμή της  $A_1$  θα λαμβάνεται ότι είναι 2 Ci και η τιμή της  $A_2$  θα λαμβάνεται ότι είναι 0.002 Ci. Εν τούτοις, εάν οι πομποί άλφα ( $\alpha$ ) είναι γνωστόν ότι απουσιάζουν, η τιμή της  $A_2$  θα ληφθελ ότι είναι 0.4 Ci.

369I  
3692-  
3694

#### ΚΕΦΑΛΑΙΟΝ VII.- ΑΠΟΛΥΜΑΝΣΙΣ, ΔΙΑΡΡΕΟΝΤΑ ΚΟΛΑ ΚΑΙ ΑΤΥΧΗΜΑΤΑ

(I) Εάν κόλον περιέχει ραδιενεργείς ύλες σπάσει ή ορατώς διαρρέει ή ελχεν ατύχημα διαρκούσης της μεταφοράς, το όχημα ή η θιγείσα περιοχή θα απομονώνεται ώστε να αποφευχθελ κάθε επαφή προσώπων με ραδιενεργείς ύλες και, οσάκις είναι δυνατόν, θα σημειούται δεόντως ή φράσσεται. Εις ουδένα θα επιτραπελ να παραμείνει εντός της μονωθείσης περιοχής μέχρι της αφίξεως των αρμοδίων προδύπων τα οποία θα εποπτεύσουν το έργον χειρισμού και διασώσεως. Ο αποστολεύς και αι περιών πρόκειται αρχαλ θα ενημερωθούν πάραυτα. Κατά παρέκβασιν των ανωτέρω διατάξεων, η παρουσία ραδιενεργών υλών δεν θα θεωρείται ως εμπόδιον εις τας επιχειρήσεις διασώσεως ανθρώπων ή κατασβέσεως πυρκαϊών.

(2) Εάν ραδιενεργείς ύλαι διέρρευσαν, εχύθησαν, ή διεσκορπίστησαν καθ' οιονδήποτε απολύτως τρόπον εις τόπον,

περιοχήν ή επί εμπορευμάτων ή εξοπλισμού εν αποθηκείσει, 3695  
θα κληθούν το ταχύτερο δυνατόν τα αρμόδια πρόσωπα να (Συνεχι-  
κατευθύνουν τας επιχειρήσεις απολυμάνσεως. Ο ούτω μολυν- ζεται)  
θείς τόπος, περιοχή ή εξοπλισμός τότε και μόνον θα επανα-  
λειτουργήσουν όταν δηλωθεί υπό των αρμοδίων προσώπων ότι  
είναι απηλλαγμένα κινδύνου.

(3) Εκτός ως προβλέπεται ~~επί~~ παράγραφω (4), οιαδή-  
ποτε οχήματα, εξοπλισμός ή τμήμα αυτών, που εμολύνθησαν  
διαρκούσης της μεταφοράς ραδιενεργών υλών θα απολυμάνωνται  
ευθύς ως είναι δυνατόν (το ταχύτερο δυνατό) υπό αρμοδίου  
προσώπου και δεν θα επαναχρησιμοποιηθούν εκτός εάν η ακα-  
θόριστος (NON-FIXED) ραδιενεργής μόλυνσις είναι κάτω των  
επιπέδων των οριζομένων εις τον Πίνακα XIX και τα οχήματα,  
ο εξοπλισμός ή τμήμα αυτών εδηλώθησαν ασφαλή ~~εξ~~ σχέση με  
τα επίπεδα υπολειμματικής ακτινοβολίας υπό αρμοδίου προσώ-  
που.

(4) Οχήματα ή διαμερίσματα χρησιμοποιούμενα ~~για~~ την  
χύμα μεταφοράν ή δεξαμενο-μεταφοράν υλών χαμηλής ειδικής  
δραστικότητας, ή δια την μεταφοράν κόλων υλών χαμηλής ει-  
δικής δραστικότητας μεταφερομένων ως πλήρες φορτίον ή δια  
την μεταφοράν χαμηλού επιπέδου στερεών ραδιενεργών υλών ως  
πλήρες φορτίον δεν θα χρησιμοποιούνται δι' άλλα εμπορεύμα-  
τα μέχρις ότου απολυμανθούν ως ορίζεται ~~επί~~ παράγραφω (3).

3696-

3699

## ΠΡΟΣΘΗΚΗ Α.7

Υπό επιφύλαξιν (RESERVED)

3700-  
3799

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## ΠΡΟΣΘΗΚΗ Α.8

Υπό επιφύλαξιν (RESERVED)

3800-  
3899

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## ΠΡΟΣΘΗΚΗ Α.9

Ι.- Διατάξεις διέπουσαι τις ετικέττες κινδύνου

(1) Οι Ετικέττες Αρ. 1, 2Α, 2Β, 2Γ, 2Δ, 3, 4, 4Α, 3900 5, 6Α, 6Β και 6Γ θα είναι σχήματος τετραγώνου, πλευράς 10 CM, τοποθετούμεναι σε γωνία. Έχουν μαύρην γραμμήν εκ 5 MM εις το άκρον. Οι ετικέττες/θα τοποθετούνται εις ωρισμένας δεξιαμενάς (βυριο-φόρα και TANK-TRAILERS) θα έχουν πλευράν όχι μικροτέραν των 30 CM.

(2) Οι Ετικέττες Αρ. 7, 8 και 9 θα είναι ορθογώνιοι, βασικού σχήματος A5(148 X 210 MM). Για κόλα, οι διαστάσεις αυτές μπορούν να μειωθούν εις σχήμα όχι μικρότερον του A7(74 X 105 MM).

(3) Επιγραφή, εις αριθμούς ή γράμματα, αφορώσα την φύσιν του κινδύνου μπορεί να τοποθετηθεί εις το κάτω μέρος των ετικεττών.

(1) Ετικέττες κινδύνου, οσάκις απαιτούνται δυνάμει 3901 του παρόντος Παραρτήματος, πρέπει να κολλώνται εις τα κόλα και ωρισμένας δεξιαμενάς (βυτλια) ή να τοποθετούνται με άλλον κατάλληλον τρόπον. Μόνον οσάκις η κατάσταση του εξωτερικού του κόλου δεν το επιτρέπει θα πρέπει οι ετικέττες να

κόχωνται επί πινακίδων ή ταμπελών ασφαλώς συνδεδεμένων με το κόλον. Επί εξωτερικών συσκευασιών και συνδεδεμένων δεξαμενών (βυτιών), ανεξίτηλοι ενδειξείς κινδύνου ακριβώς αντίστοιχοι των προβλεπομένων μοντέλων μπορούν να χρησιμοποιούνται αντί των ετικεττών.

3901  
(Συνεχίζεται)

(2) Οσάνις κόλον απαιτείται να φέρει δύο ετικέττες του αυτού μοντέλου, οι ετικέττες θα τοποθετούνται κατά τον κατωτέρω οριζόμενον τρόπον:

δύο τετράγωνα: σχήμα 4715 2991

(3) Είναι καθήκον του αποστολέως να τοποθετεί τις ετικέττες στα κόλα, και, οσάνις ενδείκνυται, εις συνδεδεμένας δεξαμενάς (βυτία) και υποδοχείς (CONTAINERS).

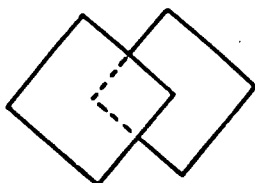
2.- Επεξηγήσεις Συμβόλων σχήματα 4715 2992

Οι ετικέττες κινδύνου που προβλέπονται για όλες και είδη των κλάσεων I έως 8 (βλέπε συνημμένον πίνακα Προσθήκης Α.9) έχουν τις παρακάτω έννοιες:-

Αρ. I (μαύρη βόμβα σε φόντο πορτοκαλί): υποκειμένη εις έκρηξη προβλεπομένη υπό των περιθωρίων 2117(I), και (2), 2145 και 2563\*

Αρ. 2A (μαύρη φλόγα σε κίτρινο φόντο): κίνδυνος πυρκαϊάς (ευφλέετα υγρά)\*

προβλεπομένη υπό των περιθωρίων 2224(3), 2316(3), 2478(2), 2307(I) και 2632(I)\*



- Αρ. 2B (μαύρη φλόγα σε φόντο ισάκεις  
απεχουσών ερυθρών και λευκών  
εναλλάξ λωρίδων) : κίνδυνος πυρκαϊάς (ευφλέ-  
κτων στερεών)\*  
προβλεπομένη υπό περιθωρίου  
2414(I)\*
- Αρ. 2Γ (μαύρη φλόγα σε λευκό φόντο,  
κάτω τρίγωνον ετικέτας  
ερυθρό) : ύλη υποκειμένη εις στιγ-  
μιαίαν ανάφλεξιν\*  
προβλεπομένη υπό περιθωρί-  
ου 2443(I)\*
- Αρ. 2Δ (μαύρη φλόγα σε κυανό (μπλέ)  
φόντο: κίνδυνος εκπομπής ευφλέκτων  
αερίων εις επαφήν με το νερό  
προβλεπομένη υπό του περιθω-  
ρίου 2478(I)\*
- Αρ. 3 (φλόγα πέριξ κύκλου,  
μαύρο σε κίτρινο φόντο): οξειδωτική ύλη ή οργανικόν  
υπεροξειδίον\*  
προβλεπομένη υπό των περι-  
θωρίων 2511(I) και 2563(I)\*
- Αρ. 4 (νεκροκεφαλή επί διασταυρω-  
μένων οστών, μαύρο σε λευκό  
φόντο): τοξική ύλη: θα τηρείται μακράν  
σε οχήματα και σε σημεία φορ-  
τώσεως, εκφορτώσεως ή μετα-  
φορτώσεως, από τρόφιμα και λοι-  
πά είδη καταναλώσεως\*  
προβλεπομένη υπό των περι-  
θωρίων 2307(I), 2316(3),  
2632(I) και 2643(3)\*

3902

(Συνεχι-  
ζεται)

Αρ. 4Α (Σταυρός Αγ. Ανδρέου επί  
στάχους, μαύρο σε λευκό  
φόντο):

3902  
(Συνεχί-

ζεται)  
επιβλαβής ύλη: θα τηρε-  
ται μακριά από τρόφιμα  
εντός οχημάτων, και εις  
σημεία φορτώσεως, εκφορ-  
τώσεως ή μεταφορτώσεως·

προβλεπομένη υπό των περι-  
θωρίων 2632(I) και 2643(3)·

Αρ. 5 (υγρό πίπτον από δοκιμα-  
στικόν σωλήνα επάνω σε  
πλάκα και από άλλον δοκιμα-  
στικόν σωλήνα στο χέρι·  
μαύρο σε λευκό φόντο, κάτω  
τρίγωνον ετικέττας μαύρο  
με λευκή μπορντούρα):

διαβρωτική ύλη·

προβλεπομένη υπό των περι-  
θωρίων 2511(I), 2824(I)  
και 2835(3)·

Αρ. 6Α (στυλιζαρισμένο τριφύλλι,  
επιγραφή ΡΑΔΙΕΝΕΡΓΟΝ, κά-  
θετος λωρίς στο κάτω ήμισυ,  
με το ακόλουθο κείμενο:  
Περιεχόμενο .....  
Δραστικότητα .....  
Σύμβολο και επιγραφαί μαύραι  
σε λευκό φόντο, κάθετος λω-  
ρίς ερυθρά) :

ραδιενεργής ύλη σε κόλλα της  
Κατηγορίας I - ΛΕΥΚΗ· Ξε περι-  
πτώσει ζημιάς των κόλλων, κίν-  
δυνος δια την υγείαν εξ εισα-  
γωγής, εισπνοής, ή επαφής με  
χυμένον περιεχόμενον·

προβλεπομένη υπό των περι-  
θωρίων 3656(I), (2) και (3)  
κάθ των πινάκων 5 έως 12·

Αρ. 6B (όπως η προηγούμενη, αλλά με δύο κάθετες λωρίδες στο κάτω ήμισυ και το κάτωτι κείμενο:

Περιεχόμενο .....  
Δραστηκότητας .....

"TRANSPORT INDEX" (Δείκτης Μεταφοράς)

Σύμβολον και επιγραφαι μαύραι·

άνω ήμισυ, κίτρινο φόντο,

κάτω ήμισυ, λευκό φόντο· κάθετοι λωρίδες, ερυθραι):

3902  
(Συνεχίζεται)

ραδιενεργής ύλη σε κόλα της Κατηγορίας II -ΚΙΤΡΙΝΗ· τα κόλα θα τηρούνται μακράν από κόλον περιέχον μη εμφανισθείσες ραδιογραφικές ή φωτογραφικές πλάκες ή φιλμ· σε περίπτωση ζημιάς των κόλων, κίνδυνος για την υγεία εξ εισαγωγής ή εισπνοής, ή επαφής με, χυμένο περιεχόμενο, και κίνδυνος εξωτερικής ακτινοβολίας από μίαν απόστασιν·

προβλεπομένη υπό των πινακων

5 έως I2, ως ενδεικνυται, και των περιθωριων 3656(I), (2) και (3)·

Αρ. 6Γ (όπως η προηγούμενη, αλλά με τρεις κάθετες λωρίδες στο κάτω ήμισυ:

ραδιενεργής ύλη σε κόλα της Κατηγορίας III -ΚΙΤΡΙΝΗ· τα κόλα θα τηρούνται μακράν από κόλα περιέχοντα μη εμφανισθείσες ραδιογραφικές ή φωτογραφικές πλάκες ή φιλμ·



σε περίπτωση ζημιάς των κδ- 3902  
λων, κίνδυνος δια την υγιει- (Συνεχλ-  
αν ~~επι~~ εισαγωγής ή εισ- ζεται)  
πνοής, ή επαφής με, χυμένο  
περιεχόμενο, και κίνδυνος εξω-  
τερικής ακτινοβολίας από μια  
απόσταση\*

- Αρ. 7 (ανοικτή μαύρη ομπρέλλα  
σε λευκό φόντο): διατηρείστε ξηρό  
προβλεπομένη υπό του περι-  
θωρίου 2478(I)\*
- Αρ. 8 (δύο μαύρα τρέξα σε λευκό  
φόντο): προς τα άνω:  
προβλεπομένη υπό η ετικέττα θα τοποθετηθεί, με τα τρέ-  
των περιθωρίων 2117 ξα προς τα άνω, σε δύο αντίθετες  
(2), 2224(2), 2307 πλευρές του κόλου\*  
(3), 2414(2), 2443  
(2) και (3), 2478(3),  
2511(2), 2563(2), 2632  
(2), 2664, 2709(3),  
2824(2) και (3)\*
- Αρ. 9 (ερυθρό κρασοπότηρο σε  
λευκό φόντο): χειρισθείτε με προσοχή, ή:-  
μη το χύσετε.  
προβλεπομένη υπό των περι-  
θωρίων 2117(2), 2182,  
224(I), (2) και (3), 2307  
(3), 2414(2), 2443(3), 2478  
(3), 2511(2), 2562(2), 2632(2),  
2664, 2709(3) και 2824(2).

3903-

3999\*

## ΠΡΟΣΘΗΚΗ Α.9

ΕΤΙΚΕΤΤΕΣ ΚΙΝΔΥΝΟΥ (ΠΙΝΑΞ)

(Βλέπε περιθώριο 3902)

Αναπαραγωγή επί μειωμένης κλίμακος

APPENDICE A 9  
DANGER LABELS  
(See marginal 3302)  
Reproduction on reduced scale

N°1



N°2A



N°2B



N°2C



N°2D



N°3



N°4



N°4A



N°5



N°6A



N°6B



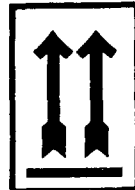
N°6C



N°7



N°8



N°9



E/ECE/322

E/ECE/TRANS/503

ΟΙΚΟΝΟΜΙΚΗ ΕΠΙΤΡΟΠΗ ΓΙΑ ΤΗΝ ΕΥΡΩΠΗ  
ΕΠΙΤΡΟΠΗ ΜΕΤΑΦΟΡΩΝ ΕΣΩΤΕΡΙΚΟΥ

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Ευρωπαϊκή Συμφωνία  
Για τη Διεθνή Οδική Μεταφορά Επι-  
κινδύνων Εμπορευμάτων (ADR)  
και Πρωτόκολλο Υπογραφής

Υπογράφηκε στη Γενεύη την 30 Σεπτεμβρίου 1957

ΤΟΜΟΣ ΙΙΙ

(Παράρτημα Β)

ΗΝΩΜΕΝΑ ΕΘΝΗ

1978

## Π Ρ Ο Λ Ο Γ Ο Σ

Το παρακάτω κείμενο περιλαμβάνει, επιπροσθέτως της Συμφωνίας και του Πρωτοκόλλου Υπογραφής, τα παραρτήματα με τη μορφή με την οποία τέθηκαν σε ισχύ την 29ην Ιουλίου 1968 καθώς και τις τροποποιήσεις τους μέχρι της 1ης Οκτωβρίου 1978.

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ΠΑΡΑΡΤΗΜΑ ΒΔΙΑΤΑΞΕΙΣ ΓΙΑ ΤΟΝ ΕΞΟΠΛΙΣΜΟ ΤΩΝ ΜΕΤΑΦΟΡΩΝ ΚΑΙ ΤΙΣ ΕΠΙΧΕΙΡΗΣΕΙΣ  
ΜΕΤΑΦΟΡΩΝ

## ΠΕΡΙΕΧΟΜΕΝΟΝ

	Περιθώρια
ΣΧΕΔΙΟ ΤΟΥ ΠΑΡΑΡΤΗΜΑΤΟΣ	ΙΟ 000
ΙΣΧΥΣ ΑΛΛΩΝ ΔΙΑΤΑΞΕΩΝ, ΕΘΝΙΚΩΝ Η ΔΙΕΘΝΩΝ	ΙΟ 001
ΙΣΧΥΣ ΤΩΝ ΔΙΑΤΑΞΕΩΝ ΤΟΥ ΚΕΦΑΛΑΙΟΥ Ι ΤΟΥ ΠΑΡΟΝΤΟΣ ΠΑΡΑΡΤΗΜΑΤΟΣ	ΙΟ 002
ΚΕΦΑΛΑΙΟ Ι: ΓΕΝΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΙΣΧΥΟΥΣΕΣ ΓΙΑ ΤΗ ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝΔΥΝΩΝ ΥΛΩΝ ΟΛΩΝ ΤΩΝ ΚΛΑΣΕΩΝ (ΚΑΤΗΓΟΡΙΩΝ)	
Άρθρο 1 <u>Γενικά</u>	ΙΟ 100 <u>κ.ε.</u>
Αντικείμενον του παρόντος Παραρτήματος	ΙΟ 100
Ορισμοί	ΙΟ 102
Τύποι Οχημάτων	ΙΟ 104
Πλήρες φορτίο	ΙΟ 108
Μεταφορά εμπορευμάτων εις χύμα	ΙΟ 111
Μεταφορά μέσα σε CONTAINERS	ΙΟ 118
Μεταφορά μέσα σε δεξαμενές	ΙΟ 121
Δεξαμενές	ΙΟ 127
Πληρώματα αυτοκινήτων (οχημάτων)	
Εποπτεία	ΙΟ 171
Μεταφορά Επιβατών	ΙΟ 172
Ήγγραφα Μεταφορών	ΙΟ 181
Έγκριση οχημάτων	ΙΟ 182
Γραπτές οδηγίες	ΙΟ 185
Άρθρο 2 <u>Ειδικοί όροι πληρούμενοι από οχήματα και τον εξοπλισμό τους</u>	ΙΟ 200 <u>κ.ε.</u>
Πυροσβεστικές συσκευές	ΙΟ 240
Ηλεκτρικός εξοπλισμός	ΙΟ 251
Διάφορος εξοπλισμός	ΙΟ 260

	Περιθώρια	
Άρθρο 3 <u>Διατάξεις Γενικών Υπηρεσιών</u>	ΙΟ 300 κ.ε.	
Πυροσβεστικές συσκευές	ΙΟ 340	
Φορητή συσκευή φωτισμού	ΙΟ 353	
Απαγόρευση καπνίσματος	ΙΟ 374	
Άρθρο 4 <u>Ειδικές διατάξεις για φόρτωση, εκφόρ- τωση και χειρισμό</u>	ΙΟ 400 κ.ε.	
Περιορισμός των μεταφερομένων ποσο- τήτων	ΙΟ 401	
Απαγόρευση μικτής φορτώσεως ενός οχή- ματος	ΙΟ 403	
Απαγόρευση μικτής φορτώσεως ενός CONTAINER	ΙΟ 405	
Καθάρισμα προ της φορτώσεως	ΙΟ 413	
Χειρισμός και στοιβάσα	ΙΟ 414	
Καθάρισμα μετά την εκφόρτωση	ΙΟ 415	
Φόρτωση και εκφόρτωση υλών σε CONTAINERS	ΙΟ 419	
Λειτουργία του κινητήρα (μηχανής) κατά τη φόρτωση και εκφόρτωση	ΙΟ 431	
Άρθρο 5 <u>Ειδικές διατάξεις για τη λειτουργία των οχημάτων</u>	ΙΟ 500 <u>κ.ε.</u>	
Σήματα Οχημάτων	ΙΟ 500	
Στάθμευση (πάρκιγκ) εν γένει	ΙΟ 503	
Στάθμευση (πάρκιγκ) τη νύκτα ή όταν η ορατότητα είναι μικρή	ΙΟ 505	
Στάθμευση (πάρκιγκ) οχήματος παρουσιάζον- τος ειδικόν κίνδυνον	ΙΟ 507	
Άλλες διατάξεις	ΙΟ 599	

Περιθώρια

Άρθρο 6 Μεταβατικές διατάξεις, ανακλήσεις,  
και διατάξεις ειδικές για ωρισμέ-  
νες χώρες IO 600 κ.ε.

Ταχεία διαδικασία για εξουσιοδό-  
 τηση ανακλήσεων προς τον σκοπόν  
 διεξαγωγής δοκιμών. IO 602

ΚΕΦΑΛΑΙΟ ΙΙ ΕΙΔΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΙΣΧΥΟΥΣΕΣ ΓΙΑ ΤΗ  
 ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝΔΥΝΩΝ ΥΛΩΝ ΚΛΑΣΕΩΝ Ι - VII

Κλάσεις Ια, Ιβ και Ιγ Ειρηκτικές ύλες και αντικείμενα· Αντι-  
 κείμενα γεμισμένα με ειρηκτικές ύλες·  
 αναφλεκτήρες, πυροτεχνήματα και παρεμ-  
 φερή εμπορεύματα. II 000 κ.ε.

Κλάση Ιδ Αέρια· πεπιεσμένα, υγροποιημένα ή ή  
 διαλυμένα υπό πρесси Ι4 000 "

Κλάση Ιε Ύλες που αναδύουν εύφλεκτα αέρια σε  
 επαφή με το ύδωρ Ι5 000 "

Κλάση ΙΙ Ύλες υποκειμένες σε αυτανάφλεξη 2I 000 "

Κλάση ΙΙΙα Εύφλεκτα υγρά 3I 000 "

Κλάση ΙΙΙβ Εύφλεκτα στερεά 32 000 "

Κλάση ΙΙΙγ Οξειδωτικές ύλες 33 000 "

Κλάση ΙVα Τοξικές ύλες 4I 000 "

Κλάση ΙVβ Ραδιενεργές ύλες 42 000 "

Κλάση V Διαβρωτικές ύλες 5I 000 "

Κλάση VI Απεχθείς ύλες και ύλες δυνάμενες να  
 προκαλέσουν μόλυνση 6I 000 "

Κλάση VII Οργανικών υπεροξειδίων 7I 000 "

ΠΡΟΣΘΗΚΕΣ

Κοινές διατάξεις Προσθηκών Β.Ι

200 000 - 2II 099

## Περιθώρια

Προσθήκη Β.Ια.	Διατάξεις διέπουσες σταθερά βυτία (βυτιοφόρα-οχήματα), λυόμενα βυτία και συστοιχίες δοχείων	211 100 - 212 099
Προσθήκη Β.Ιβ	Διατάξεις διέπουσες τα βυτιο-CONTAINERS	212 100 - 213 099
Προσθήκη Β.Ιγ	Διατάξεις διέπουσες σταθερά βυτία και λυόμενα βυτία σε ενισχυμένα πλαστικά	213 100 - 213 099
Προσθήκη Β.Ιδ	Όροι διέποντες τα υλικά και τη κατασκευή σταθερών βυτίων, λυόμενων βυτίων, και περιβλημάτων των βυτιο-CONTAINERS, προοριζομένων για τη μεταφορά βαθειά-κατεψυγμένων (DEEPLY-REFRIGERATED) υγροποιημένων αερίων της Κλάσεως 2	214 000 - 219 999
Προσθήκη Β.2	Ηλεκτρικός εξοπλισμός	220 000 - 229 999
Προσθήκη Β.3	Πιστοποιητικούς εγκρίσεως οχημάτων μεταφερόντων ορισμένα επικίνδυνα εμπορεύματα	230 000 - 239 999
Προσθήκη Β.4	Πίνακες αφορώντες τη μεταφορά επικινδύνων υλών της Κλάσεως 7° Ετικέττα θα τοποθετείται στα οχήματα μεταφέροντα τις ύλες αυτές	240 000 - 249 999
Προσθήκη Β.5	Κατάσταση υλών αναφερομένων στο περιθώριο IO 500 (2)	250 000 - 250 999

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## ΠΑΡΑΡΤΗΜΑ Β

ΔΙΑΤΑΞΕΙΣ ΔΙΕΠΙΟΥΣΕΣ ΤΟΝ ΕΞΟΠΛΙΣΜΟΝ ΤΩΝ ΜΕΤΑΦΟΡΩΝ ΚΑΙ ΤΩΝ  
ΕΠΙΧΕΙΡΗΣΕΩΝ ΜΕΤΑΦΟΡΑΣ

	4 000-
	9 999
<u>Σχέδιον του Παραρτήματος</u>	10 000

(I) Το παρόν Παράρτημα περιλαμβάνει:-

(α) γενικές διατάξεις ισχύουσες για τη μεταφορά επικινδύνων υλών όλων των Κλάσεων (Κεφάλαιο I)·

(β) ειδικές διατάξεις ισχύουσες για τη μεταφορά επικινδύνων υλών των Κλάσεων I - 8 (Κεφάλαιο II)·

(γ) Παραρτήματα (Προσθήκες) ως κάτωθι:-

- Προσθήκη Β.Ια αφορώσα σταθερά βυτία (βυτιοφόρα οχήματα) ή λυόμενα βυτία και συστοιχίες δοχείων·
- Προσθήκη Β.Ιβ αφορώσα βυτιο-CONTAINERS·
- Προσθήκη Β.Ιγ αφορώσα σταθερά βυτία και λυόμενα βυτία σε ενισχυμένα πλαστικά·
- Προσθήκη Β.Ιδ διέπυσα τους όρους τους αφορώντες τα υλικά και τη κατασκευή σταθερών βυτίων, λυόμενων βυτίων, και περιβλημάτων βυτιο-CONTAINERS, προοριζομένων για τη μεταφορά βαθειά-κατεψυγμένων (DEEPLY-REFRIGERATED) υγροποιημένων αερίων της Κλάσεως 2·
- Προσθήκη Β.4 περιέχουσα πίνακες αφορώντες τη μεταφορά υλών της Κλάσεως 7 και τοποθέτηση ετικέτας σε οχήματα μεταφέροντα τις ύλες αυτές·
- Προσθήκη Β.5 περιέχουσα την Κατάστασιν υλών αναφερομένων στο περιθώριο ΙΟ 500 (2).



(2) Οι γενικές διατάξεις του Κεφαλαίου Ι και οι ειδικές διατάξεις του Κεφαλαίου ΙΙ διαρροούνται σε άρθρα υπό τους εξής τίτλους:-

Περιθώρια  
10 000 (Συνε-  
χίζεται)

Άρθρον 1.- Γενικά (το παρόν άρθρον περιέχει, μεταξύ άλλων, τις διατάξεις που διέπουν τις εξουσιοδοτήσεις (άδειες) για τη μεταφορά εμπορευμάτων εις χύμα, μέσα σε CONTAINERS ή βυτλα (δεξαμενές)).

Άρθρον 2.- Ειδικοί όροι πληρούμενοι υπό οχημάτων και του εξοπλισμού αυτών.

Άρθρον 3.- Διατάξεις Γενικών Υπηρεσιών.-

Άρθρον 4.- Ειδικές διατάξεις διέπουν την φόρτωση, εκφόρτωση και χειρισμόν (το άρθρο τούτο περιλαμβάνει τις διατάξεις που διέπουν τους μεθόδους προώθησεως, τους περιορισμούς επί της προώθησεως και τις απαγορεύσεις επί μικτής φορτώσεως).

Άρθρον 5.- Ειδικές διατάξεις διέπουν την λειτουργίαν οχημάτων.

Άρθρον 6.- Μεταβατικές διατάξεις, ανακλήσεις, και διατάξεις ειδικές για ωρισμένες χώρες.

Ισχύς άλλων διατάξεων, εθνικών ή διεθνών

10 001

(I) Εάν το όχημα το ενεργούν επιχείρησιν μεταφοράς υποκειμένην εις τις διατάξεις της ADR μεταφέρεται για τμήμα του ταξιδιού κατά τρόπον διάφορον της οδικής ρυμουλκίσεως, τότε οποιεσδήποτε εθνικές ή διεθνείς διατάξεις που διέπουν την μεταφοράν επικινδύνων εμπορευμάτων στο τμήμα τούτο δια του τρόπου μεταφοράς του χρησιμοποι-

ουμένου για τη μεταφορά του οδικού οχήματος θα ισχύουν IO 001 και μόνον για το τμήμα τούτο, του ταξιδιού. (Συνεχίζεται)

(2) Εις περιπτώσεις κατά τις οποίες επιχειρήσονται μεταφορές υποκειμένη στις διατάξεις της ADR ενδέχεται να υπόκειται δια το σύνολο ή μέρος του οδικού ταξιδιού εις διατάξεις διεθνούς συμφωνίας διέπουσας την μεταφοράν επικινδύνων εμπορευμάτων δια τρόπου μεταφοράς διαφορετικού της της οδικής μεταφοράς δύναμει ρητρών επεκτεινουσών την ισχύν της συμφωνίας αυτής εις ωρισμένες υπηρεσίες αυτοκινητών, τότε, για το εν λόγω ταξίδι θα ισχύουν αι διατάξεις της διεθνούς αυτής συμφωνίας, παραλλήλως με εκείνες της ADR που δεν είναι ασυμβίβαστες· οι λοιπές ρήτρες της ADR δεν θα ισχύσουν δια το εν λόγω ταξίδι.

Ισχύς των διατάξεων του Κεφαλαίου I του παρόντος Παραρ- IO 002  
τήματος

Οσάντις αι διατάξεις του Κεφαλαίου II ή των Προσθηκών του παρόντος Παραρτήματος συγκρούονται με τις διατάξεις του Κεφαλαίου I, τότε οι διατάξεις του Κεφαλαίου I δεν θα ισχύουν.

Παρ' όλον τούτο

- (α) αι διατάξεις του περιθωρίου IO 100 θα έχουν προτεραιότητα έναντι των διατάξεων του Κεφαλαίου II·
- (β) αι διατάξεις του περιθωρίου IO 403 θα έχουν προτεραιότητα έναντι των απαγορεύσεων επί μικτής φορτώσεως των προβλεπομένων εις το Άρθρον 4 του Κεφαλαίου II.

## Κεφάλαιο Ι

ΓΕΝΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΙΣΧΥΟΥΣΕΣ ΓΙΑ ΤΗ ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝΔΥΝΩΝ ΥΛΩΝ  
ΟΛΩΝ ΤΩΝ ΚΛΑΣΕΩΝ

(βλέπε, εν τούτοις, περιθώριο ΙΟ 002)

Άρθρο ΙΓενικάΑντικείμενο του παρόντος Παραρτήματος

(1) Το Παράρτημα Α εξαιρεί από τις διατάξεις του παρόν- ΙΟΙ00  
τος Παραρτήματος μεταφορά εκτελεσθείσα δυνάμει των δρών  
(συσκευασίας, βάρους, κλπ.) που διαλαμβάνονται στα περι-  
θώρια 220Ια, 230Ια, 240Ια, 243Ια, 247Ια, 250Ια και 280Ια.

- (2) (α) Περιορισμένες ποσότητες επικινδύνων υλών μπορούν  
να μεταφέρονται σε κόλα χωρίς την εφαρμογή των  
διατάξεων του παρόντος Παραρτήματος που διέπουν:-
- τους τύπους οχημάτων (περιθώρια "... Ι04" των  
Κεφαλαίων Ι και ΙΙ, και περιθώρια ΙΙ Ι05 και  
ΙΙ Ι06 του Κεφαλαίου ΙΙ του αφορώντος τις κλά-  
σεις Ια, Ιβ και Ιγ)·
  - τα πληρώματα οχημάτων και την εποπτεία (περι-  
θώρια "... Ι7Ι" των Κεφαλαίων Ι και ΙΙ)·
  - τη μεταφορά επιβατών (περιθώριο ΙΟ Ι72)·
  - γραπτές οδηγίες (περιθώρια ΙΟ Ι8Ι(Ι)(β),  
ΙΟ Ι85 και 6Ι Ι85)·
  - το ειδικό πιστοποιητικό εγκρίσεως οχημάτων  
(περιθώρια ΙΟ Ι82 και ΙΙ Ι82)·
  - τους ειδικούς δρους που πρέπει να εκπληρούν τα

οχήματα και ο εξοπλισμός τους (και των 2 Άρθρων των Κεφαλαίων I και II), υπό την επιφύλαξιν, εν τούτοις, των διατάξεων του περιθωρίου 2I 2I2\* (Συνεχίζεται)

- τους τρόπους φορτώσεως και εκφορτώσεως (περιθώρια II 407, 2I 407 και 6I 407)\* και

- τη λειτουργία των οχημάτων (και τα 5 Άρθρα των Κεφαλαίων I και II), υπό την επιφύλαξιν, εν τούτοις, της συμμορφώσεως προς τις διατάξεις του περιθωρίου 6I 5I5.

(β) Οι υπό στοιχείον (α) απαριθμούμενες εξαιρέσεις θα ισχύουν για τη φόρτωση επί μιάς μονάδος μεταφοράς:

I.- μιάς ή περισσοτέρων των κατωτέρω επικινδύνων υλών, αδιακρίτως βάρους υπό τον όρον ότι δεν θα υπάρχουν άλλες επικίνδυνες ύλες της ADR στη μονάδα μεταφοράς:

Κλάση Ia - κενές συσκευασίες της 15<sup>ο</sup>

Κλάση Iγ - πυρελα ασφαλείας της 1<sup>ο</sup> (α)\*

Κλάση 3 - κενά δοχεία της 6<sup>ο</sup>.

Κλάση 4.1 - ύλες της 9<sup>ο</sup> και 10<sup>ο</sup>.

Κλάση 4.2 - κενές συσκευασίες της 14<sup>ο</sup> και 15<sup>ο</sup>.

Κλάση 4.3 - κενά δοχεία της 5<sup>ο</sup>.

Κλάση 5.1 - κενές συσκευασίες της 11<sup>ο</sup>.

Κλάση 5.2 - κενές συσκευασίες της 99<sup>ο</sup>.

Κλάση 6.1 - κενές συσκευασίες της 91<sup>ο</sup> και 92<sup>ο</sup>.

Κλάση 6.2 - είδη της 12<sup>ο</sup> και

Κλάση 8 - πρωτοθειούχο νάτριο της 36<sup>ο</sup> και κενά δοχεία της 51<sup>ο</sup>.

2.- μίας μόνον των κατωτέρω αναφερομένων επικινδύνων υλών, υπό τον όρον ότι το μικτόν βάρος όλων των κλάων των περιεχόντων την επικίνδυνον ύλην δεν υπερβαίνει το εικονιζόμενο βάρος και ότι δεν υπάρχουν άλλες επικίνδυνες ύλες της ADR στη μονάδα μεταφοράς:-

ΙΟ Ι00  
(Συνεχίζεται)

Κλάση Ιβ - είδη της 2<sup>ο</sup> (β) ή 4<sup>ο</sup>: 100 KG.

Κλάση Ιγ - θρυαλλίδες βραδείας-καύσεως της 3<sup>ο</sup>: 100 KG.

Κλάση 2 - χλωριούχο κυάνιο της 3<sup>ο</sup> (C T): 5 KG.  
φωσγένιο (χλωριούχο ανθρακύλιο) της 3<sup>ο</sup> (A T): 25 KG.

- φθόριο της 1<sup>ο</sup> (A T): 50 KG.

Κλάση 3 - αιθηλικός αιθήρ, διθειώδης άνθραξ της 1<sup>ο</sup> (α) ή μίγματα της 1<sup>ο</sup> (β) όπως κολλόδια και ημι-κολλόδια περιέχοντα αιθηλικόν αιθέρα: 3 KG.

- οξεική αλδεΐνη, ακετόνη ή μίγματα ακετόνης της 5<sup>ο</sup>: 75 KG.

Κλάση 4.1 - θελο της 2<sup>ο</sup> (α), ναφθαλίνη της 11<sup>ο</sup> (β): 250 KG.

Κλάση 4.3 - ανθρακασβέστιο της 2<sup>ο</sup> (α), πυριτούχο ασβέστιο της 2<sup>ο</sup> (δ) ή πυριτούχο μαγνηλιούχο ασβέστιο της 2<sup>ο</sup> (δ): 1000 KG.

Κλάση 5.2 - ύλες των 45<sup>ο</sup>, 46<sup>ο</sup> (α), 47<sup>ο</sup> (α) και (β) συσκευασμένες σύμφωνα με τις διατάξεις του περιθωρίου 2559: 2 KG μη

- συμπεριλαμβανομένου του βάρους του, τυχόν, συστήματος ψύξεως. 10 100  
(Συνεχίζεται)
- Κλάση 5.2 - ύλες των 1<sup>ο</sup> έως 22<sup>ο</sup>, 30<sup>ο</sup> και 31<sup>ο</sup>  
(Συνεχίζεται) συσκευασμένες σύμφωνα με τις διατάξεις του περιθωρίου 2561: 5 KG. και  
- ύλες των 1<sup>ο</sup> έως 22<sup>ο</sup>, 30<sup>ο</sup>, 31<sup>ο</sup> και 40<sup>ο</sup> συσκευασμένες σύμφωνα με τις διατάξεις των περιθωρίων 2553 έως 2556 και 2558: 10 KG.
- Κλάση 6.1 - ύλες των 41<sup>ο</sup>, 61<sup>ο</sup> και 62<sup>ο</sup>, 71<sup>ο</sup> έως 75<sup>ο</sup>, 83<sup>ο</sup> και 84<sup>ο</sup>: 100 KG.
- Κλάση 8 - ύλες των 6<sup>ο</sup> (α), 7<sup>ο</sup>, 9<sup>ο</sup>, 11<sup>ο</sup>, 12<sup>ο</sup>, 14<sup>ο</sup>, 15<sup>ο</sup>, 22<sup>ο</sup>, 23<sup>ο</sup>, 34<sup>ο</sup> και 35<sup>ο</sup>: 10 KG.

3.- μίας ή περισσότερων των κατωτέρω αναφερομένων επικινδύνων υλών της ίδιας Κλάσεως, υπό τον όρον ότι το ολικόν μικτόν βάρος όλων των κδλων των περιεχόντων ~~επικινδύνων~~ επικινδύνων ύλην δεν υπερβαίνει το καθορισθέν βάρος:

- Κλάση Ia - οιαδήποτε επικινδύνων ύλη της Κλάσεως πλην των ανωτέρω υπό στοιχείον (1) αναφερομένων: 5 KG.
- Κλάση Ib - οιαδήποτε είδος της Κλάσεως πλην των ανωτέρω υπό στοιχείον (2) αναφερομένων: 10 KG.
- Κλάση Ic - οιαδήποτε επικινδύνων ύλη της Κλάσεως πλην των ανωτέρω υπό στοιχείον (1) και (2) αναφερομένων: 15 KG.

- Κλάση 2 - οιαδήποτε επικίνδυνος ύλη της Κλάσεως πλην των ανωτέρω υπό στοιχείον (I) και (2) αναφερομένων: 300 KG. IO IOO (Συνεχίζεται)
- Κλάση 3 - οιαδήποτε ύλη της Κλάσεως πλην των ανωτέρω υπό στοιχείον (I) και (2) αναφερομένων: 250 KG.
- Κλάση 4.1- οιαδήποτε ύλη της Κλάσεως πλην των ανωτέρω υπό στοιχείον (I) και (2) αναφερομένων: 50 KG.
- Κλάση 4.2 - ύλες της Κλάσεως πλην των υλών των 1<sup>ο</sup>, 2<sup>ο</sup>, 3<sup>ο</sup> και 4<sup>ο</sup> και των κενών συσκευασιών των ανωτέρω υπό στοιχείον (I) αναφερομένων: 250 KG.
- Κλάση 4.3 - οιαδήποτε ύλη της Κλάσεως πλην των ανωτέρω υπό στοιχείον (I) και (2) αναφερομένων: 10 KG.
- Κλάση 6.1 - οιαδήποτε ύλη της Κλάσεως πλην των ανωτέρω υπό στοιχείον (I) και (2) αναφερομένων: 5 KG.
- Κλάση 6.2 - οιαδήποτε ύλη της Κλάσεως πλην των ανωτέρω υπό στοιχείον (I) αναφερομένων: 300 KG, και
- Κλάση 8 - οιαδήποτε ύλη της Κλάσεως πλην των ανωτέρω υπό στοιχείον (I) και (2) αναφερομένων: 250 KG.

(3) Εις εφαρμογήν της ανωτέρω παραγράφου (2), τα βάρη των υγρών ή αερίων των μεταφερομένων εις τας συνήθεις δεξα-

μενός οχημάτων (βυτιοφόρα) διά την κίνηση των οχημάτων 10 100  
 ή την λειτουργία του ειδικού εξοπλισμού αυτών (π.χ. (Συνεχί-  
 ψυκτικού εξοπλισμού) και προς εξασφάλιση της ασφαλείας ζεται)  
 αυτών δεν θα λαμβάνονται υπόψη.

(4) Οι ~~μόνες~~ διατάξεις του Κεφαλαίου I του παρόντος Παραρτήματος που ισχύουν δια την μεταφοράν των επικινδύνων υλών της Κλάσεως 6.2 θα είναι αι διατάξεις του Κεφαλαίου II που αναφέρονται εις την Κλάση αυτήν και αι διατάξεις των περιθωρίων του παρόντος Κεφαλαίου I αι οποίαι ρητώς ισχύουν δυνάμει των ~~πραιναιγερόμενων~~ διατάξεων του Κεφαλαίου II.

(5) Ανακλήσεις των διατάξεων του παρόντος Παραρτήματος μπορούν να γίνονται στην περίπτωση επείγουσας μεταφοράς προς διάσωση ανθρώπινης ζωής.

10 101

### Ορισμοί

10 102

(I) Δια την εφαρμογήν του παρόντος Παραρτήματος:-

- δια του όρου "αρμοδία αρχή" νοείται η αρχή η ορισθείσα ως τοιαύτη εις εκάστην χώραν και δι' εκάστην ειδικήν περίπτωσιν, υπό της Κυβερνήσεως·
- δια του όρου "εύθραυστον κέλον" νοείται κέλον περιέχον εύθραυστον δοχείον (π.χ. δοχείον κατασκευασθέν εξ υάλου, πορσελάνης, λίθου ή παρεμφερών υλών) το οποίον δεν έχει εγκλεισθεί εις συσκευασίαν με πλήρεις πλευρές/που (πλαίνα) να το προστατεύουν κατά της προσκρούσεως (δονήσεως).

(βλέπε επίσης Παράρτημα Α, περιθώριο 2001(5)).

- δια του όρου "αέριον" νοείται αέριον ή ατμός·
- δια του όρου "επικινδυνές ύλες", όταν χρησιμοποιούνται



- μόνες, νοούνται οι ύλες και τα είδη που ορίζονται ως ύλες και είδη της ADR.\*
- IO IO2  
(Συνεχίζεται)
- δια του όρου "RID" νοούνται οι Διεθνείς Κανονισμοί οι διέποντες την Μεταφοράν Επικινδύνων Εμπορευμάτων Σιδηροδρομικώς (Παράρτημα I της Διεθνούς Συνθήκης της διέπωσης την Μεταφοράν Εμπορευμάτων Σιδηροδρομικώς (CIM)).\*
  - δια του όρου "μεταφορά εις χύμα" νοείται η μεταφορά στερεάς ύλης χωρίς συσκευασίαν.\*
  - δια του όρου "CONTAINER" νοείται αντικείμενον εξοπλισμού μεταφοράς (φορτηγό με ανυψωτήρα, λυόμενη δεξαμενή-βυτίο, ή άλλο παρόμοιο κατασκευάσμα)
    - μονίμου χαρακτήρος και κατά συνέπεια αρκετά ισχυρό (γερό) για να είναι κατάλληλο για επανειλημμένη χρήση.\*
    - ειδικά προορισμένου να διευκολύνει τη μεταφορά εμπορευμάτων, δι' ενός ή περισσοτέρων μέσων μεταφοράς, άνευ θραύσεως του φορτίου.\*
    - εφοδιασμένου με μηχανισμούς επιτρέποντας τον ευχερή χειρισμόν του, ειδικώτερα εάν γίνει μεταφόρτωσις από ένα μέσο μεταφοράς σε άλλο.\*
    - έτσι σχεδιασμένου ώστε να είναι εύκολο το γέμισμα και άδειασμα, και έχον εσωτερικόν όγκον όχι μικρότερον του ενός κυβικού μέτρου.\*
  - ο όρος "CONTAINER" δεν καλύπτει συμβατικές συσκευασίες, ή οχήματα, ή TANK CONTAINERS (δεξαμενό-CONTAINERS)\*
  - δια του όρου "μεγάλο CONTAINER" νοείται CONTAINER έχον εσωτερικόν όγκον όχι μικρότερον του I κυβικού μέτρου και όχι άνω των 3 κυβικών μέτρων.\*

- δια του όρου "μικρό CONTAINER" νοείται CONTAINER έχον ΙΟ ΙΟ2 εσωτερικόν όγκον όχι μικρότερον του Ι κυβικου μέτρου (Συνεχίζεται) και όχι μεγαλύτερον των 3 κυβικών μέτρων.
- δια του όρου "δεξαμενο-CONTAINER" νοείται αντικείμενον εξοπλισμού μεταφοράς συμμορφούμενον προς τον ορισμόν του όρου "CONTAINER" τον διδόμενον ανωτέρω και κατασκευασμένον να περιέχει υγρές, αερίώδεις, σχήματος κδικου ή κδνεως ύλες αλλά έχον χωρητικότητα όχι μεγαλύτερα των 0.45 κυβικών μέτρων.
  - δια του όρου "συστοιχία δοχείων" νοείται συγκρότημα αποτελούμενον από πολλά δοχεία "καλούμενα "στοιχεία") των οποίων η ατομική ή η μέση χωρητικότητα είναι άνω των Ι50 λιτρών και τα οποια αλληλοσυνδέονται δια σωληνώσεως και είναι μονίμως συναρμολογημένα επί πλαισίου (δια πλαίσια κυλίνδρων αερίου, βλέπε Παράρτημα Α, περίθωριο 22Ι2(Ι)(δ)).
  - δια του όρου "κωομένη δεξαμενή" νοείται δεξαμενή, πλην της σταθεράς δεξαμενής, πλην της δεξαμενο-CONTAINER ή της συστοιχίας δοχείων, η οποια έχει χωρητικότητα άνω των Ι.000 λιτρών, δεν προορίζεται δια την μεταφοράν εμπορευμάτων άνευ θραύσεως του φορτίου, και κανονικά δεν μπορεί να χειρισθεί (χρησιμοποιηθεί) ειμή όταν είναι άδεια.
  - δια του όρου "Σταθερά δεξαμενή" νοείται δεξαμενή (βυτίο) το όπολον είναι ει κατασκευής συνδεδεμένο με το όχημα (όποτε γίνεται βυτίοφόρο) ή είναι αναπόσπαστο τμήμα του πλαισίου του τοιαύτου οχήματος.
  - δια του όρου "δεξαμενή", όταν χρησιμοποιείται μόνη, νοείται δεξαμενο-CONTAINER ή δεξαμενή χωρητικότητας υπερβαί-

νουσας το  $\Gamma\mu^3$  η οποια μπορεί να είναι σταθερά δεξαμε- IO IO2  
νή, λυομένη δεξαμενή ή συστοιχεία δοχείων. (Βλέπε, (Συνεχί-  
εν τούτοις, περιορισμόν της εννοίας της λέξεως ζεται)  
"δεξαμενή" εις τας διατάξεις τας κοινάς των Προσθηκών  
B.I, περιθωρίου 200 000 (2)).

- δια' του όρου "μονάς μεταφοράς" νοείται αυτοκίνητον χω-  
ρίς συνδεδεμένο ρυμουλκούμενο όχημα (τρέιλερ), ή συν-  
δυασμός αποτελούμενος εξ αυτοκινήτου και συνδεδεμένου  
ρυμουλκούμενου οχήματος (τρέιλερ).
- δια του όρου "κλειστό όχημα" νοείται όχημα έχον αμάξιμα  
ικανό να κλεισθεί.
- δια του όρου "ανοικτό όχημα" νοείται όχημα η πλατφόρμα  
του οποίου δεν έχει υπερκατασκευάσμα (χαβαλέ) ή είναι  
απλώς εφοδιασμένο με πλαϊνά και οπισθια σανίδα.
- δια του όρου "σκεπασμένο όχημα" νοείται ανοικτό όχημα  
εφοδιασμένο με σκέπασμα για να προστατεύεται το φορτίο.
- δια του όρου "βυτιοφόρο" νοείται όχημα κατασκευασμένο  
για να μεταφέρει υγρά, αέρια, ή ύλες σχήματος κδικου  
ή κόνισης και αποτελούμενο από μια ή περισσότερες στα-  
θερές δεξαμενές.
- δια του όρου "συστοιχία-όχημα" νοείται βυτιοφόρο αποτε-  
λούμενο από σταθερές δεξαμενές (καλούμενες "στοιχεία")  
αλληλοσυνδεδεμένες δια σωληνώσεως.

(2) Δια την εφαρμογήν του παρόντος Παραρτήματος, οι  
δεξαμεναί (βλέπε ορισμόν υπό στοιχείον (I) ανωτέρω) δεν το-  
ποθετούνται στην ίδια βάση με τα δοχεία (υποδοχείς), του  
όρου "δοχείον, υποδοχείς" χρησιμοποιουμένου εν περιοριστική

**Εννοία.** Οι διατάξεις που αφορούν τα δοχεία (υποδοχεία) ΙΟ ΙΟ2  
 ισχύουν δια σταθερές δεξαμενές, συστοιχίες δοχείων, (Συνεχίζεται)  
 λυόμενες δεξαμενές και δεξαμενο-CONTAINERS μόνον εάν  
 τούτο ρητώς συνομολογείται.

(3) Δια του όρου "πλήρες φορτίο" νοείται οιοδήποτε φορτίο προερχόμενο από έναν αποστολέα, δια το οποίο η χρήση οχήματος ή μεγάλου CONTAINER φυλάσσεται αποκλειστικώς και όλες οι εργασίες φορτώσεως και εκφορτώσεως οι οποίες εκτελούνται συμφώνως προς τας οδηγίες του αποστολέως ή παραλήπτου (βλέπε περιθώριο ΙΟ ΙΟ8).

(4) Εκτός εάν ρητώς αναφέρεται άλλως, το σύμβολον "°/ο" ή ο λόγος "έως εκατόν" εις το παρόν Παράρτημα αντιπροσωπεύουν:-

(α) προκειμένου περί μιγμάτων στερεών ή υγρών, ως και προκειμένου περί διαλυμάτων και στερεών μουσκεμένων με υγρόν: ποσοστόν βάρους βασιζόμενον επί του ολικού βάρους του μίγματος, του διαλύματος ή του υγροποιηθέντος στερεού.

(β) προκειμένου περί αεριωδών μιγμάτων: ποσοστόν όγκου βασιζόμενον επί του ολικού όγκου του αεριωδούς μίγματος.

(5) Άπαντα τα βάρη τα αναφερόμενα δια κόλα του παρόντος Παραρτήματος είναι, εκτός εάν άλλως ορίζονται, μικτά βάρη. Το βάρος CONTAINERS ή δεξαμενών χρησιμοποιουμένων δια την μεταφοράν εμπορευμάτων δεν συμπεριλαμβάνεται εις το μικτόν βάρος.

(6) Πιέσεις όλων των ειδών αφορῶσαι τα δοχεία (όπως

πίεσης δοκιμής, εσωτερική πίεση, πίεση ανοίγματος βαλβίδος-ασφαλείας) σημειούνται πάντοτε εις  $\text{KG}/\text{CM}^2$  (Συνεχίζεται)

δεικτού πίεσεως (πίεσις πέραν της ατμοσφαιρικής πίεσεως)· εν τούτοις, η πίεση ατμού των υλών εκφράζεται πάντοτε εις  $\text{KG}/\text{CM}^2$  απολύτου πίεσεως.

(7) Οσάκις το Παράρτημα τούτο καθορίζει βαθμόν πληρώσεως δοχείων ή δεξαμενών, ο βαθμός αυτός πληρώσεως αναφέρεται εις θερμοκρασίαν των υλών  $15^{\circ}\text{C}$  εκτός εάν κάποια άλλη θερμοκρασία σημειούται.

IO IO3

### Τύποι οχημάτων

IO IO4

(1) Μονάς μεταφοράς φορτωμένη με επικινδύνες ύλες **δε καμιά περίπτωση** μπορεί να συμπεριλάβει περισσότερα του ενός τρέιλερ ή ημι-τρέιλερ.

(2) Ειδικές διατάξεις αφορώσας τους τύπους οχημάτων που πρόκειται να χρησιμοποιηθούν δια την μεταφοράν συγκεκριμένων επικινδύνων υλών θα ευρεθούν, όπου ενδεικνύται, εις το Κεφάλαιον II του παρόντος Παραρτήματος (βλέπε επίσης τα περιθώρια τα διέποντα την μεταφοράν εντός CONTAINERS, την μεταφοράν στερεών υλών εις χύμα, την μεταφοράν εντός δεξαμενών, και τας δεξαμενές).

(3) Κόβλα αποτελούμενα εκ συσκευασιών γενομένων από υλικά ευαίσθητα εις την υγρασίαν θα φορτώνονται εις κλειστά ή σκεπασμένα οχήματα.

IO IO5-

IO IO7

Πλήρες φορτίο

IO IO8

Όσakis εφαρμόζονται αι διατάξεις αι διέπουσες μεταφοράν "πλήρους φορτίου", αι αρμόδιες αρχές μπορούν να απαιτήσουν όπως το όχημα ή το μεγάλο CONTAINER το χρησιμοποιούμενο δια την τοιαύτην μεταφοράν φορτωθεί μόνον ~~αι~~ ένα σημελον και εκφορτωθεί μόνον ~~εις~~ ένα σημελον.

IO IO9-

IO IIO

Μεταφορά εις χύμα

IO III

(I). Στερεές επικλινδυνες ύλες δεν μπορούν να μεταφερθούν εις χύμα εκτός εάν ο τρόπος αυτός της μεταφοράς επιτρέπεται για τις ~~κωδικοποιημένες~~ ύλες εκ των διατάξεων του Κεφαλαίου II του παρόντος Παραρτήματος, και τότε μόνον συμφώνως προς τούς όρους των διατάξεων αυτών. Παρ'όλον τούτο, κενές συσκευασίες, ακαθάριστες, μπορούν να μεταφερθούν εις χύμα εάν ο τρόπος αυτός δεν απαγορεύεται ρητώς εκ των διατάξεων του Παραρτήματος A, Μέρος II.

(2) Δια μεταφοράν εις χύμα εντός CONTAINERS, βλέπε περιθώριον IO IIB(2) και (5).

IO II2-

IO II7

Μεταφορά εντός CONTAINERS

IO IIB

Σημείωση:- ~~Αι~~ διατάξεις που διέπουν την μεταφοράν εντός δεξαμενο-CONTAINERS ευρίσκονται εις τα περιθώρια τα τιτλοφορούμενα "Μεταφορά εντός δεξαμενών".

(I) Η μεταφορά κόλων εντός CONTAINERS εγκρίνεται.

(2) Οι ύλες δεν μπορούν να μεταφέρονται εις χύμα IO II8 εντός CONTAINERS εκτός εάν η μεταφορά εις χύμα ρητώς επι- (Συνεχι-  
τρέπεται (βλέπε περιθώριο IO III)\* μικρά CONTAINERS πρέπει ζεται)  
να είναι του κλειστού τύπου και να έχουν πλήρη τοιχώματα.

(3) Τα μεγάλα CONTAINERS πρέπει να πληρούν τους ό-  
ρους τους διέποντας το αμάξιμα του οχήματος οι οποίοι δια-  
λαμβάνονται εις το παρόν Παράρτημα για το φορτίο σύν προδικείται  
το αμάξιμα του οχήματος δεν χρειάζεται τότε να πλη-  
ροί τις διατάξεις αυτές.

(4) Υπό την επιφύλαξη των διατάξεων της τελευταίας  
φράσεως της (3) ανωτέρω, το γεγονός ότι επικινδύνες ύλες  
εγκλείονται εις ένα ή περισσότερα CONTAINERS δεν θα επηρεά-  
ζει τους όρους που απαιτούνται να πληροί το όχημα λόγω της  
φύσεως και των μεταφερομένων ποσοτήτων των επικινδύνων υλών.

(5) Εάν οι επικινδύνες ύλες οι μεταφερόμεναι εντός  
CONTAINER είναι τέτοιες ώστε, συμφώνως προς το Παράρτημα A,  
μία ή περισσότερες ετικέτες κινδύνου απαιτούνται να τεθούν  
εις τα περιέχοντα αυτά κόλα, η ίδια ετικέτα ή ετικέτες θα  
τίθενται εις το εξωτερικόν του CONTAINER του περιέχοντος τις  
ύλες αυτές σε κόλα ή χύμα. Εν τούτοις, η ετικέτα No.8 δεν  
χρειάζεται να τεθεί εάν το CONTAINER διαθέτει μηχανισμόν ή  
επιγραφήν εικονίζουσαν σαφώς κατά ποσον τρόπον πρέπει να τη-  
ρείται όρθιον.

IO II9-

IO I20

Μεταφορά εντός δεξαμενών

IO I2I

(I) Οι επικινδύνες ύλες μπορούν να μεταφέρονται

εντός δεξαμενών μόνον εάν ο τρόπος αυτός της μεταφοράς επιτρέπεται ρητώς για τις ύλες αυτές εκ των διατάξεων του Κεφαλαίου ΙΙ του παρόντος Παραρτήματος· η μεταφορά πρέπει τότε να συμμορφούται προς τις διατάξεις του παρόντος Παραρτήματος. Δεξαμενές από ενισχυμένη πλαστική ύλη μπορούν να χρησιμοποιούνται μόνον εάν η χρήση των ρητώς επιτρέπεται εν Κεφαλαίω ΙΙ. Η θερμοκρασία της μεταφερομένης ύλης δεν θα υπερβαίνει τους 50° C κατά τον χρόνο της πλήρωσεως. Βλέπε περιθώριο ΙΟ 500 για το μαρκάρισμα και τις ετικέτες των οχημάτων.

ΙΟ Ι21  
(Συνεχίζεται)

(2) Εάν οι ύλες οι μεταφερόμενες εντός λυομένης δεξαμενής, συστοιχίας δοχείων ή δεξαμενο-CONTAINER είναι τέτοιες ώστε, συμφώνως προς το Παράρτημα Α, μία ή περισσότερες ετικέτες κινδύνου απαιτούνται να τεθούν εις τα περιέχοντα αυτάς κόλα, η ίδια ετικέτα ή ετικέτες θα τίθενται εις το εξωτερικόν της λυομένης δεξαμενής, συστοιχίας δοχείων ή δεξαμενο-CONTAINER. Εν τούτοις, η ετικέτα Νο.8 δεν χρειάζεται να τεθεί εάν η δεξαμενή διαθέτει μηχανισμόν ή επιγραφήν εικονίζουσαν σαφώς τον τρόπον με τον οποίον πρέπει να τηρείται ορθά.

ΙΟ Ι22-

ΙΟ Ι26

### Δεξαμενές

ΙΟ Ι27

(I) Αι διατάξεις αι διέπουσες το σχέδιον, επιθεώρηση, πλήρωση και χρήση σταθερών δεξαμενών, λυομένων δεξαμενών και συστοιχιών δοχείων, και διάφοροι διατάξεις διέπουσες τα βυτιοφόρα και την χρήση των, ευρίσκονται εις την Προσθήκην Β.Ια και, όσον αφορά το σχέδιον των σταθερών δε-



ξφρενών, λυομένων δεξαμενών και συστοιχιών δοχείων των προοριζομένων δια την μεταφοράν κατεψυγμένων υγροποιημένων αερίων της Κλάσεως 2, ευρίσκονται εις την Προσθήκην Β.Ιδ (για την έγκρισιν δεξαμενο-οχημάτων (βυτιοφόρων), βλέπε περιθώριον ΙΟ Ι82)).

ΙΟ Ι27  
(Συνεχίζεται)

(2) Αι διατάξεις αι διέπουσες την κατασκευήν, ελδή εξοπλισμού, έγκρισιν του τύπου, δοκιμάς, μαρκάρισμα, κλπ. δεξαμενο-CONTAINERS ευρίσκονται εις την Προσθήκην Β.Ιβ και, όσον αφορά την κατασκευήν δεξαμενο-CONTAINERS προοριζομένων δια την μεταφοράν βαθειά-κατεψυγμένων υγροποιημένων αερίων της Κλάσεως 2, ευρίσκονται εις την Προσθήκην Β.Ιδ.

(3) Αι διατάξεις οι διέπουσες την κατασκευήν σταθερών δεξαμενών και λυομένων δεξαμενών δι' ενισχυμένης πλαστικής ύλης ευρίσκονται εις την Προσθήκην Β.Ιγ.

(4) Αι κοινές των Προσθηκών Β.Ι διατάξεις ευρίσκονται εις περιθώριον 200 000.

(5) Δια τα δοχεία (υποδοχείς), βλέπε Παράρτημα Α.

ΙΟ Ι28-

ΙΟ Ι70

Πληρώματα οχημάτων: Εποπτεία

ΙΟ Ι7Ι

(Ι) Οσάκις αι διατάξεις του παρόντος Παραρτήματος αι διέπουσες ειδικά εμπορεύματα απαιτούν όπως ο οδηγός συνοδεύεται από βοηθό, ο βοηθός θα πρέπει να είναι ικανός να αντικαταστήσει τον οδηγόν.

(2) Α) διατάξεις του παρόντος περιθωριου οι διέπουσες την εποπτεϊαν (επίβλεψιν) διαρκούντος του χρόνου που το όχημα είναι σταθμευμένο (παρκαρισμένο) έχουν εφαρμογήν

πρινον ~~θα~~ επικίνδυνες ύλες μεταφερόμενες εις ποσότητες 10 171  
 άνω των εξαιρουμένων ορίων. (Συνεχί-  
 ζεται)

Μονάδες μεταφοράς μεταφέρουσ~~αι~~ επικίνδυνα εμπο-  
 ρεύματα δια τα οποία το εξαιρούμενον όριον είναι μικρότε-  
 ρον των 1.000 KG θα εποπτεύονται κατά πάντα χρόνον προς  
 αποφυγήν οιασδήποτε κακόβουλή~~ς~~ πράξεως και τηρούν ~~σε~~ επι-  
 φυλακή τον οδηγόν και τις αρμόδιες αρχές ~~σε~~ περίπτώσει ζη-  
 μιών ή πυρκαϊάς.

Μονάδες μεταφοράς μεταφέρουσ~~αι~~ επικίνδυνα εμπο-  
 ρεύματα ~~για~~ τα οποία το εξαιρούμενον όριον είναι 1.000 KG  
 και άνω είτε θα εποπτεύονται είτε εναλλακτικώς θα σταθμεύουν,  
 άνευ εποπτείας εις μεμονωμένην θέσιν εις το ύπαιθρον εις  
 ασφαλές ντεπώ ή ασφαλές εγκαταστάσεις του εργοστασίου. Εάν  
 τ~~ε~~ι~~α~~σ~~τ~~ες εγκαταστάσεις δεν διατίθενται, η μονάδα μεταφοράς,  
 αφού εξασφαλισθεί κανονικώς, μπορεί να σταθμεύει εις μεμο-  
 νωμένην θέση~~η~~ πληρούσαν τους όρους των κατωτέρω παραγράφων  
 (I), (II) ή (III). Οι εγκαταστάσεις σταθμεύσεως ~~αι~~ επιτρε-  
 πόμε~~ν~~εις εις παράγραφον (II) θα χρησιμοποιούνται μόνον εάν  
~~αι~~ περιγραφόμε~~ν~~εις εις παράγραφον (I) δεν διατίθενται, και  
~~αι~~ περιγραφόμε~~ν~~εις εις παράγραφον (III) δύνανται να χρησι-  
 μοποιηθού~~ν~~ μόνον εάν ~~αι~~ εγκαταστάσεις ~~αι~~ περιγραφόμε~~ν~~εις εις  
 τ~~α~~ς παραγράφους (I) και (II) δεν διατίθενται.

(I) Χώρος σταθμεύσεως οχημάτων επιβλεπόμενος υπό προ-  
 σώπου εις το οποίον έχει γίνει γνωστή η φύσις του  
 φορτίου και που ευρίσκεται ο οδηγός.

(II) Δημόσιος ή ιδιωτικός χώρος σταθμεύσεως οχημάτων  
 όπου η μονάς μεταφοράς δεν πρόκειται να υποστεί

- ζημίας από άλλα οχήματα, ή
- (III) Κατάλληλος υπαίθριος χώρος διαχωρισμένος από την δημοσίαν εθνικήν οδόν και οικισμόν, ~~όταν~~ το κοινόδον κανονικώς δεν διέρχεται ή συγκεντρύεται.

IO I71  
(Συνεχίζε-  
ται)

Μεταφορά επιβατών

IO I72

Επιβάτες μη-μέλη του πληρώματος του οχήματος δεν θα μεταφέρονται δια μονάδων μεταφοράς μεταφερούσων επικινδύνες ύλες.

IO I73-

IO I80

Έγγραφα μεταφοράς

IO I81

(I) Επιπροσθέτως των εγγράφων των προβλεπομένων δυνάμει ετέρων διατάξεων, τα ~~κείμενα~~ έγγραφα θα μεταφέρονται επί της μονάδας μεταφοράς:

- (α) τα έγγραφα μεταφοράς τα προβλεπόμενα εν Παραρτήματι Α, περιθώριον 2002(3) και (4), τα καλύπτοντα όλων των μεταφερομένων επικινδύνων εμπορευμάτων\* και
- (β) οδηγίες, ως προβλέπονται εν περιθώριω IO I85, αφορώσας όλες τας μεταφερόμενες επικινδύνες ύλες.

(2) Οσάντις οι διατάξεις του παρόντος Παραρτήματος απαιτούν την σύνταξιν των ~~παραπάνω~~ εγγράφων, τα ~~αναφερόμενα~~ έγγραφα θα μεταφέρονται ομοίως επί της μονάδας μεταφοράς:-

- (α) το ειδικό πιστοποιητικό εγκρίσεως το αναφερόμενο εις το περιθώριο IO I82, ~~φιλικά~~ οχημα\* και
- (β) την άδεια την εξουσιοδοτούσα την επιχείρησιν της μεταφοράς.

Εγκρίσεις οχημάτων

IO 182

(1) Βυτιοφόρα και, και οσάνκις τούτο αιτείται εκ των διατάξεων του Κεφαλαίου II του παρόντος Παραρτήματος, ~~έχρα~~ οχήματα, θα υποβάλλονται εις τεχνικήν επιθεώρησιν εις την χώραν της εγγραφής των ~~για~~ να εξασφαλίζεται το γεγονός ότι συμμορφούνται προς τας διατάξεις του παρόντος Παραρτήματος, συμπεριλαμβανομένων των Προσθηκών αυτού και των πενικών περι ασφαλείας κανονισμών (συμπεριλαμβανομένων των φρένων, φωτισμού κλπ.) των ισχυόντων εις την χώραν της προελεύσεώς των· εάν τα οχήματα αυτά είναι ρυμουλκούμενα (τρέϊλερς) ή ημι-ρυμουλκούμενα (SEMI-TRAILERS) τα οποία ζευγνύονται όπισθεν σύροντος αυτά οχήματος, το σύρον όχημα θα υποβάλλεται ~~σε~~ επιθεώρησιν ~~για~~ τους αυτούς σκοπούς.

(2) Ειδικόν πιστοποιητικόν εγκρίσεως θα εκδίδεται υπό της αρμοδίας αρχής της χώρας της εγγραφής δι' έναστον όχημα η επιθεώρησιν του οποίου παρέχει ικανοποιητικá αποτελέσματα. Τούτο θα συντάσσεται εις την γλώσσα ή εις μίαν των γλωσσών της εκδίδούσης τούτο χώρας, και επίσης, εάν η γλώσσα αυτή δεν είναι η Αγγλική, ή η Γαλλική, ή η Γερμανική, εις την Αγγλικήν, Γαλλικήν ή Γερμανικήν, εκτός εάν συμβάσεις συναφθείσαι μεταξύ των ~~χωρών για τις οποίες πρόκειται~~ και αφορώσαι επιχειρήσεις μεταφοράς προβλέπουν άλλως. Τούτο θα συμμορφούται προς το μοντέλλο το εικονιζόμενον εις την Προσθήκην Β.3.

(3) Ειδικόν πιστοποιητικόν εγκρίσεως εκδιδόμενον υπό των αρμοδίων αρχών ενός Συμβαλλομένου Μέρους ~~για~~ όχημα εγγεγραμμένον εις την επικράτειαν του Συμβαλλομένου τούτου Μέρους θα γίνεται δεκτόν, εφ' όσον εξακολουθεί η ισχύς του, υπό των

αρμοδίων αρχών των ετέρων Συμβαλλομένων Μερών.

IO 182

(4) Η ισχύς των ειδικών πιστοποιητικών εγκρίσεως (Συνεχιζόμε-  
ται), θα εκπνέει όχι βραδύτερον του ενός έτους από της ημερο-  
μηνίας της τεχνικής επιθεωρήσεως του οχήματος που προηγεί-  
ται της εκδόσεως του πιστοποιητικού. Εν τούτοις, προκειμέ-  
νου περί δεξαμενών που υποβάλλονται εις αναγκαστικήν πε-  
ριοδικήν επιθεώρησιν η παρούσα διάταξις δεν θα απαιτεί αι-  
δοκιμές στεγανότητας, υδραυλικής πιέσεως ή αι εσωτερικάς  
επιθεωρήσεις των δεξαμενών (βυτίων) να διεξάγονται σε χρο-  
νικά διαστήματα βραχύτερα των αναφερομένων εις την Προσθή-  
κην Β.Ια και Β.Ιγ.

IO 183-

IO 184

#### Γραπτές οδηγίες

IO 185

(I) Ως μέτρον προφυλάξεως κατά οιοδήποτε ατυχήματος ή καταστάσεως επειγουσής ανάγκης που ενδέχεται να συμβούν διαρκούσης της μεταφοράς, θα δίδονται εις τον οδηγόν γραπτές οδηγίες καθορίζουσαι:-

- (α) την φύσιν του κινδύνου του ενυπάρχοντος όβταε  
υπό μεταφοράν επικίνδυνας ύλες, και τα μέτρα ασφαλείας τα οποία πρέπει να ληφθούν προς αποτροπήν αυτού·
- (β) τα μέτρα που πρέπει να ληφθούν και την θεραπείαν για πρόσωπα που ήλθον εις επαφήν με τα μεταφερόμενα εμπορεύματα ή με οιοσδήποτε ύλες που ενδέχεται να διέφυγαν από αυτά·
- (γ) τα μέτρα που πρέπει να ληφθούν εις την περίπτωσιν

πυρκαϊάς και, ειδικώτερον, τον πυροσβεστικόν πυροσβεστικόν ΙΟ 185  
εξοπλισμόν ή τον εξοπλισμού ο οποίος δεν θα (Συνεχί-  
πρέπει να χρησιμοποιηθεί. ζεται)

(δ) τα μέτρα που πρέπει να ληφθούν ~~σε~~ περίπτωση  
θραύσεως ή φθοράς συσκευασιών ή των μεταφερο-  
μένων επικινδύνων υλών, ειδικώτερον όσακίς  
~~τέτοιαις~~ επικινδύνες ύλες έχουν χυθεί εις τόν  
δρόμον.

(2) Αι οδηγίες αυτές θα πρέπει να ετοιμάζονται/βρί- (συντάσσονται)  
σκιάζονται επικινδύνων ύλην ή Κλάση επικινδύνων υλών υπό του  
κατασκευαστού ή του αποστολέα, ~~σε~~ γλώσσαν της χώρας της  
προελεύσεως· όσακίς η γλώσσα αυτή δεν είναι η ίδια με την  
γλώσσα των χωρών τράζιτε ή προορισμού, αι οδηγίες θα πρέπει  
να συντάσσονται επίσης ενόστην γλώσσα των χωρών αυτών.  
Μία σειρά των οδηγιών αυτών θα πρέπει να τηρείται ενόστην  
θέσην του οδηγού.

(3) Αι οδηγίες αυτές θα δίδονται εις τον μεταφορέα  
το βραδύτερον όταν η εντολή μεταφοράς δοθελ, ώστε να δθ-  
νεται ~~αυτός~~ να λάβει άπαντα τα απαραίτητα μέτρα και εξα-  
σφαλισθελ ότι οι περιών πρόκειται υπάλληλοι έχουν λάβει  
γνώσην των οδηγιών αυτών και είναι ικανοί να εκτελέσουν  
αυτές αποδοτικώς.

ΙΟ 186-

ΙΟ 199

Άρθρο 2

Ειδικοί όροι τους οποίους πρέπει να πληρούν τα οχήματα και  
ο εξοπλισμός τους

IO 200-

IO 205

Οπισθία προστασία οχημάτων μεταφερόντων σταθερές δεξαμενές  
(βυτία), λυόμενες δεξαμενές ή συστοιχίες δοχείων

IO 216

Προφυλακτήρας επαρκώς ανθεκτικός σε οπίσθιες προσ-  
κρούσεις θα εφαρμόζεται καθ' όσον το πλάτος της δεξαμενής  
(βυτίου) εις το πίσω μέρος του οχήματος. Θα πρέπει να υπάρ-  
χει διάκενο τουλάχιστον 100 MM (χιλιοστών) μεταξύ του οπί-  
σθιου τοιχώματος της δεξαμενής (βυτίου) και του πίσω μέρους  
του προφυλακτήρα, το διάκενο τούτο θα μετράται εκ του ακραί-  
ου οπίσθιου σημείου του τοιχώματος της δεξαμενής (βυτίου)  
ή εκ προεξεχόντων εξαρτημάτων ή παρακολουθημάτων ερχομένων  
εις επαφήν με την μεταφερομένην ύλην.

IO 217-

IO 239

Πυροσβεστικές συσκευές

IO 240

(I) Κάθε μονάδα μεταφοράς μεταφέρουσα επικίνδυνες ύλες  
θα είναι εφοδιασμένη με

- (α) τουλάχιστον ένα φορητόν πυροσβεστήρα καταλήλου  
ολικής χωρητικότητας, κατάλληλον για την καταπο-  
λέμησιν του πυρός εις τον κινητήρα ή εις οιονδή-  
ποτε έτερον μέρος της μονάδος μεταφοράς, και τρέ-  
πτον ώστε, εάν χρησιμοποιηθελ για καταπολέμησιν

πυρκαϊάς στο φορτίο, να μην επιδεινώνει το IO 240  
 πύρ και, ει δυνατόν να το ελέγχει· εν τού- (Συνεχίζε-  
 τοις, εάν το όχημα είναι εφωδιασμένον με στα- ται.)  
 θερόν (στερεωμένον) πυροσβεστήρα, αυτομάτως  
 ή ευχερώς τιθέμενον εις κίνησιν, για κατάσβε-  
 σιν πυρκαϊάς εις τον κινητήρα, ο φορητός πυρο-  
 σβεστήρας δεν χρειάζεται να είναι κατάλληλος  
 δια την κατάσβεσιν πυρκαϊάς εις τον κινητήρα·

- (β) επιπροσθέτως του εν (α) ~~παραπάνω~~ προβλεπομένου  
 εξοπλισμού, τουλάχιστον ένα φορητόν πυροσβεστή-  
 ρα επαρκούς ολικής χωρητικότητας, κατάλληλα  
 δια την κατάσβεσιν πυρκαϊάς εις το φορτίο, και  
~~επίσης~~ ώστε, εάν χρειασθεί να χρησιμοποιηθεί  
 δια την κατάσβεσιν πυρκαϊάς εις τον κινητήρα  
 ή εις οιονδήποτε έτερον μέρος της μονάδος μετα-  
 φοράς, να μην επιδεινώνει το πύρ και, ει δυνα-  
 τόν να το ελέγχει·

(2) Οι πυροσβεστικοί άγοντες οι περιεχόμενοι εις τους  
 πυροσβεστήρες με τους οποίους μία μονάδα μεταφοράς είναι εφω-  
 διασμένη θα είναι ~~επίσης~~ ώστε να μην απελευθερώνουν τοξικά  
 αέρια εις την θέσιν του οδηγού ή να είναι υπό την επίδρασιν  
 της θερμότητας του πυρός.

(3) Οσάν τις μονάς μεταφοράς περιλαμβάνει ρυμουλκούμενον  
 όχημα (τρέϊλερ) το οποίον δεν είναι συζευγμένον αλλά έχει αφε-  
 θελ εις την δημοσίαν εθνικήν οδόν, εις απόστασιν από το ρυ-  
 μουλκούν όχημα, το ρυμουλκούμενο όχημα (τρέϊλερ) πρέπει να  
 είναι εφωδιασμένο με τουλάχιστον ένα πυροσβεστήρα συμμορφόμε-



νον προς τας διατάξεις του εδαφλου (Ι)(β) του παρόντος περιθωρου.

ΙΟ 24Ι-

ΙΟ 250

Ηλεκτρικός εξοπλισμός

ΙΟ 25Ι

Αι διατάξεις οι διέπουσες τον ηλεκτρικόν εξοπλισμόν οχημάτων μεταφερόντων διάφορες επικίνδυνως ύλες ευρίσκονται εις την Προσθήκην Β.2.

ΙΟ 252-

ΙΟ 259

Διάφορος εξοπλισμός

ΙΟ 260

(Ι) Κάθε μονάδα μεταφοράς μεταφέρουσα επικίνδυνα εμπορεύματα θα είναι εφοδιασμένη με:-

- (α) κιβώτιον εργαλειών (εργαλειοθήκη) βιά επισκευές επειγούσας ανάγκης εις το όχημα·
- (β) βιά έκταστον όχημα, τουλάχιστον ένας τάνος μεγέθους καταλλήλου με το βάρος του οχήματος και την διάμετρο των τροχών·
- (γ) δύο κίτρινα φώτα (σημάτων τροχαίας). Τα φώτα αυτά θα είναι ανεξάρτητα του ηλεκτρικού εξοπλισμού του οχήματος και θα είναι έτσι σχεδιασμένα ώστε η χρήση των να μη μπορεί να προκληθεί ανάφλεξις των μεταφερομένων εμπορευμάτων· θα είναι σταθερά ή φωτεινά (ακτινοβολούντα).

(2) Οι διατάξεις του εδαφλου (Ι)(γ) του παρόντος περιθωρου δεν θα έχουν εφαρμογήν εις την επικράτειαν του Ηνωμένου Βασιλείου.

IO 261-

IO 299

Άρθρο 3Διατάξεις Γενικών Υπηρεσιών

IO 300-

IO 339

Πυροσβεστικές συσκευές

IO 340

Το πλήρωμα του οχήματος πρέπει να γνωρίζει την χρήση των πυροσβεστικών συσκευών.

IO 341-

IO 352

Φορητή συσκευή φωτισμού

IO 353

Εις το όχημα δεν θα μπαίνουν άτομα τα οποία θα μεταφέρουν συσκευήν φέρουσαν φλόγα. Επιπροσθέτως, η συσκευή φωτισμού δεν θα εκθέτει οιαδήποτε μεταλλική επιφάνεια υποκειμένην εις την δημιουργίαν σπινθήρων.

IO 354-

IO 373

Απαγόρευση καπνίσματος

IO 374

Το κάπνισμα θα απαγορεύεται κατά τας εργασίας χειρισμού, εγγύς των κόλων των αναμενόντων χειρισμόν, εγγύς σταθμευμένων οχημάτων, και εις το εσωτερικόν των οχημάτων.

IO 375-

IO 399

Άρθρο 4Ειδικές διατάξεις για φόρτωση, εκφόρτωση και χειρισμό

IO 400

Περιορισμός των μεταφερομένων ποσοτήτων

IO 401

Το γεγονός ότι επικίνδυνες ύλες εγκλείονται εις ένα ή περισσότερα CONTAINERS δεν θα επηρεάζει τους εις βάρος περιορισμούς τους προβλεπομένους υπό του παρόντος Παραρτήματος αναφορικώς με μεταφοράν εντός ενός οχήματος ή εντός μίας μονάδος μεταφοράς.

IO 402

Απαγόρευση μικτής φορτώσεως ενός οχήματος

IO 403

Εκτός εάν το αντίθετον ρητώς προβλέπεται υπό των διατάξεων του Άρθρου 4 του Κεφαλαίου II του παρόντος Παραρτήματος, αι απαγορεύσεις μικτής φορτώσεως εις ένα όχημα δεν θα έχουν εφαρμογήν βιά αποστολές εμπορευμάτων συσκευασμένων κατ'όν τρόπον επιτρέπεται υπό των διατάξεων μικτής συσκευασίας των περιεχομένων εις το Παράρτημα Α.

Η συμμόρφωσις προς τας απαγορεύσεις μικτής φορτώσεως θα βασίζεται επί των ετικετών κινδύνου της Προσθήκης Α.9, αι οποίαι θα τοποθετούνται εις κόλα συμφώνως προς τας διατάξεις των διαφόρων Κλάσεων του Παραρτήματος Α.

Απαγόρευση μικτής φορτώσεως ενός CONTAINER

IO 404

Αι απαγορεύσεις μικτής φορτώσεως ενός οχήματος θα τηρούνται επίσης εντός εκάστου CONTAINER.

Απαγόρευση μικτής φορτώσεως με εμπορεύματα περιεχόμενα σε CONTAINER

IO 405

Προς τον σκοπόν της εφαρμογής των απαγορεύσεων μικτής φορτώσεως επί ενός οχήματος, δεν θα λαμβάνονται υπόψη οι

Όλες οι περιεχόμενες σε κλειστά CONTAINERS με πλήρεις πλευρές.

IO 406-

IO 412

Καθάρισμα προ της φορτώσεως

IO 413

Όλες αι διατάξεις του παρόντος Παραρτήματος αι οποίες αναφέρονται εις το καθάρισμα των οχημάτων προ της φορτώσεως θα ισχύουν επίσης ~~για~~ το καθάρισμα των CONTAINERS.

Χειρισμός και στοιβάσις

IO 414

(1) Τα διάφορα συστατικά μέρη φορτίου αποτελουμένου από επικινδύνες ύλες θα είναι καταλλήλως στοιβαγμένα επί του οχήματος και σφηνωμένα με κατάλληλα μέσα ώστε να αποφεύγεται η με οποιονδήποτε τρόπον μετατόπισις αυτών με τινί των και προς τα τοιχώματα του οχήματος.

(2) Εάν το φορτίον αποτελείται ~~από~~ εμπορευμάτων διαφόρων κατηγοριών τα κόλα των επικινδύνων υλών θα διαχωρίζονται από τα άλλα κόλα.

(3) Όλες αι διατάξεις του παρόντος Παραρτήματος αι οποίες αναφέρονται εις την φόρτωσιν και εκφόρτωσιν οχημάτων και εις την στοιβάσιαν και τον χειρισμόν υλών θα έχουν επίσης εφαρμογήν εις την φόρτωσιν, στοιβάσιαν και εκφόρτωσιν των CONTAINERS επί, εις και από τα οχήματα.

(4) Τίποτε δεν πρέπει να φορτώνεται επάνω από εύθραστο κόλον.

(5) Ο οδηγός ή βοηθός οδηγού δεν πρέπει να ανοίγει κόλον περιέχον επικινδύνους ύλες.

Καθάρισμα μετά την εκφόρτωσιν

IO 415

(1) Εάν, όταν ένα όχημα το οποίον έχει φορτωθεί με

επισκευασμένες επικινδύνες ύλες ξεφορτώνεται, μερικὸ ἀπὸ το περιεχόμενον εὐρίσκεται νὰ ἔχει διαφύγει ἀπὸ τὶς συσκευασίες, τὸ ὄχημα θὰ καθαρίζεται εὐθὺς ὡς εἶναι δυνατόν καὶ ~~ἐν καθῆ~~ ~~περίπτωσιν~~ προ τῆς ἐκ νέου φορτώσεως.

IO 415  
(Συνεχίζεται)

(2) Οχήματα τα οποία ἔχουν φορτωθῆ με επικινδύνες ὕλες εἰς χύμα θὰ καθαρίζονται καταλλήλως προ τῆς ἐκ νέου φορτώσεως, ἐκτός εἰάν τὸ νέον φορτίον ἀποτελεῖται ἐκ τῆς αὐτῆς επικινδύνου με τὸ προηγούμενον φορτίον ὕλης.

(3) Ὅλες αἱ διατάξεις τοῦ παρόντος Παραρτήματος αἱ ὁποῖες ἀναφέρονται εἰς τὸ καθάρισμα ἢ τὴν ἀπολύμανσιν τῶν οχημάτων θὰ ἔχουν ἐπίσης ἐφαρμογὴν διὰ τὸ καθάρισμα ἢ ἀπολύμανσιν τῶν CONTAINERS.

IO 416-

IO 418

Φόρτωση καὶ ἐκφόρτωση επικινδύνων ὑλών σε CONTAINERS

IO 419

Αἱ διατάξεις τοῦ παρόντος Παραρτήματος αἱ ὁποῖες ἀναφέρονται εἰς τὴν φόρτωσιν καὶ ἐκφόρτωσιν οχημάτων καὶ τὴν στοιβάσαν καὶ χειρισμὸν επικινδύνων ὑλών θὰ ἔχουν ἐπίσης ἐφαρμογὴν εἰς τὴν φόρτωσιν καὶ ἐκφόρτωσιν επικινδύνων ὑλών σε CONTAINERS.

IO 420-

IO 430

Λειτουργία τοῦ κινητήρα (μηχανῆς) κατὰ τὴν φόρτωση καὶ ἐκφόρτωση

IO 431

Ἐκτός ὅσῳις ὁ κινητήρας (μηχανή) πρόκειται νὰ χρησιμοποιηθῆ γιὰ νὰ θέσῃ σε κίνηση ἀντλίες ἢ ἕτερουσ μηχανισμοὺς γιὰ τὴν φόρτωση ἢ ἐκφόρτωση τοῦ οχήματος καὶ οἱ νόμοι

της χώρας εις την οποίαν το όχημα κινείται επιτρέπουν την · IO 431  
 τοιαύτην χρήση, ο κινήτης (μηχανή) θα είναι σβυσμένος (Συνεχίζε-  
 ται),  
 κατά τας εργασίας φορτώσεως και εκφορτώσεως.

IO 432-

IO 499

### Άρθρο 5

#### Ειδικές διατάξεις για τη λειτουργία των οχημάτων

##### Σήματα Οχημάτων

IO 500

(I) Οι μονάδες μεταφοράς οι μεταφέρουσες τας επι-  
 κινδύνους όλες τας οριζομένους εις τα περιθώρια ... 500 θα  
 διαθέτουν δύο ορθογώνιες ανακλαστικές πορτοκαλί-χρώματος  
 πλάκες, βάσεως 40 CM και ύψους όχι μικρότερον των 30 CM,  
 τοποθετημένες σε κάθετο επίπεδο. Οι πλάκες θα έχουν μαύρο  
 πλαίσιο (περιθώριο), πλάτους όχι μεγαλύτερου των 15 MM. Θα  
 είναι τοποθετημένες μία εις το πρόσθιον τμήμα και μία εις  
 το οπίσθιον τμήμα της μονάδας μεταφοράς, και οι δύο κάθετως  
 του επιμήκους άξονος της μονάδας μεταφοράς. Θα είναι ευκρι-  
 νώς ορατές.

Σημείωση.- Το χρώμα των πορτοκαλί πλακών υπό συνθήκες κα-  
 νονικής χρήσεως δέον να έχει συντεταγμένες ποιότητας χρώμα-  
 τος (CHROMATICITY CO-ORDINATES) κείμενες εντός της ζώνης του  
 διαγράμματος ποιότητας χρώματος που σχηματίζεται δι' ενώσεως  
 των κατωτέρω συντεταγμένων:-

Συντεταγμένες ποιότητας χρώματος (CHROMATICITY CO-ORDINATES)  
 σημείων στις γωνίες της ζώνης του εν λόγω διαγράμματος

X	0.52	0.52	0.578	0.618
Y	0.38	0.40	0.422	0.38

Παράγων φωτεινότητας του ανακλαστικού χρώματος: Β 0.12 ΙΟ 500  
Κέντρον αναφοράς Ε, Πρότυπον Διαφωτιστικόν C, κανονική (Συνεχί-  
γωνία προσπτώσεως  $45^{\circ}$  και θεωμένη (VIEWED) εις  $0^{\circ}$ . ζεται)

Συντελεστής εντάσεως ανακλαστικού φωτισμού εις γωνίαν  
φωτισμού  $5^{\circ}$ , θεωμένην (VIEWED) εις  $0.2^{\circ}$ : όχι κάτω των  
20 κηρίων ανά λούξ (μονάς φωτός) ανά  $\mu^2$ .

(2) Μονάδες μεταφοράς με σταθερές δεξαμενές μεταφέ-  
ρουσες μόνον μία των υλών των αναφερομένων εις την Προ-  
σθήκη Β.5 θα διαθέτουν πλάκες χρώματος-πορτοκαλί ως προ-  
βλέπεται ανωτέρω, επί των οποίων οι αριθμοί αναγνώρισεως  
οι εικονιζόμενοι εις την ανωτέρω Προσθήκη θα εμφανίζονται.

(3) Εν τούτοις, όταν δύο διαφορετικές ύλες μεταφέ-  
ρονται εντός μονάδας μεταφοράς αποτελουμένης εκ βυτιοφό-  
ρου ρυμουλκούντος δεξαμενο-ρυμουλκούμενον/ (TANK-TRAILER),  
το δχημα και το ρυμουλκούμενον δχημα θα διαθέτουν έκαστον  
τόσον εις το εμπρόσθιον όσον και εις το οπίσθιον μέρος αυτών  
πλάκα χρώματος πορτοκαλί φέρουσα τους αντίστοιχους αριθμούς  
αναγνώρισεως των μεταφερομένων υλών.

(4) Όταν ένας αριθμός διαφορετικών υλών μεταφέρε-  
ται επί βυτιοφόρου εις χωριστές δεξαμενές (βυτλα) ή διαμερί-  
σματα δεξαμενών, πλάκες χρώματος πορτοκαλί εντελώς όμοιες  
με τις περιγραφόμενες εις την παράγραφον (I), τοποθετημένες  
παραλλήλως του επιμήκους άξονος του οχήματος και φέρουσαι  
τους ενδεδειγμένους αριθμούς αναγνώρισεως, θα εκτίθενται  
στις πλευρές έκαστου βυτλού (δεξαμενής) ή διαμερίσματος-δεξα-  
μενής ώστε να είναι ευκρινώς ορατές. Στη περίπτωση αυτή οι  
πλάκες οι προβλεπόμενες στην παράγραφο (I) ανωτέρω ουδένα

αριθμόν θα εκθέτουν.

(5) Οι αριθμοί αναγνωρίσεως θα είναι κατασκευασμένοι με μαύρα ψηφία ύψους 100 MM (χιλιοστών) και πλάτους πινελιάς 15 MM. Ο αριθμός αναγνωρίσεως κινδύνου (HAZARD-IDENTIFICATION) θα εγγράφεται εις το άνω μέρος της πλάκας και ο αριθμός αναγνωρίσεως της ύλης (SUBSTANCE-IDENTIFICATION) εις το κάτω μέρος· θα διαχωρίζονται με οριζόντια μαύρη γραμμή, πλάτους πινελιάς 15 MM (χιλιοστών), εκτεινομένη από πλευράν εις πλευράν της πλάκας εις το μέσον ύψος (βλέπε Προσθήκην Β.5). Οι αριθμοί αναγνωρίσεως θα είναι ανεξίτηλοι και θα παραμένουν ευανάγνωστοι μετά από 15-λεπτον βύθισμά τους εις το πύρ.

IO 500  
(Συνεχίζεται)

(6) Οι ανωτέρω διατάξεις ισχύουν επίσης για κενές, ακαθάριστες και μη-απαερωθεισες δεξαμενές (βυτία). Μετά την εκφόρτωση των επικινδύνων υλών και τον καθαρισμόν και απαερισμόν των δεξαμενών, αι πορτοκαλί χρώματος πλάκες δεν θα είναι του λοιπού ορατές.

(7) Τα βυτιοφόρα οφείλουν επίσης να φέρουν εις αμφότερες τις πλευρές και εις το πίσω μέρος τις ετικέτες τις προβλεπόμενες υπό του Άρθρου 5 δι' εκάστην Κλάσιν.

IO 501-

IO 502

Στάθμευση (παρκάρισμα) εν γένει

IO 503

Καμμία μονάδα μεταφοράς μεταφέρουσα επικίνδυνες ύλες μπορεί να σταθμεύει χωρίς να έχει πεδήσει.

IO 504



Σταθμευση (παρκάρισμα) τη νύκτα ή όταν η ορατότητα  
είναι μικρή

IO 505

(1) Εάν όχημα σταθμεύσει (παρκάρει) τη νύκτα, ή όταν η ορατότητα είναι μικρή, και τα φώτα του δεν λειτουργούν, τα κίτρινα φώτα (σημάτων τροχαίας), τα αναφερόμενα εις το περιθώριον IO 260 (I)(γ) θα τοποθετηθούν επί του δρόμου,

το ένα περίπου IO μ. εμπροσθεν του οχήματος,  
και το άλλο περίπου IO μ. όπισθεν του οχήματος.

(2) Οι διατάξεις του παρόντος περιθωρίου δεν θα ισχύουν εις την επικράτειαν του Ηνωμένου Βασιλείου.

IO 506

Σταθμευση οχήματος παρουσιάζοντος ειδικόν κίνδυνον

IO 507

Επιφυλασσομένων των μέτρων των προβλεπομένων εις περιθώριον IO 505 ανωτέρω, εάν η φύσις των επικινδύνων υλών των μεταφερομένων εις το σταθμευμένο (παρκάρισμένο) όχημα αποτελεί πηγήν ειδικού κινδύνου δια τους χρήστες του δρόμου (π.χ. προκειμένου περί υλών επικινδύνων για τους πεζούς, ζώα ή οχήματα χυμένων εις τον δρόμον) και το πλήρωμα του οχήματος αδυνατεί να εξαλείψει τον κίνδυνον ταχέως, ο οδηγός οφείλει να ειδοποιήσει ή μεριμνήσει όπως ειδοποιηθούν και τεθούν εν επιφυλακή πάσαντα αι πλησιέστερες αρμόδιες αρχές. Επίσης, εάν χρειασθεί, θα λάβει τα μέτρα τα προβλεπόμενα μέτρα των οδηγιών των οριζομένων εις το περιθώριον IO 185.

IO 508-

IO 598

Άλλες διατάξεις

IO 599

Ως προς διατάξεις μη συμπεροληφθείσες εις το παρόν Κεφάλαιον ή το Κεφάλαιον II του παρόντος Παραρτήματος που αφορούν την λειτουργίαν οχημάτων μεταφερόντων επικίνδυνα εμπορεύματα, τα οικεία μέτρα τα υιοθετηθέντα εις την σφαιραν αυτήν υπό εκάστου Συμβαλλομένου Μέρους επί τη βάσει της εσωτερικής του νομοθεσίας και αφορώντα την εις το εσωτερικόν μεταφοράν θα ισχύουν επί διεθνούς μεταφοράς χρησιμοποιούσης την επικράτειάν του.

Άρθρο 6

Μεταβατικές διατάξεις, ανακλήσεις, και διατάξεις  
ειδικές για ωρισμένες χώρες

IO 600-

IO 601

Ταχεία διαδικασία για εξουσιοδότηση ανακλήσεων προς τον  
σκοπόν διεξαγωγής δοκιμών

IO 602

Προς τον σκοπόν της διεξαγωγής των απαιτητών δοκιμών για την τροποποίηση των διατάξεων του παρόντος Παραρτήματος για υιοθετηθούν (προσαρμοσθούν) αυτές σε τεχνολογικές και βιομηχανικές αναπτύξεις, οι αρμόδιες αρχές των Συμβαλλομένων Μερών μπορούν να συμφωνήσουν απ' ευθείας μεταξύ των να εξουσιοδοτήσουν ορισμένες επιχειρήσεις μεταφοράς εις τις επικράτειές των διά προσωρινής ανακλήσεως των διατάξεων του παρόντος Παραρτήματος. Η αρχή η οποία ανέλαβε τη πρωτοβουλία σε σχέση με την έγκρισιν της τοιαύτης ανακλήσεως οφείλει να ειδοποιήσει την αρμόδιαν υπηρεσίαν/των Ηνωμένων Εθνών περί της ανακλήσεως, η οποία υπηρεσία θα την θέσει υπόψη των Συμβαλλομένων Μερών.

IO 603-

IO 999

Κεφάλαιο II

ΕΙΔΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΙΣΧΥΟΥΣΕΣ ΓΙΑ ΤΗΝ ΜΕΤΑΦΟΡΑΝ  
ΕΠΙΚΙΝΔΥΝΩΝ ΥΛΩΝ ΚΛΑΣΕΩΝ I έως 8

Κλάσεις Iα.- Ειρηκτικές ύλες και αντικείμενα.

Iβ.- Αντικείμενα γεμισμένα με ειρηκτικές ύλες

Iγ.- Αναφλεκτήρες, πυροτεχνήματα και παρεμφερή  
εμπορεύματα

Άρθρο IΓενικά

II 000-

II 103

Τύποι Οχημάτων

II 104

(Βλέπε επίσης περιθώρια IΑ 105 και II 106)

Επικίνδυνες ύλες των κλάσεων Iα, Iβ και Iγ μπορούν να μεταφέρονται μόνον σε κλειστά οχήματα ή σε οχήματα σκεπασμένα στα οποία υπάρχουν πλαϊνά και οπίσθια σανίδα. Το σκέπασμα του σκεπασμένου οχήματος πρέπει να είναι από αδιάπεραστο υλικό όχι ευχερώς εύφλεκτο. Θα πρέπει να τεντώνεται εις τρόπον ώστε να καλύπτει το όχημα σ' όλες τις πλευρές, και να εξέχει όχι λιγότερο των 20 CM (εκ.) κάτω των πλευρών του οχήματος, και να τηρείται στη θέση του με δυνάμεις να κλειδώνουν μεταλλικές μπάρες ή αλυσίδες.

Κατηγορίες οχημάτων

II 105

Δια την εφαρμογήν του παρόντος Παραρτήματος, μονάδες μεταφοράς εξουσιοδοτημένες να μεταφέρουν επικίνδυνες ύλες των Κλάσεων Ια, Ιβ και Ιγ ταξινομούνται ως εξής :-

(1) Μονάδες Μεταφοράς "Α": Μονάδες Μεταφοράς των οποίων οι κινητήρες χρησιμοποιούν υγρόν καύσιμον ύλην με σημείον αναφλέξεως κάτω των 55°C.

(2) Μονάδες Μεταφοράς "Β": Μονάδες Μεταφοράς των οποίων οι κινητήρες χρησιμοποιούν υγρόν καύσιμον ύλην με σημείον αναφλέξεως 55°C και άνω· η κατηγορία αυτή "Β" περιλαμβάνει τις εξής υπο-κατηγορίες:-

(α) Μονάδες Μεταφοράς "Β.Ι":

Αυτές είτε δεν έχουν ρυμουλκούμενο όχημα είτε έχουν ρυμουλκούμενο όχημα πληρούν τους εξής όρους:-

ο μηχανισμός συζεύξεως μπορεί να λυθεί άμεσα και είναι γερός· και

εφοδιασμένον με αποτελεσματικόν μηχανισμόν πεδήσεως ενεργούντα επί όλων των τροχών, τιθέμενον εις λειτουργίαν υπό του χειριστηρίου πέδης του ρυμουλκούντος οχήματος, και ακινητοποιούντα αυτομάτως το ρυμουλκούμενον όχημα εν περίπτωσει θραύσεως της συζεύξεως.

(β) Μονάδες Μεταφοράς "Β.ΙΙ":

Αυτές έχουν τα εξής χαρακτηριστικά επιπροσθετως εκείνων της υπο-κατηγορίας "Β.Ι":

### 1.- Κινητήρας και Σύστημα Εξαγωγής

Ο κινητήρας και το σύστημα εξαγωγής II. 105  
είναι τοποθετημένα εμπροσθεν του προσθίου τοιχώματος του πηγατος (καρότσας). Η έξοδος του σωλήνος εξαγωγής βγαίνει έξω από το όχημα. (Συνεχίζεται)

### 2.- Δεξαμενή Καύσιμου Ύλης

Η δεξαμενή καύσιμου ύλης είναι τοποθετημένη αρκετά μακράν του κινητήρα, της ηλεκτρικής συνδεσμολογίας και της σωληνώσεως αερίων εξαγωγής (καυσαερίων), και κατά τέτοιο τρόπο ώστε σε περίπτωση διαρροής εκ της δεξαμενής η καύσιμη ύλη να εκκενώνεται απ' ευθείας εις το έδαφος και να μη μπορεί να φθάσει το φορτίο των κρηνητικών. Η δεξαμενή καυσίμου είναι αρκετά μακράν του συσσωρευτού (μπαταρίας), ή τουλάχιστον διαχωρίζεται αυτής με στεγανό χώρισμα. Τοποθετείται έτσι ώστε να προστατεύεται όσο είναι δυνατόν σε σύγκρουση. Ο κινητήρας δεν τροφοδοτείται δια της βαρύτητας.

### 3.- Θέση Οδηγού (Κουβούκλιον)

Ουδέεν εύφλεκτον υλικόν έχει χρησιμοποιηθεί κατά την κατασκευήν του κουβουκλίου του οδηγού, εκτός του εξοπλισμού του καθίσματος.

### (γ) Μονάδες Μεταφοράς "B.III"

Έχουν όλες τα χαρακτηριστικά της υπο-κατηγορίας B.II και, επιπροσθέτως, το πήγμα (καρότσα) των έχει τα παρακάτω χαρακτηριστικά:-

I.- Είναι κλειστό και έχει συνεχή επιφάνεια°

χωρίζεται από το κουβούκλιο του οδηγού δι' απο- II 105  
στάσεως όχι μικρότερης των 15 CM (εκ.)· είναι (Συνεχίζεται)  
γερής κατασκευής και με υλικό το οποίο προστα-  
τεύει καταλλήλως τα μεταφερόμενα εμπορεύματα·  
τα υλικά τα χρησιμοποιηθέντα δια την επένδυσιν  
δεν είναι ικανά να παράγουν σπινθήρες· οι ιδιο-  
τητες μονώσεως και αντοχής εις την θερμότητα  
του πηγματος είναι εις όλα τα σημεία τουλάχιστον  
ισοδύναμες με εκείνες χωρίσματος αποτελουμένου  
εκ στρώματος αμιαντο-χαρτονιου πάχους 5 MM (χιλ.)  
μεταξύ των μεταλλικών τοιχωμάτων ή με εκείνες  
χωρίσματος αποτελουμένου εξ εξωτερικού μεταλλικού  
τοιχώματος επενδεδυμένου με ένα στρώμα πυριμάχου  
ξύλου πάχους 10 MM (χιλ.).

2.- Η θύρα ή θύρες είναι εφωδιασμένες με κλει-  
δαριά και κλειδί· όλες αι ενώσεις και τα κλεισίμα-  
τα είναι τύπου επικαλύψεως (OVERLAPPING TYPE). Η  
θύρα ή θύρες πρέπει να είναι έτσι κατασκευασμένες  
ώστε να ελαττώνουν την αντοχήν του πηγματος όσο το  
δυνατόν ολιγώτερο.

Περιορισμοί στη χρήση οχημάτων συγκεκριμένων κατηγοριών II 106

(1) Οι μονάδες μεταφοράς "Α" μπορούν να μεταφέρουν  
μόνον αντικείμενα της Κλάσεως Ιβ, 2<sup>ο</sup> (β), 4<sup>ο</sup> (α), (β) και (ε),  
και της Κλάσεως Ιγ, 1<sup>ο</sup> (α) και 3<sup>ο</sup>.

Ουδείς ειδικός περιορισμός του βάρους προβλέπεται  
δια την τοιαύτην μεταφοράν.

(2) Οι μονάδες μεταφοράς "Β.Ι" μπορούν να μεταφέρουν

(α) χωρίς ειδικούς περιορισμούς του βάρους, II 106  
αντικείμενα της κλάσεως Ιβ, 2<sup>ο</sup> (β) και 4<sup>ο</sup>, (Συνεχίζε-  
ται)  
και της κλάσεως Ιγ, 1<sup>ο</sup> (α) και 3<sup>ο</sup>.

(β) υπό την επιφύλαξιν των περιορισμών του βάρους των προβλεπομένων εις το περιθώριον II 401, τις επικίνδυνες όλες τις αναφερδ-  
μενες εις το ανωτέρω περιθώριον.

(3) Οι διατάξεις αι διέπουσαι τις απαγορεύσεις (περιορισμούς), υπό το φως του βάρους και της φύσεως του φορτίου, επί της χρήσεως των μονάδων μεταφοράς "B.II" και "B.III", ευρίσκονται εις περιθώριον II 401.

II 107-

II 117

#### Μεταφορά σε CONTAINERS

II 118

Μικρά CONTAINERS θα πληρούν τους όρους τους προβλεπομένους ~~σε~~ σχέσει με το πήγμα του οχήματος δια την πρόκειμένη επιχείρησιν μεταφοράς· δεν θα είναι τότε απαραίτητον για το πήγμα του οχήματος να πληροί τους όρους τούτους.

II 119-

II 170

#### Πληρώματα οχημάτων: Επίβλεψις (Εποπτεία)

II 171

(I) Βοηθός οδηγού θα υπάρχει ~~σε~~ κάθε μονάδα μεταφοράς. Εάν οι εθνικοί κανονισμοί προβλέπουν τούτο, η αρμόδια αρχή συμβαλλομένης χώρας μπορεί να ζητήσει όπως εγκριμένον επίσημον πρόσωπον (αξιωματούχος) ενυπάρχει εις το όχημα<sup>με</sup> έξοδο του μεταφορέως.

(2) Οι διατάξεις του περιθωρίου IO I7I (2) θα ισχύουν II I7I μόνον για τα επικίνδυνα εμπορεύματα τα αναγραφόμενα ~~παρα~~ (Συνεχίζεται) κάτω σε ποσότητες υπερβαίνουσες τις οριζόμενες ~~παρακάτω~~:

Κλάση Ia: Ύλεις και αντικείμενα<sup>(εξόδη)</sup> των I<sup>ο</sup> - I4<sup>ο</sup>: 5 KG.

Κλάση Ib: Αντικείμενα<sup>(εξόδη)</sup> των I<sup>ο</sup> (β), (γ) και (δ),  
5<sup>ο</sup> - 7<sup>ο</sup> και 9<sup>ο</sup> - II<sup>ο</sup> : 50 KG. και

Κλάση Ic: Αντικείμενα (εξόδη) των 2I<sup>ο</sup> - 23<sup>ο</sup> : 50 KG.

II I72-

II I8I

### Έγκριση οχημάτων

II I82

Οι όροι του περιθωρίου IO I82 θα ισχύουν για τις μονάδες μεταφοράς "B.III".

II I83-

II I99

### Άρθρο 2

#### Ειδικό όροι πληρούμενοι υπό οχημάτων και του εξοπλισμού αυτών

Υλικά που πρέπει να χρησιμοποιούνται κατά την κατασκευή II 200  
πηγμάτων οχημάτων

Κατά την κατασκευή (για την κατασκευή) του πηγματος, δεν θα χρησιμοποιείται υλικό που οποιονδήποτε ενδέχεται να σχηματίσει επικίνδυνες ενώσεις με τα μεταφερόμενα εκρηκτικά (π.χ. μόλυβδος στη περίπτωση της μεταφοράς εξυλίου (HEXYL), πικρικού οξέος, πικρικών αλάτων, εκρηκτικών οργανικών αρωμάτων ενώσεων διαλυτών στο νερό, ή εκρηκτικών φύσεως οξέος (βλέπε επίσης περιθώριο III I05(2) (γ)).

II 20I-

II 2I5



<u>Κουβούκλιον (θέσις) Οδηγού</u>	II 216
(Βλέπε περιθώριον II 105(2)(β)3)).	
	II 217
	II 224
<u>Συνδυασμός ρυμουλκούντος οχήματος και ρυμουλκουμένου</u>	II 225
(Βλέπε περιθώριον II 105(2)(α)).	
	II 226-
	II 230
<u>Κινητήρα και Σύστημα Εξαγωγής</u>	II 231
(Βλέπε περιθώριον II 105(2)(β)1.)).	
	II 232-
	II 239
<u>Πυροσβεστικές Συσκευές</u>	II 240
Οι διατάξεις του περιθωρίου IO 240(I)(β) και (3) δεν θα ισχύουν για την μεταφοράν επικινδύνων υλών της Κλάσεως Iγ, I <sup>ο</sup> έως 3 <sup>ο</sup> , 5 <sup>ο</sup> έως 20 <sup>ο</sup> , 24 <sup>ο</sup> , 25 <sup>ο</sup> και 27 <sup>ο</sup> .	
	II 241-
	II 250
<u>Ηλεκτρικός Εξοπλισμός</u>	II 251
(1) Το διατετιμημένο βολτάζ του ηλεκτρο-φωτιστικού συστήματος δεν θα υπερβαίνει τα 24 Βόλτ.	
(2) Ουδέν κύκλωμα θα εγκαθίσταται εσωτερικώς των πηγμάτων των μονάδων μεταφοράς "B.II".	
(3) Οι διατάξεις της Προσθήκης B.2, περιθώριον 22 <sup>ο</sup> 000(2), δεν θα ισχύουν για τον ηλεκτρικόν εξοπλισμόν οχημάτων μεταφερδόντων είδη της Κλάσεως Iγ, I <sup>ο</sup> (α) και 3 <sup>ο</sup> , ή μεταφερδόντων είδη της Κλάσεως Iγ, I <sup>ο</sup> (β) σε ποσότητα μη υπερβαίνουσαν	

τα 500 KG.

II 252-

II 299

Άρθρο 3

Διατάξεις Γενικών Υπηρεσιών

II 300-

(Δεν υπάρχουν ειδικές διατάξεις)

II 399

Άρθρο 4

Ειδικές Διατάξεις διέπουσες την φόρτωση,

εκφόρτωση και χειρισμόν

Μέθοδος αποστολής και περιορισμοί επί προώθησεως

II 400

Ύλεις της Κλάσεως Ια, Ι3<sup>ο</sup> και Ι4<sup>ο</sup> (α) και (β), μπορούν να μεταφέρονται μόνον ως πλήρες φορτίο. Εν τούτοις, κδλα ζυγίζοντα όχι άνω των 10 KG και παραδιδόμενα δια μεταφοράν σε ποσότητα μη υπερβαίνουσαν τα 100 KG μπορούν να μεταφέρονται διαφορετικώς της μεταφοράς πλήρους φορτίου.

Περιορισμός των μεταφερομένων ποσοτήτων

II 401

Η ποσότητα επικινδύνων υλών της Κλάσεως Ια, Κλάσεως Ιβ και Ιγ που μπορεί να μεταφερθεί επί μονάδας μεταφοράς θα περιορίζεται όπως παρακάτω (βλέπε επίσης περιθώρια II 402 και II 403 αναφορικώς με την απαγόρευση μικτής φορτώσεως).

(I) Μονάδα Μεταφοράς "B.I" μπορεί να μεταφέρει μόνον

(α) εν των φορτίων των εξουσιοδοτημένων υπό

των περιθωρίων II 106(I) και (2)(α)· ή

(β) όχι περισσότερα των 500 KG των ειδών της

Κλάσεως Ιγ, Ι<sup>ο</sup>(β)· ή

(γ) όχι περισσότερα των 300 KG των υλών της

Κλάσεως IIIα, I2<sup>ο</sup> ή

II 40I

- (δ) όχι περισσότερα των 100 KG των υλών της Κλάσεως Iα, II<sup>ο</sup>, I3<sup>ο</sup> και I4<sup>ο</sup>. (Συνεχίζεται)

(2) Μονάδα Μεταφοράς "B.II" μπορεί να μεταφέρει μόνον

(α) ένα των φορτίων των εξουσιοδοτημένων εν

(I) ανωτέρω για τις μονάδες μεταφοράς

"B.I" ή

(β) όχι περισσότερα των 500 KG των υλών της

Κλάσεως Iα, I<sup>ο</sup> έως I0<sup>ο</sup> και I2<sup>ο</sup> των ει-

δών της Κλάσεως Iβ, I<sup>ο</sup> έως 4<sup>ο</sup> και 6<sup>ο</sup> έως

II<sup>ο</sup> ή των επικινδύνων υλών της Κλάσεως

Iγ. Εν τούτοις, αι ύλες της Κλάσεως Iα,

3<sup>ο</sup>, 4<sup>ο</sup> και 5<sup>ο</sup> πρέπει να συσκευάζονται με

δ,τι προβλέπεται για αποστολές εμπορευμάτων

μεταφερομένων διαφορετικώς της μεταφοράς

πλήρους φορτίου.

(3) Μονάδα Μεταφοράς "B.III" μπορεί να μεταφέρει μόνον

(α) ένα των φορτίων των εξουσιοδοτημένων εν

(2) ανωτέρω για μονάδες μεταφοράς "B.II" ή

ή

(β) υπό τον όρον ότι το βάρος του φορτίου των

επικινδύνων υλών δεν υπερβαίνει το 90% του

εκατόν του βάρους του φορτίου συνήθων εμ-

πορευμάτων του δηλωθέντος ως επιτρεπού

δια το όχημα υπό της αρμοδίας αρχής της χώ-

ρας εγγραφής του οχήματος, όχι περισσότερα

των 9.000 KG των επικινδύνων υλών των Κλά-

σεων Ια, Ιβ ή Ιγ ανά αρθρωτόν όχημα ή όχημα με ρυμουλκούμενον όχημα, ή των 15.000KG (Συνεχίζεται) των επικινδύνων υλών δια μονάδα μεταφοράς ετέρου είδους. Εν τούτοις, εάν το φορτίον περιλαμβάνει μίαν ή περισσότεράς ύλης της Κλάσεως Ια, ΙΙ<sup>ο</sup>, Ι3<sup>ο</sup> ή Ι4<sup>ο</sup>, ή ένα ή περισσότερα είδη της Κλάσεως Ιβ, 5<sup>ο</sup>, 6<sup>ο</sup> και ΙΙ<sup>ο</sup>, τα ανωτέρω όρια θα μειώνονται σε 6.000 KG και 10.000 KG αντίστοιχως.

II 401

II 402

Απαγόρευση μικτής φορτώσεως σε όχημα

II 403

(1) Ύλεις και είδη της Κλάσεως Ια δεν θα φορτώνονται μαζί επάνω σε ένα όχημα: μαζί με:

(α) είδη της Κλάσεως Ιβ κλεισμένα σε κόλα φέροντα δύο ετικέτες συμφώνως προς το μοντέλο Νο. Ι\* μαζί με:

(β) κόλα φέροντα ετικέτα οιασδήποτε των μοντέλων Νο. 2D, 4, 4A, 6A, 6B και 6Γ\* ή μαζί με:

(γ) κόλα φέροντα ετικέτα ή ετικέτες οιασδήποτε των μοντέλων Νο. 2A, 2B, 2Γ και 5.

(2) Είδη της Κλάσεως Ιβ κλεισμένα σε κόλα φέροντα ετικέτα σύμφωνα προς το μοντέλο Νο. Ι δεν θα φορτώνονται μαζί πάνω σε ένα όχημα με:-

(α) είδη της Κλάσεως Ιβ κλεισμένα σε κόλα φέροντα δύο ετικέτες συμφώνως προς το μοντέλο Νο. Ι\* με

(β) κόλα φέροντα ετικέτα οιασδήποτε των μοντέλων Νο. 2A, 4, 4A, 6A, 6B και 6Γ\* ή με

(γ) κόλα φέροντα ετικέτα ή ετικέτες οιασδήποτε των μοντέλων Νο. 2A, 2B, 2Γ, 3 και 5.

(3) Είδη της Κλάσεως Ιβ κλεισμένα σε κόλα φέροντα δύο ετικέτες συμφώνως προς το μοντέλο Νο.Ι δεν θα φορτώνονται στο αυτό δχημα με:-

II 403  
(Συνεχίζεται)

((α)) ύλες ή είδη των Κλάσεων Ια, Ιβ ή Ιγ κλεισμένα σε κόλα φέροντα ετικέτα σύμφωνον προς το μοντέλο Νο.Ι\* ή με

(β) τις ύλες τις οριζόμενες υπό στοιχείον (2)(β) και (2)(γ) ανωτέρω.

(4) Είδη της Κλάσεως Ιγ κλεισμένα σε κόλα φέροντα ετικέτα σύμφωνη προς το μοντέλλο Νο.Ι δεν θα φορτώνονται μαζί σε δχημα με:-

(α) είδη της Κλάσεως Ιβ κλεισμένα σε κόλα φέροντα δύο ετικέτες συμφώνως προς το Μοντέλο Νο.Ι\* με

(β) κόλα φέροντα ετικέτα οινωδήποτε των μοντέλων Νο. 2Δ, 4, 4Α, 6Α, 6Β και 6Γ\* ή με

(γ) κόλα φέροντα ετικέτα ή δύο ετικέτες οινωδήποτε των μοντέλων Νο. 2Α, 2Β, 2Γ, 3 και 5.

II 404

Απαγόρευση μικτής φορτώσεως με εμπορεύματα περιεχόμενα σε CONTAINER

II 405

(1) Οι απαγορεύσεις μικτής φορτώσεως εμπορευμάτων αναφερομένων εις περιθώριον II 403 θα ισχύουν/εντός εκάστου CONTAINER.

(2) Οι διατάξεις του περιθωρίου II 403 θα ισχύουν για επικίνδυνες ύλες περιεχόμενες εις CONTAINER και τις άλλες επικίνδυνες ύλες τις φορτωμένες στο ίδιο δχημα, ανεξαρτήτως εάν οι τελευταίες ύλες εγκλείωνται ή όχι σε ένα ή περισσότερα άλλα CONTAINERS.

II 406

II 407

Τόποι Φορτώσεως και Εκφορτώσεως

(I) Οι παρακάτω εργασίες απαγορεύονται:-

(α) φόρτωση ή εκφόρτωση επικινδύνων υλών Κλάσεων Ια, Ιβ και Ιγ εις δημόσιον χώρον κατοικημένης περιοχής άνευ ειδικής αδείας των αρμοδίων αρχών.

(β) φόρτωση ή εκφόρτωση επικινδύνων υλών των ρηθισών Κλάσεων εις δημόσιον χώρον διάφορον της κατοικημένης περιοχής άνευ προηγουμένης σχετικής ειδοποιήσεως των αρμοδίων αρχών, εκτός εάν οι αναφερόμενες εργασίες δικαιολογούνται δια σοβαρούς λόγους ασφαλείας.

(2) Εάν, δι' οιοδήποτε λόγον, εργασίαι χειρισμού πρέπει να διεξαχθούν εις δημόσιον χώρον, τότε:

- ύλες και είδη διαφόρων ειδών θα διαχωρίζονται συμφώνως προς τις ετικέτες και
- κόβλα εφωδιασμένα με χειρολαβές ή υποστηρίγματα θα τηρούνται ίσα.

II 408-

II 412

Καθάρισμα προ της φορτώσεως

II 413

Προτού επικίνδυνες ύλες Κλάσεων Ια, Ιβ ή Ιγ φορτωθούν, όλα τα υπολείμματα αχύρου, ρακών, χάρτου και παρομοίων υλικών, και όλων των σιδηρών αντικειμένων (καρφιά, βίδες, κλπ.) που δεν αποτελούν αναπόσπαστον τμήμα του πηγματος του οχήματος, θα αφαιρεθούν.

Χειρισμός και στοιβάσια

II 414

(1) Η χρήση ευχερώς ευφλέκτων υλών για κόλα στοιβάσι-  
σας σε οχήματα απαγορεύεται.

(2) Κόλα περιέχοντα επικίνδυνες ύλες των Κλάσεων Ια, Ιβ και Ιγ θα φορτώνονται κατά ~~τάδεον~~ τρόπον ώστε να μπο-  
ρούν να εκφορτώνονται ένα ένα εις το σημείον του προορισμού  
χωρίς να υπάρχει ανάγκη νέας διευθετήσεως του φορτίου.

(3) Τα κόλα θα στοιβάζονται στο όχημα έτσι ώστε να μη  
μπορούν να μετατοπίζονται. Θα προστατεύονται έναντι οιασδή-  
ποτε τριβής ή προσκρούσεως. Εάν βυτία (κάδοι) μεταφέρονται  
κείμενα επί των πλευρών των, θα διευθετούνται κατά ~~τάδεον~~  
τρόπον ώστε ο επιμήκης άξων καυτών να είναι παράλληλος προς  
τον άξονα του οχήματος και ξύλινες σφήνες θα χρησιμοποιούν-  
ται για να αποφεύγεται οποιαδήποτε πλευρική μετακίνηση.

II 415-

II 499

Άρθρο 5Ειδικές Διατάξεις διέπουσας την λειτουργίαν  
οχημάτωνΣήματα Οχήματος

II 500

Αι διατάξεις του περιθωρίου IO 500, παράγραφοι (1)  
και (6), θα ισχύουν για την μεταφοράν επικινδύνων υλών των  
Κλάσεων Ια, Ιβ και Ιγ.

II 501-

II 507

Διακοπή για την διεύλευσιν μέσω Τελωνείου

II 508

Όταν μονάχα μεταφοράς ή φάλαγγα οχημάτων μεταφέ-

φορμά επικινδυνες όλες των Κλάσεων Ια, Ιβ και Ιγ πρό- II 508  
 κείται να περάσει από συνοριακό Τελωνείο, η μονάδα μετα- (Συνεχίζεται)  
 φοράς (ή φάλαγγα) θα σταματήσει τουλάχιστον 50 μ. από το  
 Τελωνείο. Ο βοηθός οδηγού θα μεταβεί στο Τελωνείο να γνω-  
 ρίσει στις αρχές την άφιξη της μονάδας μεταφοράς (ή φά-  
 λαγγας) της μεταφερόμενης επικινδύνους ύλης.

Διακοπές περιωρισμένης διάρκειας δι' ανάγκες σέρβις II 509

Εφ' όσον είναι δυνατόν, διακοπές δι' ανάγκες σέρβις  
 δεν θα γίνονται πλησίον κατοικημένων τόπων ή τόπων διαμονής  
 (παραθερισμού, κλπ.). Σταμάτημα πλησίον τέτοιου τόπου δεν  
 θα παρατείνεται εκτός κατόπιν εγκρίσεως των αρμοδίων αρχών.

II 510-

II 519

Φάλαγγες (Κονβόϊ)

II 520

(1) Οσάκις οχήματα μεταφέροντα επικινδυνες ύλες  
 των Κλάσεων Ια, Ιβ και Ιγ ταξειδεύουν σε φάλαγγα, μία από-  
 στασις όχι μικροτέρα των 80 μ. θα πρέπει να τηρείται μεταξύ  
 κάθε μονάδας μεταφοράς και της επομένης.

(2) Εάν, για οιοδήποτε λόγο, η φάλαγγα υποχρεωθεί  
 να σταματήσει και εάν, ειδικότερα, οι εργασίες φορτώσεως ή  
 εκφορτώσεως πρέπει να διεξαχθούν σε δημόσιον τόπον, μία  
 απόστασις όχι μικροτέρα των 50 μ. θα πρέπει να τηρείται  
 μεταξύ των σταματημένων οχημάτων.

(3) Οι αρμόδιες αρχές ενδέχεται να εκδώσουν κανόνες  
 για την σειράν ή σύνθεσιν των φαλάγγων (κονβόϊ).

II 521-

II 599



Άρθρο 6Μεταβατικές διατάξεις, ανακλήσεις, και  
διατάξεις ειδικές για ωρισμένες χώρες

II 600-

II 604

Μεταβατικές διατάξεις

II 605

Δι' ανακλήσεως του άρθρου 4, Παράγραφος 2, της Συμφωνίας, οχήματα τα οποία ήσαν ~~επ~~ υπηρεσία εις την επικράτειαν Συμβαλλομένου Μέρους όταν τέθηκε σε ισχύ το παρόν Παράρτημα ή τέθηκαν σε υπηρεσία εκεί εντός δύο μηνών από του τέθηκε σε ισχύ, μπορούν να χρησιμοποιηθούν για τη διεθνή μεταφορά επικινδύνων υλών των Κλάσεων Ια, Ιβ, και Ιγ μόνον διαρκούσης περιόδου ενός έτους από της τοιαύτης θέσεως ~~επ~~ ισχύ εάν το σχέδιον και ο εξοπλισμός των δεν πληρούν πλήρως τους δια την τοιαύτην μεταφοράν όρους του παρόντος Παραρτήματος.

II 606-

II 609

Διατάξεις ειδικές για ωρισμένες χώρες

II 610

Η μεταφορά επικινδύνων υλών των Κλάσεων Ια, Ιβ και Ιγ θα υπόκειται εις τους ισχύοντες εις τον Ηνωμένον Βασίλειον κανονισμούς κατά την εις την επικράτειαν της χώρας ταύτης μεταφοράν.

II 611-

20 999

## Κλάση 2

Αέρια: πεπιεσμένα, υγροποιημένα ή διαλυμένα υπό πρессиΆρθρο ΙΓενικά

2I 000-

2I II7

Μεταφορά σε CONTAINERS

2I II8

Η μεταφορά σε μικρά CONTAINERS κδλων περιεχόντων αέρια των 7<sup>ο</sup> (α) και 8<sup>ο</sup> (α) απαγορεύεται.

2I II9-

2I I20

Μεταφορά σε δεξαμενές (βυτία)

2I I2I

(I) Αέρια της Κλάσεως 2 πλην των κατωτέρω αναφερομένων μπορούν να μεταφέρονται σε σταθερές δεξαμενές, λυόμενες δεξαμενές, ή σε συστοιχίες δοχείων: φθόριο και τετραφθοριούχο πυριτίον (I<sup>ο</sup> (A T)), οξείδιο του αζώτου (I<sup>ο</sup> (C T)), μίγματα υδρογόνου με όχι άνω του 10 τοις εκατόν υδρογονούχου SELENIDE ή φωσφίνης ή υδρογονούχου πυριτίου (SILANE) ή γερμανίου (GERMANE) κατ'όγκον ή με όχι άνω των 156 τοις εκατόν αρσίνης κατ'όγκον, μίγματα αζώτου ή σπανίων αερίων (περιέχοντα όχι άνω του 10 τοις εκατόν ξένο (XENON) κατ'όγκον) με όχι άνω του 10 τοις εκατόν υδρογονούχου SELENIDE ή φωσφίνης ή υδρογονούχου πυριτίου ή γερμανίου κατ'όγκον ή με όχι άνω του 156 τοις εκατόν αρσίνης κατ'όγκον (2<sup>ο</sup> (B T)), μίγματα υδρογόνου με όχι άνω του 10 τοις εκατόν DIBORANE κατ'όγκον, μίγματα αζώτου ή σπανίων αερίων (περιέχοντα όχι άνω του 10 τοις εκατόν ξένο (XENON) κατ'όγκον)) με όχι άνω του 10 τοις εκατόν.

εκατόν DIBORANE κατ'όγκον ( $2^{\circ}$  (C T))· βοριοχλωρίδιο, τρι- ΣΙ Ι2Ι  
 φθοριούχο χλώριο, νιτροξυχλωρίδιο, φθοριούχο SULPHURYL (Συνεχι-  
 και εξαφθοριούχο βολφράμιο ( $3^{\circ}$  (A T))· μεθυλικό υδρογο- ζεται)  
 νούχο πυρίτιο (METHYLSILANE) ( $3^{\circ}$  (β))· αρσίνη, διχλωρο-  
 υδρογονούχο πυρίτιο (DICHLOROSILANE), διμεθυλικό υδρο-  
 γονούχο πυρίτιο (DIMETHYLSILANE), υδρογονούχο SELENIDE  
 και τριμεθυλικό υδρογονούχο πυρίτιο (TRIMETHYLSILANE)  
 ( $3^{\circ}$  (B T))· κυάνιο, χλωριούχο κυάνιο και οξείδιο αιθυλε-  
 νίου ( $3^{\circ}$  (C T))· μίγματα μεθυλικών υδρογονούχων πυριτίων  
 (METHYLSILANES) ( $4^{\circ}$  (B T))· οξείδιο αιθυλενίου περιέχον  
 όχι άνω του 50 τοις εκατόν αλάτων μεθυλικού μωρμηκικού  
 οξέος κατά βάρος ( $4^{\circ}$  (C T))· υδρογονούχο πυρίτιο (SILANE)  
 ( $5^{\circ}$  (β))· όλες των  $5^{\circ}$  (B T) και (C T)· διαλελυμένο ακετυ-  
 λένιο ( $9^{\circ}$  (C))· και αέρια των  $12^{\circ}$  και  $13^{\circ}$ .

(2) Αέρια της Κλάσεως 2 πλην των κατωτέρω αναφερο-  
 μένων μπορούν να μεταφέρονται σε δεξαμενο-CONTAINERS:  
 φθόριο και τετραφθοριούχο πυρίτιο ( $1^{\circ}$  (A T))· οξείδιο του  
 αζώτου ( $1^{\circ}$  (C T))· μίγματα υδρογόνου με όχι άνω του 10  
 τοις εκατόν υδρογονούχου SELENIDE ή φωσφίνης ή υδρογονού-  
 χου πυριτίου (SILANE) ή γερμανίου (GERMANE) κατ'όγκον ή  
 με όχι άνω των 15 τοις εκατόν αρσίνης κατ'όγκον· μίγματα  
 αζώτου ή σπανίων αερίων (περιέχοντα όχι άνω του 10 τοις  
 εκατόν ξένον (XENON) κατ'όγκον) με όχι άνω του 10 τοις εκα-  
 τόν υδρογονούχου SELENIDE ή φωσφίνης ή υδρογονούχου πυρι-  
 τίου ή γερμανίου κατ'όγκον ή με όχι άνω του  $\pm 5$  τοις εκατόν  
 αρσίνης κατ'όγκον ( $2^{\circ}$  (B T))· μίγματα υδρογόνου με όχι  
 άνω του 10 τοις εκατόν β DIBORANE κατ'όγκον· μίγματα αζώ-

του ή σπανίων αερίων (περιέχοντα όχι άνω του 106τοι, εκα- 21 121  
 τόν ξένον (XENON) κατ'όγκον)) με όχι άνω του 106τοι. (Συνεχίζε-  
 εκατόν DIBORANE κατ'όγκον (2° (C T))· βοριοχλωρίδιο, ται)  
 τριφθοριούχο χλώριο, νιτροζυχλωρίδιο, φθοριούχο SULPHURYL  
 και εξαφθοριούχο βολφράμιο (3° (A T))· μεθυλικό υδρογο-  
 νούχο πυρίτιο (METHYLSILANE) (3° (β))· αρσίνη, διχλωρο-  
 υδρογονούχο πυρίτιο (DICHLOROSILANE), διμεθυλικό υδρογο-  
 νούχο πυρίτιο (DIMETHYLSILANE), υδρογονούχο SELENIDE και  
 τριμεθυλικό υδρογονούχο πυρίτιο (TRIMETHYLSILANE) (3° (B T))·  
 κυάνιο, χλωριούχο κυάνιο και οξείδιο αιθυλενίου (3° (C T))·  
 μίγματα μεθυλικών υδρογονούχων πυριτίων (METHYLSILANES)  
 (4° (B T))· οξείδιο αιθυλενίου περιέχον όχι άνω του 50  
 6τοι, εκατόν αλάτων μεθυλικού μυρμηκικού οξέος κατά βάρος  
 (4° (C T))· υδρογονούχο πυρίτιο (SILANE) (5° (β))· και τα  
 αέρια των 12° και 13°. Εν τούτοις, χλώριον και φωσγένιον  
 (3° (A T)) δεν θα μεταφέρονται σε δεξαμενο-CONTAINERS κυ-  
 βικής χωρητικότητας υπερβαίνουσας το 1μ<sup>3</sup>.

(3) Δεξαμενο-CONTAINERS περιέχοντα όλες των 1° (β)·  
 2° (β)· 3° (β)· χλωροαιθάνιον (χλωριούχον αιθύλιον) ή διμε-  
 θυλικόν αιθέρα της 3° (B T)· όλες της 3° (γ)· βρωμιούχο βινύ-  
 λιο ή μεθυλικόν βινυλικόν αιθέρα της 3° (C T)· ή όλες της  
 4° (β), 4° (γ), 5° (β), 6° (γ), 7° (β) ή 8° (β), θα φέρουν και  
 6τοι δύο πλευρές τους ετικέτα σύμφωνα προς το μοντέ-  
 λο No. 2A.

Δεξαμενο-CONTAINERS περιέχοντα οξυγόνο της 1° (α)·  
 τριφθοριούχο βόριο της 1° (A T)· μίγματα περιέχοντα άνω  
 του 206τοι, εκατόν οξυγόνο κατ'όγκον, της 2° (α)· μονοξεί-

διο του αζώτου της 5<sup>ο</sup> (α)• μονοξειδίο του αζώτου ή οξυγό- 2Ι Ι2Ι  
 νον της 7<sup>ο</sup> (α)• ή υγρόν αέρα ή μίγματα περιέχοντα άνω (Συνεχί-  
 του 20 θέτοι εκατόν οξυγόνον κατά βάρος, της 8<sup>ο</sup> (α), θα ζεται)  
 φέρουν και έξι δυό πλευρές τους ετικέτα σύμφωνα  
 προς το μοντέλο Νο. 3.

Δεξαμενο-CONTAINERS περιέχοντα αέρια των Ι<sup>ο</sup> (B T)  
 ή 2<sup>ο</sup> (B T), ή διμεθυλαμίνη, αιθυλαμίνη, υδροθειον, μεθυ-  
 λαμίνη, χλωριούχο μεθύλιο, μεθυλικό MERCAPTAN, ή τριμε-  
 θυλαμίνη, της 3<sup>ο</sup> (B T), θα φέρουν και έξι δυό πλευ-  
 ρές τους ετικέτες σύμφωνα προς τα μοντέλα Νο. 2Α και 4.

Δεξαμενο-CONTAINERS περιέχοντα διοξειδίο του α-  
 ζώτου ή φωσγένιο της 3<sup>ο</sup> (A T) θα φέρουν και έξι δυό  
 πλευρές τους ετικέτες σύμφωνα προς τα μοντέλα Νο. 3 και 4.

Δεξαμενο-CONTAINERS περιέχοντα υδροβρωμίδιο της  
 3<sup>ο</sup> (A T) ή υδροχλώριο της 5<sup>ο</sup> (A T) θα φέρουν και έξι δυό  
 πλευρές τους ετικέτες σύμφωνα προς τα μοντέλα Νο. 4  
 και 5.

2Ι Ι22-

2Ι Ι27

### Κενά βιτλα (δεξαμενές)

2Ι Ι28

(1) Για κενές σταθερές δεξαμενές, κενές συστοι-  
 χίες δοχείων και κενές λυόμενες δεξαμενές, βλέπε Παράρτη-  
 μα Α, περιθώριο 220Ι, Ι4<sup>ο</sup>, Σημείωσις Ι.

(2) Για δεξαμενο-CONTAINERS, βλέπε περιθώριο

2Ι2 Ι77.

2Ι Ι29

2Ι Ι70

Πληρώματα οχημάτων: Επίβλεψη (Εποπτεία)

2I 171

ΑΙ διατάξεις του περιθωρίου IO 171(2) θα ισχύουν μόνον για τα επικίνδυνα εμπορεύματα τα αναγραφόμενα κατωτέρω σε προσότητες υπερβαίνουσες τα οριζόμενα βάρη:

- τριφθοριούχο βόριο και φθόριο (I<sup>ο</sup> (A T))· οι ύλες της 3<sup>ο</sup> (A T)· της 3<sup>ο</sup> (B T) πλην του διμεθυλικού αιθέρα και του χλωριούχου αιθυλίου· και της 3<sup>ο</sup> (C T)· υδροχλώριο της 5<sup>ο</sup> (A T)· και τα βαθειά κατεψυγμένα υγροποιημένα αέρια της 7<sup>ο</sup> (α) και 8<sup>ο</sup> (α): I.000 KG
- οι ύλες της 3<sup>ο</sup> (β)· διμεθυλικός αιθέρας και χλωριούχο αιθύλιο της 3<sup>ο</sup> (B T)· χλωριούχο βινύλιο της 3<sup>ο</sup> (γ)· οι ύλες της 4<sup>ο</sup> (β)· και τα εύφλεκτα υγροποιημένα αέρια της 7<sup>ο</sup> (β) και 8<sup>ο</sup> (β): IO.000 KG.

2I 172-

2I 199

Άρθρο 2

Ειδικοί όροι που πρέπει να πληρούν τα οχήματα και ο εξοπλισμός των

2I 200

2I 211

Εξαερισμός

2I 212

Εάν κδλα περιέχοντα αέρια των I<sup>ο</sup> έως 6<sup>ο</sup> και 9<sup>ο</sup> (γ) μεταφέρονται σε κλειστό όχημα, το όχημα θα πρέπει να είναι εφοδιασμένο με κατάλληλον εξαερισμόν.

2I 213-

2I 230

Κινητήρας και σύστημα εξαγωγής

2I 231

Ο κινητήρας οχήματος μεταφέροντος αέριον της Κλάσεως 2 σε σταθερό βυτίο (δεξαμενή), σε λυομένη δεξαμενή ή συστοιχία δοχείων, και οσάνκις ενδεικνύται ο κινητήρας που κινεί την αντλία αποστάξεως (DECANTING PUMP), θα είναι έτσι εξοπλισμένος και τοποθετημένος, και οι σωλήνες εξαγωγής θα έχουν τέτοια κατεύθυνση ή προστατεύονται, ώστε να αποφεύγεται οιοσδήποτε για το φορτίο κίνδυνος εκ θερμάνσεως ή αναφλέξεως.

2I 232-

2I 239

Πυροσβεστικές συσκευές

2I 240

Οι διατάξεις του περιθωρίου IO 240 (I) (β) και (3) δεν θα ισχύουν για μεταφοράν πλην εκείνης των ευφλέκτων αερίων ή ειδών των αναφερομένων εις περιθώριον 220 002, ή των κενών συσκευασιών της I4<sup>o</sup> οι οποίες περιείχον τα τοιαύτα αέρια.

2I 241-

2I 250

Ηλεκτρικός εξοπλισμός

2I 251

Οι διατάξεις της προσθήκης Β.2 δεν θα ισχύουν δια μεταφοράν πλην εκείνης των ευφλέκτων αερίων ή ειδών των αναφερομένων εις περιθώριον 220 002, ή των κενών συσκευασιών της IO<sup>o</sup> που περιείχον τα τοιαύτα αέρια.

2I 252-

2I 259

Ειδικός εξοπλισμός

2I 260

Όσakis μεταφέρονται πεπιεσμένα αέρια ή υγροποιημένα αέρια επικίνδυνα (βλαβερά) για τα αναπνευστικά όργανα ή εγκυμονούντα κίνδυνον δηλητηρίασεως και προσδιοριζόμενα με το γράμμα "F" εις την κατάσταση των υλών, το πλήρωμα του οχήματος θα είναι εφοδιασμένον με αναπνευστικές μάσκες του καταλλήλου των μεταφερομένων αερίων τύπου.

2I 26I-

2I 299

Άρθρο 3Διατάξεις Γενικών Υπηρεσιών

2I 300-

2I 352

Φορητή συσκευή φωτισμού

2I 353

Όσakis μεταφέρονται αέρια ή είδη του περιθωρίου 220 002, εις το κλειστό όχημα δεν επιτρέπεται να εισέρχονται πρόσωπα μεταφέροντα συσκευήν φωτισμού πλην φορητών λυχνιών έτσι σχεδιασμένων και κατασκευασμένων που να μη μπορούν να αναφλέξουν οιαδήποτε αέρια που ενδέχεται να εισέδυσαν στο εσωτερικό του οχήματος.

2I 354-

2I 399

Άρθρο 4Ειδικές Διατάξεις διέπουσες την φόρτωση, εκφόρτωση και χειρισμόνΜέθοδος αποστολής και περιορισμοί προωθήσεως

2I 400

Διοξειδίου του άνθρακος και/οξειδίου του αζώτου



της 7<sup>ο</sup> (α), μίγματα περιέχοντα διοξειδίο του άνθρακος και 2Ι 400 μονοξειδίο του αζώτου της 8<sup>ο</sup> (α), και τα αέρια της 8<sup>ο</sup> (β) (Συνεχίζεται) (β), και τα αέρια της 8<sup>ο</sup> (β) μπορούν να μεταφέρονται μόνον σε σταθερές δεξαμενές, λυόμενες δεξαμενές ή συστοιχίες δοχείων ή σε δεξαμενο-CONTAINERS.

2Ι 40Ι-

2Ι 402

Απαγόρευση μικτής φοερτώσεως σε ένα όχημα

2Ι 403

Είδη της Κλάσεως 2 κλεισμένα σε κόλα φέροντα επικέτα σύμφωνα προς το μοντέλο Νο. 2Α δεν θα φορτώνονται μαζί σε ένα όχημα με όλες ή είδη των Κλάσεων Ια, Ιβ ή Ιγ κλεισμένα σε κόλα φέροντα επικέτα ή δύο επικέτες σύμφωνα προς το μοντέλο Νο.Ι.

2Ι 404-

2Ι 406

Τόποι φορτώσεως και εκφορτώσεως

2Ι 407

(Ι) Οι παρακάτω εργασίες απαγορεύονται:-

(α) φόρτωση ή εκφόρτωση των κατωτέρω υλών σε δημόσιο χώρο κατακτημένης περιοχής χωρίς την άδεια των αρμοδίων αρχών: υδροβρωμίδιον, χλώριον, διοξειδίο του αζώτου, διοξειδίο του θείου ή φωσγένιο (3<sup>ο</sup> (Α Τ))· υδροθειον (3<sup>ο</sup> (Β Τ))· και υδροχλώριον (5<sup>ο</sup> (Α Τ))·

(β) φόρτωση ή εκφόρτωση των υλών των αναφερομένων υπό στοιχείον (α) ανωτέρω εις δημόσιον χώροσ αλλαχού δχι εις δημόσιον χώροσ άνευ προηγουμένης ειδοποιήσεως των αρμοδίων αρχών, εκτός εάν αι ανα-

Υπόλοιπες εργασίες δικαιολογούνται για σοβα-  
ρούς λόγους ασφαλείας.

2I 407

(Συνεχίζε-  
ται)

(2) Εάν βιασίουι ονδήςποτε λόγον εργασιών χειρισμού πρέ-  
πει να εκτελεσθούν σε δημόσιο χώρο, τότε:-

- όλες και είδη διαφόρων ειδών θα διαχωρίζονται συμ-  
φώνως προς τις ετικέτες και
- κόλα εφοδιασμένα μέσα χειρισμού θα τηρούνται (σα  
(επίπεδα) κατά τον χειρισμόν των.

2I 408-

2I 4I3

#### Χειρισμός και στοιβάσια

2I 4I4

(I) Τα κόλα δεν θα ρίπτονται ή υποβάλλονται σε πρόσκρουση.

(2) Τα δοχεία θα στοιβάζονται κατά τέτοιο τρόπο στο δχη-  
μα ώστε να μη μπορούν να αναποδογυρίσουν ή πέσουν και όπως  
πληρούνται οι παρακάτω όροι:-

- (α) οι κύλινδροι οι αναφερόμενοι στο περιθώριο  
22I2 (I) (α) θα τοποθετούνται παράλληλα ή εις  
ορθές γωνίες προς τον επιμήκη άξονα του οχήματος·  
εν τούτοις, οι ευρισκόμενοι πλησίον του προσθίου  
εγκαρσίου τοιχώματος θα τοποθετούνται εις ορθές  
γωνίες προς <sup>τον</sup> ~~καταγερμένο~~ άξονα.

Κοντοί κύλινδροι μεγάλης διαμέτρου (πε-  
ρίπου 30 CM και άνω) μπορούν να στοιβάζονται  
κατά μήκος των μηχανισμών των προστασίας δια-  
βαλβίδας (VALVE-PROTECTING DEVICES) με κατεύθυν-  
ση προς το μέσον του οχήματος.

Κόλινδροι οι οποιοι είναι αρκετά σταθεροί

ή μεταφέρονται σε κατάλληλους μηχανισμούς 2Ι 4Ι4  
εμποδίζοντας αυτούς να αναποδογυρίσουν μπο- (Συνεχί-  
ρούν να τοποθετούνται όρθιοι. ζεται)

Κύλινδροι οι οποίοι είναι τοποθετημέ-  
νοι επί πεδα θα σφηνώνονται κατά τοιούτον τρό-  
πον ώστε να μη μπορούν να μετατοπισθούν.

- (β) δοχεία περιέχοντα αέρια των 7<sup>ο</sup> (α) ή 8<sup>ο</sup> (α) θα  
τοποθετούνται πάντοτε στη θέση την καθορισθεί-  
σα §ι' αυτά και προστατεύονται κατά της πιθανό-  
τητας καταστροφής των υπό άλλων κδλων.

2Ι 4Ι5-

2Ι 499

#### Άρθρο 5

#### Ειδικές Διατάξεις διέπουσας την λειτουργία των οχημάτων

#### Σήματα Οχήματος

2Ι 500

(1) Οι διατάξεις του περιθωρίου ΙΟ 500, παράγραφοι (1)  
και (6) θα ισχύουν §ια την μεταφοράν επικινδύνων υλών της  
κλάσεως 2. Οι διατάξεις των παραγράφων (2) έως (5) θα ισχύ-  
ουν επιπροσθέτως §ια την μεταφοράν των υλών των αναφερομένων  
εις την Προσθήκη Β.5.

(2) Σταθερές δεξαμενές περιέχουσας ή (κενές δεξαμενές,  
μη-καθαρισμένες) που έχουν περιλάβει όλες αναφερόμενες  
στη Προσθήκη Β.5, θα φέρουν επιπροσθέτως τις εξής ετικέ-  
τες εις δύο τους πλευρές και στο πίσω μέρος:-

Αέρας, υγροποιημένος 3

Αμμωνία, άνυδρη 4

Βουταδιένιον	2A	2I 500
Βουτάνιον	2A	(Συνεχί-
Βουτυλένιον	2A	ζεσαι)
Χλώριον	4	
Κυκλοπροπάνιον	2A	
Διμεθυλικός Αιθήρ	2A	
Χλωριούχον Αιθόλιον	2A	
Αιθυλένιον	2A	
Αιθυλένιον, υγρόν (κατεψυγμένον)	2A	
Υδρογονάνθρακες, μίγματα αυτών (Μίγματα Α, ΑΟ, ΑΙ, Β και Γ)	2A	
Υδροβρωμίδιον	4 / 5	
Υδροχλώριον	4 / 5	
Ισοβουτάνιον	2A	
Ισοβουτυλένιον	2A	
Μεθάνιον, υγρόν (κατεψυγμένον)	2A	
Μεθυλαμίνη, άνυδρος	4	
Μεθυλικόν Βρωμίδιον	4	
Χλωριούχον Μεθόλιον	2A / 4	
Μεθυλικός Βινυλικός Αιθήρ	2A	
Φυσικόν αέριον, υγρόν (κατεψυγμένον)	2A	
Διοξειδιον του Αζώτου NO <sub>2</sub>	3 / 4	
Μονοξειδιον του Αζώτου N <sub>2</sub> O	3	
Οξυγονον (κατεψυγμένον)	3	
Φωσγένιον	3 / 4	
Προπυλένιον	2A	
Τριμεθυλαμίνη, άνυδρος	2A / 4	

Χλωριούχον Βινύλιον

2Α

2I 500

2I 50I-

2I 508

Διακοπές (Σταματήματα) περιορισμένης διάρκειας για ανάγκες  
σέρβις 2I 509

Κατά την μεταφορά επικινδύνων υλών της Κλάσεως 2 πλην των I<sup>ο</sup>, (α) και (Α Τ)· 2<sup>ο</sup> (α)· 7<sup>ο</sup> (α)· 8<sup>ο</sup> (α)· και ΙΟ<sup>ο</sup>, διακοπές (σταματήματα οχημάτων) για ανάγκες σέρβις δεν θα πρέπει όσον είναι δυνατόν να γίνονται ημίσου κατοικημένων περιοχών ή τόπων διαμονής. Σταμάτημα ημίσοντολούτου τύπου δεν επιτρέπεται να παραταθεί εκτός κατόπιν εγκρίσεως των αρμοδίων αρχών.

2I 5IO-

2II 599

Μεταβατικές διατάξεις, ανακλήσεις και  
διατάξεις ειδικές για ωρισμένες χώρες

2I 600-

2I 609

Διατάξεις ειδικές για ωρισμένες χώρες

2I 6IO

Η μεταφορά επικινδύνων υλών της Κλάσεως 2 θα υπόκειται στην επικρατεία του Ηνωμένου Βασιλείου εις τους κανονισμούς τους ισχύοντες εις την χώραν αυτήν κατά τον χρόνον της μεταφοράς.

2I 6II-

30 999

Κλάση 3Εύφλεκτα ΥγράΆρθρο IΓενικά

3I 000-

3I 117

Μεταφορά σε CONTAINERS

3I 118

Εύθραυστα κόλα εντός της εννοίας του περιθωρίου IO IO2 (I) δεν επιτρέπεται να μεταφέρονται σε μικρά CONTAINERS.

3I 119-

3I 120

Μεταφορά σε δεξαμενές (βυτία)

3I 121

(1) Όλα τα υγρά της Κλάσεως 3 πλην νιτρομεθάνης (3<sup>ο</sup>) επιτρέπεται να μεταφέρονται σε σταθερές δεξαμενές και λυόμενες δεξαμενές.

(2) Όλες οι ύλες της Κλάσεως 3 πλην νιτρομεθάνης (μονο-νιτρομεθάνη) (3<sup>ο</sup>) επιτρέπεται να μεταφέρονται σε δεξαμενο-CONTAINERS.

(3) Αι κατωτέρω ύλες επιτρέπεται να μεταφέρονται σε ενισχυμένες πλαστικές δεξαμενές συμμορφούμενες προς τις διατάξεις της Προσθήκης Β.Ιγ:

Ακαθάριστον πετρέλαιον και λοιπά αργά πετρέλαια<sup>ο</sup> πτητικά προϊόντα εκ της αποστάξεως ακαθάρτου πετρελαίου και λοιπών αργών πετρελαίων (I<sup>ο</sup>(α)).

Ημι-βαρέα προϊόντα εκ της αποστάξεως πετρελαίου και λοιπών αργών πετρελαίων (3<sup>ο</sup>).

Πετρέλαια θερμάνσεως και πετρέλαια ντήζελ (4<sup>ο</sup>).

31 I22-

31 I27

Κενές δεξαμενές (βυτία)

31 I28

(1) Για να γίνουν δεκτές για μεταφορά, κενές σταθερές δεξαμενές και κενές λυόμενες δεξαμενές που περιείχαν εύφλεκτα υγρά της Κλάσεως 3 θα κλείονται κατά τον αυτόν τρόπον και θα είναι του αυτού βαθμού στεγανές ως εάν ήσαν πλήρεις.

(2) Για δεξαμενο-CONTAINERS, βλέπε περιθώριον 2I2 I77.

31 I29-

31 I70

Πληρώματα οχημάτων· Επίβλεψη (Εποπτεία)

31 I7I

Οι διατάξεις του περιθωρίου IO I7I (2) θα ισχύουν μόνον δια τα κατωτέρω αναφερόμενα επικίνδυνα εμπορεύματα σε ποσότητες υπερβαίνουσες τις κατωτέρω οριζόμενες:-

- Όλες της I<sup>ο</sup> πλην διθειούχου άνθρακος, αλδεύδη του αλκοολικού πνεύματος (ακρολεΐνη) και χλωροπρένιον (χλωτοβουταδιένιον), και αι όλες της 5<sup>ο</sup>: 10.000 KG
- Διθειούχος άνθρακας, αλδεύδη του αλκοολικού πνεύματος (ακρολεΐνη) και χλωροπρένιον (χλωροβουταδιένιον) της I<sup>ο</sup>: 1.000 KG

31 I72-

31 I99

Άρθρο 2Ειδικές Διατάξεις που πρέπει να πληρούν τα οχήματα  
και ο εξοπλισμός των

3I 200-

3I 215

Κουβούκλιον (Θέσις Οδηγού)

3I 216

Ευχερώς εύφλεκτον υλικόν δεν θα χρησιμοποιείται για την κατασκευήν των κουβουκλίων οχημάτων μεταφερόντων υγρά της I<sup>ο</sup> σε σταθερές δεξαμενές ή λυόμενες δεξαμενές.

3I 217-

3I 230

Κινητήρας (Μηχανή) και σύστημα εξαγωγής

3I 231

Ο κινητήρας (μηχανή) ενός οχήματος μεταφέροντος υγρόν της I<sup>ο</sup> σε σταθερά δεξαμενή ή λυόμενη δεξαμενή θα είναι έτσι κατασκευασμένος και τοποθετημένος, και ο σωλήν εξαγωγής θα έχει τέτοια κατεύθυνση ή προστατεύεται, ώστε να αποφεύγεται οιοσδήποτε δια το φορτίο κίνδυνος εκ θερμάνσεως ή αναφλέξεως.

Σωλήνωσις Αεραγωγού Εισαγωγής

3I 232

Προκειμένου περί οχημάτων μεταφερόντων υγρών της I<sup>ο</sup> σε σταθερές δεξαμενές ή σε λυόμενες δεξαμενές, η σωλήνωσις εισαγωγής κάθε πετρελαιομηχανής θα είναι εφοδιασμένη με φίλτρο ικανό να υπηρετεί ως φλογοπαγίδα.

3I 233-

3I 234

Πετρελαιοδεξαμενή (Δεξαμενή Βελζίνης)

3I 235

Η πετρελαιοδεξαμενή η τροφοδοτούσα τον κινητήρα



είναι οχήματος μεταφέροντος υγρόν της Ι<sup>ο</sup> εντός σταθεράς δε- 3Ι 235  
 ξαμενής ή λυομένης δεξαμενής θα είναι έτσι τοποθετημένη (Συνεχι-  
 ζεται)  
 ώστε να προστατεύεται όσον είναι δυνατόν κατά αναγκαστικής  
 προσκρούσεως και όπως ~~σε~~ περίπτωση διαρροής καυσίμου το  
 τελευταίον να μπορεί να εκκενούνται απ' ευθείας εις το έδα-  
 φος. Η πετρελαιοδεξαμενή ~~σε~~ ~~καμία~~ περίπτωση θα τοποθε-  
 τείται ακριβώς άνω της σωληνώσεως εξαγωγής. Εάν η δεξαμε-  
 νή περιέχει καύσιμον, θα είναι εφοδιασμένη με κατάλληλον  
 φλογοπαγίδα εφαρμόζουσαν εις το στόμιον πληρώσεως ή με μη-  
 χανισμόν δια του οποίου το στόμιον πληρώσεως θα μπορεί να  
 τηρείται ερμητικώς κλεισμένον.

3Ι 236-

3Ι 250

Ηλεκτρικός εξοπλισμός

3Ι 25Ι

Αι διατάξεις της Προσθήκης Β.2, περιθώριον 220 000,  
 δεν θα ισχύουν δια την μεταφοράν επικινδύνων υλών της Κλά-  
 σεως 3 πλην ευφλέκτων υγρών των Ι<sup>ο</sup>, 2<sup>ο</sup> και 3<sup>ο</sup> και οξεικής  
 αλδεΐνης, ακετόνης και μιγμάτων ακετόνης της 5<sup>ο</sup>.

3Ι 252-

3Ι 299

## Άρθρο 3

Διατάξεις Γενικών Υπηρεσιών

3Ι 300

3Ι 352

Χρήσιμος φορητός συσκευής φωτισμού

3Ι 353

Σε κλειστό όχημα δεν επιτρέπεται να εισέρχονται  
 πρόσωπα μεταφέροντα συσκευήν φωτισμού πλην φορητών λυχνιών

σχεδιασμένων και κατασκευασμένων κατά τέτοιον τρόπον ώστε να μη μπορούν να αναφλέξουν οιονδήποτε αέριον το οποίον ενδέχεται να εισχώρησεν εις το εσωτερικόν του οχήματος. (Συνεχίζεται)

3I 354-

3I 399

Άρθρο 4Ειδικές Διατάξεις διέπουσας την φόρτωση, εκφόρτωση και χειρισμόν

3I 400-

3I 402

Απαγόρευση μικτής φορτώσεως επί ενός οχήματος

3I 403

(1) Υγρά της Κλάσεως 3, κλεισμένα σε κόλα φέροντα ετικέτα ή δύο ετικέτες συμμορφούμενες προς το μοντέλο Νο. 2Α δεν θα φορτώνονται μαζί σε ένα δχημα με ύλες ή είδη των Κλάσεων Ια, Ιβ ή Ιγ κλεισμένα σε κόλα φέροντα ετικέτα ή δύο ετικέτες συμμορφούμενες προς το μοντέλο Νο. Ι.

(2) Ύλες της Κλάσεως 3, κλεισμένες σε κόλα φέροντα δύο ετικέτες σύμφωνες με το μοντέλο Νο. 2Α δεν θα φορτώνονται μαζί σε ένα δχημα με:-

(α) ύλες των Κλάσεων 5.1 ή 5.2 κλεισμένες σε κόλα φέροντα δύο ετικέτες συμφώνως προς το μοντέλο Νο. 3<sup>ο</sup> ή με

(β) υγρά της Κλάσεως 8 κλεισμένα σε κόλα φέροντα δύο ετικέτες συμφώνως προς το μοντέλο Νο. 5.

3I 404-

3I 413

Χειρισμός και στοιβάσα

3I 414

Η χρήση ευχερώς ευφλέκτων υλών δια στοιβαζόμενα κόλα σε οχήματα απαγορεύεται. 3I 4I4

3I 4I5

Προφυλάξεις κατά ηλεκτροστατικών φορτίσεων 3I 4I6

Προ της πληρώσεως ή εκκενώσεως δεξαμενών αβόενισχυμένης πλαστικής ύλης με ύλες σημείου αναφλέξεως 55°C και κάτω, μέτρα θα λαμβάνονται δια να υπάρχει καλή ηλεκτρική σύνδεση του σασσι του οχήματος με τη γη.

Ο ρυθμός πληρώσεως για ύλες με σημείον αναφλέξεως 55°C και κάτω θα περιορίζεται εις τρόπον ώστε να αποφεύγεται η δημιουργία μη-ασφαλών ηλεκτροστατικών φορτίσεων. 3I 4I7

3I 4I8-

3I 499

#### Άρθρο 5

Ειδικές Διατάξεις διέπουσαι την λειτουργίαν οχημάτων

Σήματα οχήματος 3I 500

(I) Αι διατάξεις του περιθωρίου IO 500, παράγραφοι (I) και (6), θα ισχύουν δια την μεταφοράν υλών των I°, 3°, 4° και 5°. Αι διατάξεις των παραγράφων (2) έως (5) θα ισχύουν δια την μεταφοράν υλών αναφερομένων εις την Προσθήκη Β.5.

(2) Σταθερές δεξαμενές περιέχουσας ύλες αναγραφόμενες στην Προσθήκη Β.5 θα φέρουν επιπροσθέτως εις δύο των πλευρών και εις το πίσω μέρος ετικέτα σύμφωνα προς το μοντέλο Νο. 2Α\* δεξαμενές περιέχουσας ή (κενές δεξαμενές, μη-καθαρισθείσας) που περιείχον ACRYLALEDEHYDE (ακρολεΐνη) ή χλωροπρένιον (χλωροβουταδιένιον) (I° (α)) ή μεθανάλην

(μεθυλικήν αλκοόλην) (5<sup>ο</sup>) θα φέρουν επιπροσθέτως ετικέ- 3I 500  
τες συμφώνως προς το μοντέλο Νο. 4. (Συνεχι-  
ζεται)

3I 50I-  
3I 599

Άρθρο 6

Μεταβατικές Διατάξεις, ανακλήσεις, και  
διατάξεις ειδικές για ωρισμένες χώρες

3I 600-  
3I 604  
3I 605

Μεταβατικές διατάξεις

Δεξαμενές που ήσαν ~~σε~~ υπηρεσία εις την επικράτεια του Συμβαλλομένου Μέρους όταν η Σύμβασις ετέθη ~~σε~~ ισχύ<sup>ς</sup> συμφώνως προς το άρθρον 7, παράγραφος I, ή ετέθησαν ~~σε~~ υπηρεσία εντός δύο μηνών από της ημερομηνίας θέσεως ~~σε~~ ισχύ<sup>ς</sup> της Συμβάσεως, μπορούν να χρησιμοποιηθούν ~~για~~ την διεθνή μεταφοράν επικινδύνων υλών διαρκούσης περιόδου τριών ετών από της της τοιαύτης ημερομηνίας ακόμη και εάν το σχέδιον και ο εξοπλισμός αυτών δεν πληρούν πλήρως τους όρους της Προσθήκης B.I.

3I 606-  
3I 609

Διατάξεις ειδικές για ωρισμένες χώρες

3I 610

Η μεταφορά υγρών της Κλάσεως 3, το σημειον αναφλέξεως των οποίων είναι κάτω των 23<sup>ο</sup>C θα υπόκειται εις την επικράτεια του Ηνωμένου Βασιλείου εις τους κανονισμούς τους ισχύοντας εις την χώραν αυτήν κατά τον χρόνον της μεταφοράς.

3I 61I  
4<sup>ο</sup> 999

Κλάση 4.1Εύφλεκτα στερεάΆρθρο IΓενικά

4I 000-

4I 103

Τύποι οχημάτων

4I 104

Κόλα περιέχοντα ύλες των 4<sup>ο</sup> έως 8<sup>ο</sup> θα φορτώνονται σε κλειστά οχήματα ή σε σκεπασμένα οχήματα.

4I 105-

4I 110

Μεταφορά εμπορευμάτων εις χύμα

4I 111

(1) Θείον της 2<sup>ο</sup> (α) μπορεί να μεταφερθεί εις χύμα.

(2) Ναφθαλίνη της II<sup>ο</sup> (α) και (β) μπορεί να μεταφερθεί εις χύμα· στη περίπτωση αυτή πρέπει να μεταφέρεται σε κλειστά οχήματα με μεταλλικό πήγμα ή σε σκεπασμένα οχήματα με μη-εύφλεκτο κάλυμμα και είτε έχοντα μεταλλικό πήγμα ή έχοντα κάλυμμα από στενά-υφασμένο υλικό απλωμένο εις το δάπεδο. Για την μεταφοράν ναφθαλίνης της II<sup>ο</sup> (α), τα δάπεδα των οχημάτων θα προστατεύονται από πετρελαιοστεγανή επένδυση.

4I 112-

4I 117

Μεταφορά σε CONTAINERS

4I 118

Για την μεταφορά ναφθαλίνης της II<sup>ο</sup> (α) και (β), μικρά ξύλινα CONTAINERS (εμπορευματοκιβώτια) θα είναι εφοδιασμένα με πετρελαιοστεγανή επένδυση.

4I 119-

4I 120

Μεταφορά σε δεξαμενές.

4I 12I

(1) Θείον (2<sup>ο</sup>), φωσφορική εξασουλφίδη (PHOSPHORUS SESQUISULPHIDE), φωσφορική πεντασουλφίδη (PHOSPHORUS PENTASULPHIDE) (8<sup>ο</sup>) και ναφθαλίνη (II<sup>ο</sup>) μπορούν να μεταφέρονται σε σταθερές ή λυόμενες δεξαμενές.

(2) Οι δίδες αυτές όλες μπορούν επίσης να μεταφερθούν σε δεξαμενο-CONTAINERS.

4I 122-

4I 127

Κενές δεξαμενές

4I 128

Για δεξαμενο-CONTAINERS, βλέπε περιθώριον 2I2 I77.

4I 129-

4I 170

Πληρώματα οχημάτων. Επίβλεψη (Εποτεία)

4I 17I

(1) Βοηθός οδηγού θα μεταφέρεται (υπάρχει) σε κάθε μονάδα μεταφοράς που μεταφέρει άνω των 300 KG υλών της 6<sup>ο</sup>.

(2) Αι διατάξεις του περιθωρίου IO I7I (2) θα ισχύουν μόνον για τα παρακάτω αναφερόμενα επικίνδυνα εμπορεύματα σε ποσότητες υπερβαίνουσες τις παρακάτω οριζόμενες:

- Υλές της 7<sup>ο</sup> (α), (β) και (γ) : I.000 KG

4I 172-

4I 199

Άρθρο 2

Ειδικές Διατάξεις αφορώσες τα οχήματα και τον  
εξοπλισμόν αυτών

4I 200-

4I 250

Ηλεκτρικός εξοπλισμός

4I 25I

Αι διατάξεις της Προσθήκης Β.2, περιθώριον 220 000,

δεν θα έχουν εφαρμογήν ~~για~~ μεταφοράν υλών πλην των υλών των 3<sup>ο</sup> έως 7<sup>ο</sup>.

4I 252-

4I 299

Άρθρο 3Διατάξεις Γενικών Υπηρεσιών

(Ουδέμια ειδική διάταξις)

4I 300-

4I 399

Άρθρο 4Ειδικές Διατάξεις διέπουσες την φόρτωσιν, εκφόρ-  
τωσιν και χειρισμόν.Μέθοδος αποστολής και περιορισμοί προωθήσεως

4I 400

Θέλον εις τετηγμένην κατάστασιν (2<sup>ο</sup> (β)) και ναφθαλίνη εις τετηγμένην κατάστασιν (II<sup>ο</sup> (γ)) μπορούν να μεταφέρονται μόνο σε βυτιοφόρα και δεξαμενο-CONTAINERS.

4I 401-

4I 402

Απαγόρευση ~~μικτής~~ φορτώσεως επί ενός οχήματος

4I 403

(1) Ύλες της Κλάσεως 4.Ι κλεισμένες σε κόλα φέροντα <sup>δύο</sup> ετικέτα ή/ετικέτες συμφώνως προς το μοντέλο Νο. 2B δεν θα φορτώνονται μαζί επάνω σε δχημα με ύλες ή είδη των Κλάσεων Ια, Ιβ ή Ιγ κλεισμένα σε κόλα φέροντα ετικέτα ή δύο ετικέτες συμφώνως προς το μοντέλο Νο.Ι.

(2) Ύλες της Κλάσεως 4.Ι κλεισμένες σε κόλα φέροντα <sup>δεν</sup> δύο ετικέτες συμφώνως προς το μοντέλο 2B/θα φορτώνονται μαζί επάνω σε δχημα με:-

(α) ύλες των Κλάσεων 5.Ι ή 5.2 κλεισμένες σε κόλα

φέροντα δύο ετικέτες συμφώνως προς το μοντέλο Νο. 3<sup>ο</sup> 4I 403  
ή με (Συνεχί-

(β) υγρά της Κλάσεως 8 κλεισμένα σε κόλα φέροντα δύο ετι-  
κέτες συμφώνως προς το μοντέλο Νο. 5.

4I 404-

4I 499

Άρθρο 5

Ειδικές διατάξεις διέπουσας την λειτουργία οχημάτων

Σήματα Οχημάτων

4I 500

(I) Οι διατάξεις του περιθωρίου IO 500, παράγραφοι (I) και (6), θα ισχύουν για την μεταφοράν υλών των 2<sup>ο</sup> (β), 4<sup>ο</sup> έως 8<sup>ο</sup> και II<sup>ο</sup> (γ). Οι διατάξεις των παραγράφων (2) έως (5) θα ισχύουν επίσης δια την μεταφοράν των υλών των αναφερομένων εις την Προσθήκη Β.5.

(2) Σταθερές δεξαμενές περιέχουσας ή (κενές δεξαμενές, ακαθάριστες) που περιείχον ύλες αναφερόμενες στην Προσθήκη Β.5 θα φέρουν επιπροσθέτως ~~ώτι~~ δύο ~~υπέρ~~ πλευρές και πίσω ετικέτα συμφώνως προς το μοντέλο Νο. 2B.

4I 50I-

4I 599

Άρθρο 6

Μεταβατικές Διατάξεις, ανακλήσεις και  
διατάξεις ειδικές για ωρισμένες χώρες

(Ουδεμία ειδική διάταξη)

4I 600-

4I 999



Κλάση 4.2Υλεις υποκειμενες σε αυτανάφλεξηΆρθρο IΓενικά

42 000-

42 103

Τύποι Οχημάτων

42 104

Κόλα περιέχοντα όλες των 4<sup>ο</sup> και 10<sup>ο</sup> θα φορτώνονται σε κλειστά οχήματα ή σε σκεπασμένα οχήματα.

42 105-

42 110

Μεταφορά Εμπορευμάτων εις Χύμα

42 111

Υλεις της 5<sup>ο</sup>, κόνις (σκόνη) από φίλτρα υφιακμίνων (6<sup>ο</sup> (α)) και όλες της 10<sup>ο</sup> μπορούν να μεταφέρονται εις χύμα. Υλεις των 5<sup>ο</sup> και 10<sup>ο</sup> στη περίπτωση αυτή θα μεταφέρονται σε κλειστά οχήματα με μεταλλικό πήγμα, και κόνις από φίλτρα υφιακμίνων σε κλειστά οχήματα με μεταλλικό πήγμα ή σκεπασμένα οχήματα με μεταλλικό πήγμα.

42 112-

42 120

Μεταφορά σε δεξαμενές

42 121

(1) Λευκός ή κίτρινος φώσφορος (1<sup>ο</sup>) και νεωστλ-σβυσμένος ξυλάνθραξ, σε κατάσταση κόνις ή κόκκων, (8<sup>ο</sup>) μπορούν να μεταφέρονται σε σταθερές δεξαμενές ή λυόμενες δεξαμενές.

(2) Λευκός ή κίτρινος φώσφορος (1<sup>ο</sup>), αλκύλια αλουμινίου, αλογονίδια και υδρογονούχα αλκυλων αλουμινίου (3<sup>ο</sup>) και νεωστλ-σβυσμένος ξυλάνθραξ σε κατάσταση κόνις ή κόκκων,

(8<sup>ο</sup>) μπορούν να μεταφέρονται σε δεξαμενο-CONTAINERS.

42 I22-

42 I27

Κενές δεξαμενές

42 I28

(I) Θα γίνονται δεκτές για μεταφορά, κενές σταθερές δεξαμενές και κενές λυόμενες δεξαμενές που περιέχουν φώσφορον της I<sup>ο</sup> ελτε:

- θα πληρούνται με άζωτον, οπότε το έγγραφο μεταφοράς θα πρέπει να πιστοποιεί ότι η δεξαμενή, μετά το κλείσιμο, είναι αεριο-στεγανή· ή
- θα πληρούνται μέχρι λιγότερο του 96 τοις εκατόν της χωρητικότητάς τους με νερό μεταξύ 1ης Οκτωβρίου και 31ης Μαρτίου το νερό αυτό θα περιέχει, **6ε** συμπύκνωση που δεν θα επιτρέπει το νερό να ψυχθεί διαρκούσης της μεταφοράς, έναν ή περισσότερους μη-διαβρωτικούς αντιψυκτικούς άγοντας μη-υποκειμένους **6ε** αντίδραση με τον φώσφορον.

(2) Δια δεξαμενο-CONTAINERS, βλέπε 2I2 I77 και 2I2 474.

42 I29-

42 I70

Πληρώματα οχημάτων· Επίβλεψη (Εποπτεία)

42 I7I

(I) Βοηθός οδηγού θα μεταφέρεται (υπάρχει) σε κάθε μονάδα μεταφοράς μεταφέρουσας ύλης των I<sup>ο</sup>, 2<sup>ο</sup>, 3<sup>ο</sup> και 4<sup>ο</sup>.

(2) Οι διατάξεις του περιθωρίου IO I7I (2) θα ισχύουν μόνον δια τα κατωτέρω αναφερόμενα επικίνδυνα εμπορεύματα σε ποσότητες **μη** υπερβαίνουσες τις παρακάτω οριζόμενες:

- Ύλη των I<sup>ο</sup> - 3<sup>ο</sup>, κόνις ζιρκονίου της 6<sup>ο</sup>(α) και μέταλλα πυροφορικού τύπου της 6<sup>ο</sup>(δ): IO.000 KG.

42 172-

42 199

Άρθρο 2

Ειδικές Διατάξεις τις οποίες πρέπει να πληρούν  
τα οχήματα και ο εξοπλισμός των

42 200-

42 250

Ηλεκτρικός εξοπλισμός

42 25I

Αι διατάξεις της Προσθήκης Β.2, περιθώριον 220 000, δεν θα ισχύουν για την μεταφοράν επικινδύνων υλών της Κλάσεως 4.2.

42 252-

42 299

Άρθρο 3

Διατάξεις Γενικών Υπηρεσιών

42 300-

42 399

(Ουδεμία ειδική διάταξη)

Άρθρο 4

Ειδικές Διατάξεις διέπουσες την φόρτωση, εκφόρ-  
τωση και εξοπλισμόν

42 400-

42 402

Απαγόρευση μικτής φορτώσεως επί ενός οχήματος

42 403

(I) Ύλες της Κλάσεως 4.2 κλεισμένες σε κόλα φέροντα ετικέτα ή δύο ετικέτες συμφώνως προς το μοντέλο Νο. 2Γ δεν θα φορτώνονται μαζί επί ενός οχήματος με ύλες ή είδη των Κλάσεων Ια, Ιβ ή Ιγ κλεισμένα σε κόλα φέροντα ετικέτα ή δύο ετικέτες συμφώνως προς το Μοντέλο Νο.Ι.

(2) Ύλες της 4<sup>ο</sup> κλεισμένες σε κόλα φέροντα δύο 42 403  
ετικέτες συμφώνως προς το μοντέλο Νο. 2Γ δεν θα φορτώνων- (Συνεχίζε-  
ται μαζί σε ένα όχημα με:- ζεται)

(α) ύλες των κλάσεων 5.1 ή 5.2 κλεισμένες σε κόλα  
φέροντα δύο ετικέτες συμφώνως προς το μοντέλο  
Νο. 3<sup>ο</sup> ή με

(β) υγρά της κλάσεως 8 κλεισμένα σε κόλα φέροντα  
δύο ετικέτες συμφώνως προς το μοντέλο Νο. 5.

42 404-

42 413

Χειρισμός και στοιβάσιμα

42 414

(1) Δοχεία και κόλα περιέχοντα ύλες των 1<sup>ο</sup> και 3<sup>ο</sup>  
δεν πρέπει να υποβάλλονται σε πρόσκρουση. Θα τοποθετούνται  
κατά τέτοιο τρόπο εις το όχημα ώστε να μη μπορούν να ανα-  
ποδογυρίσουν ή πέσουν ή μετατοπισθούν κατά οιονδήποτε  
τρόπον.

(2) Η χρήση ευχερώς ευφλέκτων υλών για στοιβαζόμε-  
να κόλα σε οχήματα απαγορεύεται.

42 415-

42 499

Άρθρο 5

Ειδικές Διατάξεις διέπουσας την λειτουργίαν οχημάτων

Σήματα Οχημάτων

42 500

(1) Οι διατάξεις του περιθωρίου IO 500, παράγραφοι  
(1) και (6), θα ισχύουν δια την μεταφοράν υλών των 1<sup>ο</sup> έως  
4<sup>ο</sup> και 6<sup>ο</sup>. Οι διατάξεις των παραγράφων (2) έως (5) θα ισχύ-  
ουν επίσης για την μεταφοράν των υλών των αναφερομένων εις  
την Προσθήκη Β. 5.

(2) Σταθερές δεξαμενές περιέχουσες ή (κενές δεξα- 42 500  
μενές, ακαθάριστες) που περιείχαν ύλες αναφερόμενες εις (Συνεχί-  
την Προσθήκη Β.5 θα φέρουν επιπροσθέτως 67κ δ υ ο ζεται)  
πλευρές τους και πίσω ετικέτα συμφώνως προς το μοντέ-  
λο Νο. 2Γ.

42 501-

42 599

Άρθρο 6

Μεταβατικές διατάξεις, ανακλήσεις, και  
διατάξεις ειδικές για ωρισμένες χώρες

42 600-

42 999

(Ουδεμία ειδική διάταξις)

Κλάση 4.3

Ύλες που αναδίδουν εύφλεκτα αέρια σε επαφή με  
το νερό

Άρθρο ΙΓενικά

43 000-

43 103

Τύποι Οχημάτων

43 104

Επικίνδυνες ύλες της Κλάσεως 4,3 σε κόλα θα φορ-  
τώνονται σε κλειστά ή σκεπασμένα οχήματα. Εν πούτοις, δο-  
χεία περιέχοντα ανθρακασβέστιον (2<sup>ο</sup> (α)) μπορούν επίσης να  
φορτώνονται σε ανοικτά οχήματα.

43 105-

43 110

Μεταφορά Εμπορευμάτων εις χύμα

43 III

Ανθρακασβέστιον (2<sup>ο</sup> (α)) και πυριτικόν ασβέστιον σε βάλους (2<sup>ο</sup> (δ)) μπορούν να μεταφέρονται εις χύμα εις οχήματα με κινητά ή σταθερά δοχεία τα οποία πρέπει να πληρούν τους γενικούς όρους συσκευασίας τους διαλαμβανόμενους εις το περιθώριον 2472(I), (2) και (3). Τα τοιαύτα δοχεία πρέπει να είναι έτσι σχεδιασμένα ώστε τα στόμια τα χρησιμοποιούμενα δια την φόρτωσιν ή εκφόρτωσιν να μπορούν να κλείουν ερμητικώς.

43 II2-

43 II7

Μεταφορά σε CONTAINERS

43 II8

Μικρά CONTAINERS χρησιμοποιούμενα δια την μεταφορά εις χύμα των υλών των αναφερομένων εις το περιθώριον 43 III θα συμμορφούνται προς τις διατάξεις του περιθωρίου τούτου που διέπουν τα οχήματα και τα δοχεία των οχημάτων.

43 II9-

43 I20

Μεταφορά σε δεξαμενές

43 I2I

(1) Νάτριον, κάλιον, και κράματα νατρίου ή καλίου (I<sup>ο</sup> (α)), και τριχλωριούχο υδρογονούχο πυρίτιο (TRICHLOROSILANE) (SILICOCHLOROFORM) (4<sup>ο</sup>), μπορούν να μεταφέρονται σε σταθερές δεξαμενές ή λυόμενες δεξαμενές.

(2) Οι όλες αυτές μπορούν επίσης να μεταφέρονται σε δεξαμενο-CONTAINERS.

43 I22-

43 I27

Κενές δεξαμενές

43 I28

(1) Για να γίνουν δεκτές για μεταφορά, οι κενές δεξαμενές και κενές λυόμενες δεξαμενές που περιέχουν νάτριο, κάλιο ή κράματα νατρίου και καλίου (1<sup>ο</sup> (α)) θα κλειώνονται κατά τον αυτόν τρόπον και με τον αυτόν βαθμόν στεγανδότητος ως εάν ήσαν πλήρεις.

(2) Για δεξαμενο-CONTAINERS, βλέπε περιθώριο 2I2 I77.

43 I29-

43 I70

Πληρώματα οχημάτων· Επίβλεψις (Βιοπτεία)

43 I71

(1) Βοηθός οδηγού θα μεταφέρεται (υπάρχει) σε κάθε μονάδα μεταφοράς μεταφέρουσα ύλες της Κλάσεως 4.3 πλην ανθρακασβεστίου (2<sup>ο</sup> (α)) καθ πυριτικού ασβεστίου (2<sup>ο</sup> (δ)).

(2) Οι διατάξεις του περιθωρίου IO I7I (2) θα ισχύουν μόνον δια τα κάτω αναφερόμενα επικίνδυνα εμπορεύματα σε ποσοότητες υπερβαίνουσες τις κατωτέρω οριζόμενες:

- Αλκαλικά μέταλλα και ύλες περιέχουσες αλκαλικά μέταλλα της 1<sup>ο</sup>, αλκαλικά μεταλλικά υδρογονούχα της 2<sup>ο</sup> (β) και τριχλωριούχο υδρογονούχο πυρίτιο (TRICHLOROSILANE) (SILICOCHLOROFORM) της 4<sup>ο</sup> : 10.000 KG.

43 I72-

43 I99

Άρθρο 2

Ειδικές διατάξεις που πρέπει να πληρούν τα οχήματα

και ο εξοπλισμός αυτών

43 200-

(ουδεμία ειδική διάταξις)

43 299

Άρθρο 3Διατάξεις Γενικών Υπηρεσιών

43 300-

43 399

(Ουδεμία ειδική διάταξη)

Άρθρο 4Ειδικές Διατάξεις διέπουσες την φόρτωση, εκφόρ-  
τωση και χειρισμόν

43 400-

43 402

Απαγόρευση μικτής φορτώσεως επί ενός οχήματος

43 403

Υλεις της Κλάσεως 4.3 δεν θα φορτώνονται μαζί σε όχημα με ύλες ή είδη των Κλάσεων Ια, Ιβ ή Ιγ κλεισμένα σε κόλα φέροντα ετικέτα ή δύο ετικέτες συμρώνως προς το μοντέλο Νο.Ι.

43 404-

43 413

Χειρισμός και στοιβάσα

43 414

Τα κόλα θα στοιβάζονται στο όχημα κατά τρόπον ώστε να μη μπορούν να μετατοπισθούν. Θα προστατεύονται κατά οιασδήποτε τριβής ή προσκρούσεως. Κατά τον χειρισμόν των κόλων, ειδικά μέτρα θα λαμβάνονται ώστε να αποφευχθεί η επαφή τους με το νερό.

43 415-

43 499

Άρθρο 5Ειδικές Διατάξεις διέπουσες την λειτουργίαν οχημάτωνΣήματα Οχημάτων

43 500



(I) Οι διατάξεις του περιθωρίου ΙΟ 500, παράγραφοι (I) και (6), θα ισχύουν για την μεταφοράν επικινδύνων υλών της Κλάσεως 4.3. Οι διατάξεις των παραγράφων (2) έως (5) θα ισχύουν για την μεταφοράν των υλών των αναφερομένων εις την Προσθήκη Β.5.

43 500  
(Συνεχίζεται)

(2) Σταθερές δεξαμενές περιέχουσες ή (κενές δεξαμενές, ακαθάριστες) που περιέχουν ύλες αναφερόμενες στην Προσθήκη Β.5 θα φέρουν επιπροσθέτως στις δύο πλευρές τους και πίσω ειδικά σύμφωνον προς το μοντέλο Νο. 2Δ.

43 50I-  
43 599

#### Άρθρο 6

Μεταβατικές Διατάξεις, ανακλήσεις, και διατάξεις ειδικές για ωρισμένες χώρες

43 600-  
50 999

(Ουδεμία ειδική διάταξη)

#### Κλάση 4.I

#### Οξειδωτικές Ύλες

#### Άρθρο I

#### Γενικά

5I 000-  
5I II0  
5I III

#### Μεταφορά εις χύμα

(I) Ύλες των 4<sup>ο</sup> έως 6<sup>ο</sup> και 7<sup>ο</sup> (α) και (β) μπορούν να μεταφέρονται εις χύμα ως πλήρες φορτίο.

(2) Ύλες των 4<sup>ο</sup> και 5<sup>ο</sup> θα μεταφέρονται σε ανοικτά

μεταλλικά "οχήματα κάδοι" (VAT VEHICLES) (VEHICULES CUVES) 5I III  
καλυμμένα με αδιαπέραστο μη-εύφλεκτο κάλυμμα, ή σε μεταλ- (Συνεχί-  
λινα CONTAINERS (βλέπε περιθώριο 5I II8(2)). ζεται)

(3) Ύλες των 6<sup>ο</sup> και 7<sup>ο</sup> (α) και (β) θα μεταφέρονται σε κλειστά οχήματα ή σε οχήματα καλυμμένα με αδιαπέραστο μη-εύφλεκτο κάλυμμα, και τα οχήματα θα είναι έτσι κατασκευασμένα ώστε είτε η ύλη δεν θα μπορεί να έλθει σε επαφή με το ξύλο ή οιοδήποτε άλλο εύφλεκτο υλικό είτε η ολική επιφάνεια του δαπέδου και των τοιχωμάτων, εάν εύφλεκτος, θα έχει εφοδιασθεί με αδιαπέραστο και μη-εύφλεκτο επίστρωμα ή θα έχει κατεργασθεί με ύλην καθιστώσα το ξύλο άκαυστον (μη-εύφλεκτον).

5I II2-

5I II7

Μεταφορά σε CONTAINERS

5I II8

(I) Εύθραυστα κόλα εντός της εννοίας του περιθωρίου IO IO2(I) και κόλα περιέχοντα υπεροξειδίο του υδρογόνου ή διαλύματα υπεροξειδίου του υδρογόνου (I<sup>ο</sup>) ή τετρανιτρομεθάνην (2<sup>ο</sup>) δεν επιτρέπεται να μεταφέρονται σε μικρά CONTAINERS.

(2) CONTAINERS προοριζόμενα δια την μεταφοράν υλών των 4<sup>ο</sup> και 5<sup>ο</sup> θα είναι κατασκευασμένα από μέταλλο, θα είναι στεγανά, θα καλύπτονται με πώμα ή αδιαπέραστο κάλυμμα ανθεκτικόν εις την καύσιν, και θα είναι κατασκευασμένα έτσι ώστε η ύλη η υπάρχουσα εις τα CONTAINERS να μη μπορεί να έλθει σε επαφή με ξύλο ή οιοδήποτε άλλο καύσιμον (εύφλεκτον) υλικόν.

(3) CONTAINERS προοριζόμενα δια την μεταφοράν υλών της 6<sup>ο</sup> και 7<sup>ο</sup> (α) και (β) θα καλύπτονται με πώμα ή αδιαπέραστο

καλυμμα ανθεκτικόν εις την καύσιν, και θα είναι κατασκευασμένα έτσι ώστε η ύλη η υπάρχουσα εις τα CONTAINERS να μη μπορεί να έλθει σε επαφή με το ξύλο ή οιοδήποτε άλλο καύσιμο (εύφλεκτο) υλικό ή η ολική επιφάνεια του δαπέδου και των τοιχωμάτων, εάν είναι κατασκευασμένα από ξύλο, να έχει εφοδιασθεί με αδιαπέραστον επίστρωσιν ανθεκτικήν εις την καύσιν ή να έχει επιχρισθεί με πυριτικόν νάτριον ή παρεμφερή ύλην.

5I 118  
(Συνεχίζεται)

5I 119-  
5I 120

Μεταφορά σε δεξαμενές

5I 121

(1) Ύλεις των 1<sup>ο</sup> έως 3<sup>ο</sup> διαλύματα της 4<sup>ο</sup> (επίσης κονιοποιημένο χλωριούχο νάτριο σε υγρή ή ξηρή κατάσταση) και θερμά υδάτινα διαλύματα νιτρικού αμμωνίου της 6<sup>ο</sup> (α) σε συμπύκνωσιν άνω του 80 τοι εκατόν αλλά όχι άνω του 93 τοι εκατόν υπό τον όρον ότι:-

- (α) η τιμή pH, μετρούμενη εις 10 τοι εκατόν υδάτινον διάλυμα της μεταφερομένης ύλης, είναι μεταξύ 5 και 7, και ότι
- (β) τα διαλύματα τα μη περιέχοντα οιαδήποτε καύσιμον (εύφλεκτον) ύλην σε ποσότητα μεγαλύτερη του 0.2 τοι εκατόν ή οιαδήποτε ένωση χλωρίου σε τοιαύτη ποσότητα ώστε το εις χλώριον περιεχόμενον να υπερβάλει το 0.02 τοι εκατόν, μπορούν να μεταφέρονται σε σταθερές δεξαμενές και λυόμενες δεξαμενές.

(2) Οι ύλεις των 1<sup>ο</sup> έως 3<sup>ο</sup>, τα διαλύματα της 4<sup>ο</sup> και το υγρόν χλωριούχον νάτριον της κλάσεως 5.1 μπορούν να

μεταφέρονται σε δεξαμενο-CONTAINERS.

5I I2I

(3) Διαλύματα της 4<sup>ο</sup>(α) δύναται να μεταφέρονται σε ενισχυμένες-πλαστικές δεξαμενές συμμορφούμενες προς τις διατάξεις της Προσθήκης Β.Ιγ.

5I I22-

5I I27

Κενές δεξαμενές

5I I28

(1) Δια να γίνουν δεκτές δια μεταφοράν, κενές σταθερές δεξαμενές και κενές λυόμενες δεξαμενές που περιείχαν ύλες της Κλάσεως 5.Ι, θα είναι κλεισμένες κατά τον αυτόν τρόπον και θα είναι του αυτού βαθμού στεγανές ως εάν ήσαν πλήρεις.

(2) Δια δεξαμενο-CONTAINERS, βλέπε περιθώριον 2I2 I77.

(3) Κενές σταθερές δεξαμενές και κενές λυόμενες δεξαμενές που περιείχον χλωρικόν άλας, υπερχλωρικόν άλας, χλωρίτην (4<sup>ο</sup> και 5<sup>ο</sup>), ανδργανον αζωτούχον νιτρικόν άλας (8<sup>ο</sup>) ή ύλες των 9<sup>ο</sup> και 10<sup>ο</sup> και έχουν υπολείμματα εκ προηγουμένου περιεχομένου αυτών προσκολλημένα εις το εξωτερικόν μέρος αυτών δεν θα γίνονται δεκτά για μεταφοράν.

5I I29-

5I I70

Πληρώματα οχημάτων: Επιβλεψα (Εποπτεία)

5I I7I

(1) Βοηθός οδηγού θα μεταφέρεται (υπάρχει) σε κάθε μονάδα μεταφοράς μεταφέρουσα ύλες της Κλάσεως 5.Ι, 1<sup>ο</sup>, 2<sup>ο</sup> και 3<sup>ο</sup>.

((2)) Οι διατάξεις του περιθωριου 10 I7I (2) θα ισχύουν μόνον για τα εξής αναφερόμενα επικίνδυνα εμπορεύματα σε ποσότητες υπερβαίνουσες τις κατωτέρω οριζόμενες:

- Ύλεις των I<sup>ο</sup> έως 3<sup>ο</sup> και 9<sup>ο</sup>(α) : 10.000 KG.

5I 172-

5I 199

Άρθρο 2

Ειδικοί όροι τους οποίους πρέπει να πληρούν τα

οχήματα και ο εξοπλισμός των

(Ουδείς ειδικός όρος)

5I 200-

5I 215

Κουβούκλιον

5I 216

Αι κατωτέρω διατάξεις θα ισχύουν για την μεταφοράν υγρών της I<sup>ο</sup> σε σταθερές δεξαμενές ή λυόμενες δεξαμενές:-

(1) εκτός εάν το κουβούκλιο του οδηγού είναι κατασκευασμένο από πυρίμαχον ύλην, ένα προστατευτικόν μεταλλικόν κάλυμμα του αυτού πλάτους με το πλάτος της δεξαμενής θα εφαρμόζεται εις το πίσω μέρος του κουβουκλίου.

(2) οιαδήποτε παράθυρα εις το πίσω μέρος του κουβουκλίου του οδηγού ή εις το μεταλλικό προστατευτικό κάλυμμα θα είναι ερμητικώς κλεισμένα. Θα είναι κατασκευασμένα με πυρίμαχον ύalon ασφαλείας και θα έχουν πυρίμαχα πλαίσια και

Πήγμα (καρότσα) Οχήματος

5I 217

Για την μεταφοράν υγρών της I<sup>ο</sup> εις σταθερές δεξαμενές ή εις λυόμενες δεξαμενές, ξύλο (εκτός εάν καλύπτονται με μέταλλο ή κατάλληλη συνθετική ύλη) δεν θα χρησιμοποιείται για την κατασκευή οιαυδήποτε εξαρτήματος του οχήματος κειμένου εις το πίσω μέρος του προστατευτικού καλύμματος του προβλεπομένου υπό του περιθωρίου 5I 216 (I).

5I 218-

5I 230

Κινητήρας (Μηχανή)

5I 231

Για τη μεταφορά υγρών της I<sup>ο</sup> σε σταθερές δεξαμενές ή σε λυόμενες δεξαμενές, ο κινητήρας (μηχανή) και (εκτός οσάκις το όχημα κινείται με κινητήρα ντήζελ) η δεξαμενή καυσίμου θα είναι τοποθετημένα εμπροσθεν του πίσω τοιχώματος του κουβουκλίου του οδηγού ή του προστατευτικού καλύμματος, ή εάν είναι άλλώς τοποθετημένα θα προστατεύονται ειδικώς.

5I 232-

5I 259

Ειδικός Εξοπλισμός

5I 260

Οχήματα μεταφέροντα υγρά της I<sup>ο</sup> σε σταθερές δεξαμενές ή λυόμενες δεξαμενές θα φέρουν σ' αυτά δεξαμενήν έχουσα χωρητικότητα περίπου 30 λιτρών νερού. Η δεξαμενή νερού θα είναι τοποθετημένη όσο είναι δυνατόν ασφαλώς, και θα αναμιχθεί εις το νερό το οποίον περιέχει ένα αντιψυκτικό παρασκεύασμα το οποίον δεν προσβάλλει το δέρμα ή τις βλενογόνους μεμβράνες και δεν αντιδρά χημικώς με το φορτίο.

5I 261-

5I 299

Άρθρο 3Διατάξεις Γενικών Υπηρεσιών

5I 300-

5I 302

Προφυλάξεις ~~σε~~ σχέσει με αναλώσιμα εφόδια

5I 303

Εις οχήματα και εις τόπους φορτώσεως, εκφορτώσεως ή μεταφορτώσεως, τετρανιτρομεθάνη της 2<sup>ο</sup>, χλωριούχον βάριον της 4<sup>ο</sup> (α), υπερχλωριούχον βάριον της 4<sup>ο</sup> (β), νι-

τρικέν βάριον και νιτρικός μολυβδος της 7<sup>ο</sup> (γ), ανόργανα νιτρώδη άλατα της 8<sup>ο</sup>, διοξειδιον βαρίου της 9<sup>ο</sup> (β) και υπερμαγγανικόν βάριον της 9<sup>ο</sup> (γ) θα τηρούνται μακράν από τροφιμα και λοιπά αναλώσιμα είδη.

5I 303  
(Συνεχι-

5I 304-  
5I 399

#### Άρθρο 4

#### Ειδικές Διατάξεις διέπουσες την φόρτωση, εκφόρ- τωση και χειρισμόν

5I 400-  
5I 402

#### Απαγόρευση μικτής φορτώσεως επί ενός οχήματος

5I 403

(1) Ύλες της Κλάσεως 5.1 κλεισμένες σε κόλα φέροντα ετικέτα ή δύο ετικέτες συμφώνως προς το μοντέλο Νο. 3 δεν θα φορτώνονται μαζί σε ένα όχημα με ύλες ή είδη των Κλάσεων Ια, Ιβ ή Ιγ κλεισμένα σε κόλα φέροντα ετικέτα ή δύο ετικέτες συμφώνως προς το μοντέλο Νο.1.

(2) Ύλες της Κλάσεως 5.1 κλεισμένες σε κόλα φέροντα δύο ετικέτες συμφώνως προς το μοντέλο Νο. 3 δεν θα φορτώνονται μαζί σε ένα όχημα με:-

- (α) ύλες των Κλάσεων 3, 4.1 ή 4.2 κλεισμένες σε κόλα φέροντα δύο ετικέτες συμφώνως προς τα μοντέλα Νο. 2Α, 2Β ή 2Γ\* ή με
- (β) υγρά της Κλάσεως 8 κλεισμένα σε κόλα φέροντα δύο ετικέτες συμφώνως προς το μοντέλο Νο.5.

5I 404-  
5I 413

Χειρισμός και στοιβάδα

5I 4I4

(I) Κόβλα περιέχοντα ύλες της Κλάσεως 5. I θα τοποθετούνται επί πεδα (Ισα), επί των πυθμένων τους. Επιπροσθέτως, δοχεία περιέχοντα υγρά της Κλάσεως 5. I θα σφηνώνονται κατά τέτοιο τρόπον ώστε να μη μπορούν να αναποδογυρίσουν.

(2) Η χρήση ευχερώς ευφλέκτων υλών δια στοιβαζόμενα κόβλα σε οχήματα απαγορεύεται.

Καθάρισμα μετά την εκφόρτωση

5I 4I5

Μετά την εκφόρτωση, οχήματα τα οποία μετέφεραν ύλες των 4<sup>ο</sup> έως 6<sup>ο</sup> και 7<sup>ο</sup> (α) και (β) εις χύμα θα πλένονται με άφθονο νερό.

5I 4I6-

5I 499

Άρθρο 5

Ειδικές Διατάξεις διέπουσες την λειτουργίαν  
οχημάτων

Σήματα Οχημάτων

5I 500

(I) Αι διατάξεις του περιθωρίου IO 500, παράγραφοι (I) και (6) θα ισχύουν δια την μεταφοράν των υλών των I<sup>ο</sup>, 2<sup>ο</sup>, 3<sup>ο</sup> των χλωρικών αλάτων και ζιζανιοκτόνων ανοργάνων χλωρικών αλάτων της 4<sup>ο</sup> (α), υπερχλωρικού βαρλου της 4<sup>ο</sup> (β), υλών των 8<sup>ο</sup> και 9<sup>ο</sup> (β), και υπερμαγγανικού βαρλου της 9<sup>ο</sup> (γ). Αι διατάξεις των παραγράφων (2) έως (5) θα ισχύουν επίσης δια την μεταφοράν των υλών των αναφερομένων εις την Προσθήκη Β.5.

(2) Σταθερές δεξαμενές περιέχουσες ή (κενές δεξαμενές, ακαθάριστες) που περιείχαν ύλες αναγραφόμενες στην Προσθήκη



Β.5 θα φέρουν επιπροσθέτως τέρις δύο πλευρές 5I 500  
ταύς και στο πίσω μέρος ετικέτα συμφώνως προς το μοντέλο (Συνεχίζε-  
 Νο. 3. ται)

5I 50I-

5I 999

Άρθρο 6

Μεταβατικέσ Διατάξεις, αναλήσεις, και  
διατάξεις ειδικέσ για ωρισμένεσ χώρεσ

5I 600-

(Ουδεμία ειδική διάταξη)

5I 999

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Κλάση 5.2Οργανικά ΥπεροξειδίαΆρθρον ΙΓενικά

52.000-

52.103

Τύποι Οχημάτων

52.104

(1) Ύλεις των 1<sup>ο</sup> έως 22<sup>ο</sup>, 30<sup>ο</sup> και 31<sup>ο</sup> θα φορτώνονται σε κλειστά ή σκεπασμένα οχήματα. Ύλεις των 45<sup>ο</sup> έως 55<sup>ο</sup> κλεισμένες σε προστατευτικές συσκευασίες γεμάτες με ψυκτικό υγρό θα φορτώνονται σε κλειστά ή σκεπασμένα οχήματα. Εάν τα χρησιμοποιούμενα οχήματα είναι κλειστά θα έχουν καταλλήλως εξαερισθεί. Σκεπασμένα οχήματα θα είναι εφοδιασμένα με σανίδες στα πλευρά (πλαϊνά) και στο πίσω μέρος. Τα σκεπάσματα των οχημάτων αυτών θα είναι από αδιάβροχο υλικό που δεν θα είναι ευχερώς εύφλεκτο.

(2) Οσάκις, λόγω των διατάξεων του περιθωρίου 52.400, (ψυκτικά) οι ύλεις απαιτείται να μεταφέρονται σε μονωμένα, κατεψυγμένα ή μηχανικής-καταψύξεως οχήματα, τα οχήματα αυτά θα ικανοποιούν τους όρους του περιθωρίου 52.248.

52.105-

52.117

Μεταφορά σε εμπορευματοκιβώτια (CONTAINERS)

52.118

Εύθραυστα κόλα εντός της εννοίας του περιθωρίου 10.102(1) δεν θα μεταφέρονται σε μικρά CONTAINERS.

52.119-

52.120

Μεταφορά σε δεξαμενές

52.121

(1) Ύλεις των 1<sup>ο</sup>, 10<sup>ο</sup>, 14<sup>ο</sup>, 15<sup>ο</sup> και 18<sup>ο</sup> θα μεταφέρονται σε σταθερές δεξαμενές και δυνάμενες να αφαιρεθούν δεξαμενές.

(2) Οι ύλεις αυτές μπορούν επίσης να μεταφέρονται σε CONTAINERS δεξαμενών.

52.122-

Κενές δεξαμενές

52.127

(1) Για να γίνονται δεκτές για μεταφορά, κενές σταθερές και κενές δυνάμενες να αφαιρεθούν δεξαμενές της 99<sup>ο</sup> θα κλείνουν κατά τον αυτόν τρόπον και θα είναι του αυτού βαθμού στεγανές εάν νά ήσαν γεμάτες.

52.128

(2) Για CONTAINERS δεξαμενών, βλέπε περιθώριο 212.177.

52.129

52.170

Πληρώματα Οχημάτων: Εποπτεία (Επίβλεψη)

52.171

(1) Βοηθόν οδηγού θα φέρει κάθε μονάδα μεταφοράς φορτωμένη με ύλεις των 46<sup>ο</sup> (α), 47<sup>ο</sup> (α) και 49<sup>ο</sup> (α) και κάθε μονάδα μεταφοράς φορτωμένη με άνω των 2.000 KG ύλεις των 45<sup>ο</sup>, 46<sup>ο</sup> (β) και (γ), 50<sup>ο</sup>, 51<sup>ο</sup> έως 53<sup>ο</sup> και 55<sup>ο</sup>.

(2) Οι διατάξεις του περιθωρίου 10.171(2) θα ισχύουν μόνον για επικίνδυνα εμπορεύματα αναγραφόμενα παρακάτω σε ποσοτήτες υπερβαίνουσες τις οριζόμενες παρακάτω:-

Ομάδα Α. Ύλεις των 4<sup>ο</sup>, 8<sup>ο</sup> (α), 9<sup>ο</sup> (α), 13<sup>ο</sup> (α) και

17<sup>ο</sup> (α):

1.000 KG

Ομάδα Γ. Ύλεις των 35<sup>ο</sup>:

1.000 KG

Ομάδα Ε. Ύλεις των 46<sup>ο</sup> (α), 47<sup>ο</sup> (α) και

49<sup>ο</sup> (α):

100 KG

Υλεις των 45°, 46°(β) και (γ), 47°(β);

48°, 49°(β), 50°-55°:

2.000 KG

52.1729

52.199

Άρθρο 2

Ειδικές διατάξεις που πρέπει να πληρούν τα οχήματα

και ο εξοπλισμός τους

52.200-

52.247

Μονωμένα, φυκτικά και μηχανικής-καταψύξεως οχήματα χρη- 52.248

σιμοποιούμενα ένεκεν των διατάξεων του περιθωρίου 52.400

θα πληρούν τους παρακάτω όρους:-

- (α) το χρησιμοποιούμενο όχημα θα είναι τέτοιο και έτσι εφοδιασμένο αναφορικά με τη μόνωσή του και τη πηγή ψύξεως ώστε η ανώτατη θερμοκρασία η προβλεπόμενη από το περιθώριο 52.400 να μην υπερβαίνεται αδιακρίτως ατμοσφαιρικών συνθηκών.
- (β) το όχημα θα είναι έτσι εφοδιασμένο ώστε οι ατμοί από τις μεταφερόμενες ύλεις να μη μπορούν να εισχωρήσουν εις το κουβούκλιον.
- (γ) κατάλληλος μηχανισμός θα υπάρχει που θα παρέχει τη δυνατότητα στη θερμοκρασία την ισχύουσα στον χώρο φορτώσεως να καθορίζεται οποτεδήποτε από τη θέση του οδηγού.
- (δ) ο χώρος φορτώσεως θα είναι εφοδιασμένος με σπές αερισμού (αεραγωγούς) ή βαλβίδες εξαερισμού εάν υπάρχει οιοσδήποτε κίνδυνος να εγερθεί επικίνδυνος υπερβολική πρeσση. Θα λαμβάνεται μέριμνα οσάνεις είναι απαραίτητον να εξασφαλισθει ότι η κατάψυξη δεν εξασθενείται από τις

σπές αερισμού ή βαλβίδες εξαερισμού.

(ε) το χρησιμοποιούμενο ψυκτικό υγρό δεν θα είναι εύφλεκτο.

(στ) η συσκευή καταψύξεως μηχανικώς-φυχομένου οχήματος θα είναι ικανή να λειτουργεί ανεξάρτητα της μηχανής που χρησιμοποιείται για να κινεί το όχημα.

### Άρθρο 3

#### Γενικές Διατάξεις Σέρβις

(δεν υπάρχουν ειδικές διατάξεις)

52.300-

52.399

### Άρθρο 4

#### Ειδικές διατάξεις αφορώσες την φόρτωση, εκφόρτωση και τον χειρισμόν

Μέθοδος αποστολής και περιορισμοί επί της προώθησως

52.400

(I) Οι ύλες της Ομάδος Ε θα προωθούνται κατά τέτοιο τρόπο ώστε να μην υπερβαίνονται οι παρακάτω σημειούμενες θερμοκρασίες του περιβάλλοντος:

ύλες της 45 <sup>ο</sup>	:	ανώτατη θερμοκρασία	+	10 <sup>ο</sup> C
ύλες της 46 <sup>ο</sup> (α)	:	"	"	- 10 <sup>ο</sup> C
ύλες των 46 <sup>ο</sup> (β) και (γ)	:	"	"	- 10 <sup>ο</sup> C
ύλες της 47 <sup>ο</sup> (α)	:	"	"	- 10 <sup>ο</sup> C
ύλες της 47 <sup>ο</sup> (β)	:	"	"	- 10 <sup>ο</sup> C
ύλες της 48 <sup>ο</sup>	:	"	"	+ 2 <sup>ο</sup> C
ύλες της 49 <sup>ο</sup> (α)	:	"	"	- 10 <sup>ο</sup> C
ύλες της 49 <sup>ο</sup> (β)	:	"	"	- 10 <sup>ο</sup> C
ύλες της " με PHLEGMATI ZER	:	"	"	+ 2 <sup>ο</sup> C
ύλες της " με διαλυτικό	:	"	"	- 5 <sup>ο</sup> C

ύλες της 50°	:	ανώτατη θερμοκρασία	0° C
ύλες της 51°	:	" "	0° C
ύλες της 52°	:	" "	+20° C
ύλες της 53°	:	" "	-10° C
ύλες της 54°	:	" "	+20° C
ύλες της 55°	:	" "	+10° C

(2) Οσάκις ύλες της Ομάδος Ε δεν μεταφέρονται σε μηχανικώς-ψυχόμενα οχήματα, η ποσότητα του ψυκτικού εις την προστατευτικήν συσκευασίαν θα είναι τέτοιας αναλογίας ώστε οι θερμοκρασίες που ορίζονται στην ~~απαραδίνωπα~~ παράγραφον (I) δεν υπερβαίνονται οποτεδήποτε διαρκούσης της μεταφοράς, εις τον δρόν δε αυτόν περιλαμβάνονται η φόρτωση και η εκφόρτωση.

(3) Η χρήση υγρού αέρος ή υγρού οξυγόνου ως ψυκτικού απαγορεύεται. 52.400  
(Συνεχίζεται)

(4) Η θερμοκρασία της ψύξεως θα επιλέγεται κατά τρόπον ώστε να αποφεύγεται οιοσδήποτε κίνδυνος που θα ήτο δυνατόν να εγερθεί εκ του χωρισμού των φάσεων.

Όριον μεταφερομένων ποσοτήτων 52.401

Μία μονάδα μεταφοράς δεν θα μεταφέρει άνω των 750 KG ύλες των 46°(α), 47°(α) και 49°(α), ούτε άνω των 5.000 KG ύλες των 45°, 46°(β) και (γ), 47°(β), 48°, 49°(β), 50° έως 53° και 55°, ούτε άνω των 10.000 KG ύλες της 54°.

52.402

Απαγόρευση μικτής φορτώσεως σ' ένα όχημα 52.403

Ύλες της Κλάσεως 5.2 δεν θα φορτώνονται μαζί σ' ένα όχημα με:

(α) ύλες ή είδη των Κλάσεων Ια, Ιβ ή Ιγ κλεισμένες σε

κδλα φέροντα ετικέττα ή δύο ετικέττες 52.403

σύμφωνα προς το μοντέλο Νο.Ι\* με (Συνεχίζεται)

(β) όλες των Κλάσεων 3, 4.1 ή 4.2 κλεισμένες σε

κδλα φέροντα δύο ετικέττες σύμφωνα προς τα  
μοντέλα 2Α, 2Β ή 2C: ή με

(γ) υγρά της Κλάσεως 8 κλεισμένα σε κδλα φέροντα

δύο ετικέττες σύμφωνα προς το μοντέλο Νο.5.

52.404-

52.412

Καθάρισμα προ της φορτώσεως

52.413

Οχήματα για τη μεταφορά κδλων περιεχόντων όλες της  
Κλάσεως 5.2 θα καθαρίζονται προσεκτικά.

Χειρισμός και στοιβάσα

52.414

(1) Κδλα περιέχοντα όλες της Κλάσεως 5.2 θα φορτώ-  
νονται κατά τέτοιο τρόπο ώστε να μπορούν να ξεφορτώνονται  
ένα ένα εις το σημείο του προορισμού χωρίς να είναι απα-  
ραίτητο να τακτοποιηθεί εκ νέου το φορτίο.

(2) Κδλα περιέχοντα όλες της Κλάσεως 5.2 θα κρατούν-  
ται όρθια και θα είναι έτσι ασφαλισμένα και στερεωμένα  
ώστε να μη μπορούν να αναποδογυρίσουν ή πέσουν. Θα προστα-  
τεύονται κατά οιασδήποτε ζημίας που θα ήταν δυνατόν να προ-  
κληθεί από άλλα κδλα.

(3) Η χρήση ευχερώς ευφλέκτων υλικών για τη στοιβάσα  
των κδλων σε οχήματα απαγορεύεται.

(4) Κδλα περιέχοντα όλες της Ομάδος E δεν θα τοποθετούν-  
ται πάνω από άλλα εμπορεύματα\* επιπροσθέτως, θα είναι έτσι  
στοιβαγμένα ώστε να είναι ευχερώς προσιτά (ευκολοπλησίαστα).

(5) Ύλεις της Ομάδας Β θα φορτώνονται και εκφορτώνονται χωρίς ενδοιάμεση αποθήκευση, και σε περίπτωση μεταφορτώσεως θα μεταφέρονται απ'ευθείας από το ένα δχημα στο άλλο. Οι προβλεπόμενες ανώτατες θερμοκρασίες δεν θα υπερβαίνονται διαρκούντος του τολούτου χειρισμού (βλέπε περιθώριο 52.400 (I)).

52.415-

52.499

### Άρθρο 5

#### Ειδικές διατάξεις διέπουσες τη λειτουργία των οχημάτων

#### Σήματα Οχημάτων

52.500

(I) Οι διατάξεις του περιθωρίου 10.500, παράγραφοι (I) και (6), θα ισχύουν για τη μεταφορά επικινδύνων υλών της Κλάσεως 5.2. Οι διατάξεις των παραγράφων (2) έως (5) θα ισχύουν για τις ύλεις που αναγράφονται στη Προσθήκη Β.5.

(2) Σταθερές δεξαμενές περιέχουσες ή (κενές δεξαμενές, ακαθάριστες) που περιείχαν ύλεις που αναγράφονται στη Προσθήκη Β.5 θα φέρουν επιπροσθέτως ~~επί~~ δύο πλευρές τους και πίσω ετικέττα σύμφωνα προς το μοντέλο Νο.3.

52.501-

52.508

#### Διακοπές (μεταφοράς) περιωρισμένης διάρκειας ~~για~~ ανάγκες σέρβις

52.509

Διαρκούσης της μεταφοράς των υλών 46<sup>ο</sup>(α), 47<sup>ο</sup>(α) και 49<sup>ο</sup>(α), διακοπές ~~για~~ ανάγκες σέρβις δεν θα πρέπει να γίνονται καθόσον είναι δυνατόν ημείον κατανημένων τόπων ή τόπων διαμονής. Μία διακοπή ημείον ενός τέτοιου τόπου δεν θα



παρατείνεται εκτός κατόπιν συμφωνίας με τις αρμόδιες αρχές. Ο αυτός κανόνας θα ισχύει οσάντις μία μονάδα μεταφοράς φορτώνεται με ύλες των 45°, 46° (β) και (γ), 48°, 49° (β) και 50° έως 55° άνω των 2.000 KG.

52.509  
52.510-  
52.599

Άρθρο 6

Μεταβατικές διατάξεις, ανακλήσεις και διατάξεις ειδικές για ωρισμένες χώρες

(Καμβία ειδική διάταξη)

52.600-  
60.999

Κλάση 6.1

Τοξικές Ύλες

Άρθρο I

Γενικά

6I.000-  
6I.II0

Μεταφορά εις χύμα

6I.III

(1) Ύλες των 4I° και 73° μπορούν να μεταφέρονται εις χύμα ως πλήρης φόρτωση.

(2) Ύλες της 4I° θα μεταφέρονται σε κλειστά ή σκεπασμένα οχήματα και ύλες της 73° σε ανοικτά, σκεπασμένα ή με κινητή σκεπή οχήματα.

6I.II2-  
6I.II7

Μεταφορά σε CONTAINERS

6I.II8

Εύθραυστα κόλα εντός της εννοίας του περιθωρίου

ΙΟ.ΙΟ2(Ι) δεν μπορούν να μεταφέρονται σε μικρά CONTAINERS.

6Ι.ΙΙ9-

6Ι.Ι20

Μεταφορά σε δεξαμενές

6Ι.Ι2Ι

(Ι) Οι παρακάτω ύλες μπορούν να μεταφέρονται σε σταθερές δεξαμενές ή δυνάμενες να αφαιρεθούν δεξαμενές:

(α) οι άκρως τοξικές ύλες οι κατ'ονομασίαν αναγραφόμενες εις Ι<sup>ο</sup>(β) έως 5<sup>ο</sup>.

(β) οι τοξικές ύλες, οι μεταφερόμενες σε υγρά κατάσταση, των ΙΙ<sup>ο</sup>(α)· Ι2<sup>ο</sup>, (β) έως (ε)· Ι3<sup>ο</sup>(β)· Ι4<sup>ο</sup>· 52<sup>ο</sup>· 8Ι<sup>ο</sup>(α)· και 82<sup>ο</sup>(α)· και ύλες εφάμιλλες με αυτές·

(γ) οι λοιπές τοξικές και επιβλαβείς ύλες οι μεταφερόμενες σε υγρά κατάσταση, των ΙΙ<sup>ο</sup> έως Ι3<sup>ο</sup>· 2Ι<sup>ο</sup> έως 23<sup>ο</sup>· 3Ι<sup>ο</sup>, (β) και (γ)· 32<sup>ο</sup>(β)· 6Ι<sup>ο</sup>· 62<sup>ο</sup>· 8Ι<sup>ο</sup> έως 83<sup>ο</sup>· και ύλες εφάμιλλες με αυτές· και

(δ) οι σε κόνη ή κόκκους τοξικές και επιβλαβείς ύλες των 2Ι<sup>ο</sup> έως 23<sup>ο</sup>· 3Ι<sup>ο</sup>(α)· 4Ι<sup>ο</sup>· 62<sup>ο</sup>· 7Ι<sup>ο</sup>· έως 75<sup>ο</sup>· 82<sup>ο</sup> έως 84<sup>ο</sup>· και ύλες εφάμιλλες με αυτές.

(2) Οι παρακάτω ύλες του περιθωρίου 260Ι μπορούν να μεταφέρονται σε δεξαμενο-CONTAINERS:

Ακρυλονιτρίλιο (2<sup>ο</sup>(α)), ακετρονιτρίλιο (μεθυλοκυανίδιο) (2<sup>ο</sup>(β)), υδάτινα διαλύματα αιθυλένιοιμίλης (3<sup>ο</sup>), αλλυλικό χλωρίδιο (4<sup>ο</sup>(α)), χλωρομυρμηκικό μεθύλιο (4<sup>ο</sup>(β)), χλωρομυρμηκικό αιθύλιο (4<sup>ο</sup>(γ)), 2-κυανοπροπάνιο-2-ΟΙ (ακετόνη κυανο-

υδρίνη) (II<sup>0</sup>(α)), ανιλίνη (II<sup>0</sup>(β)), I-χλωρο-2,  
 3-εποξυπροπάνιο (επιχλωροϋδρίνη) (I2<sup>0</sup>(α)), 2,2-  
 διχλωροδιαιθρλαιθέρας (χλωροαιθυλαιθέρας) 2-χλωρο-  
 αιθυλαιθέρας) (I2<sup>0</sup>(στ)), αλλυλική αλκοόλη (I3<sup>0</sup>(α)),  
 διμεθυλοθειϊκό άλας (DIMETHYL SULPHATE) (I3<sup>0</sup>(β)),  
 φαινόλη (I3<sup>0</sup>(γ)), αλκυλία μολύβδου (I4<sup>0</sup>), 2-βρωμο-  
 φαινυλακετονιτρύλιο (βρωμοβενζυλιοκυανύδιο) (2I<sup>0</sup>(α)),  
 χλωριούχος φαινυλκαρβυλαμίνη (PHENYL CARBYLAMINE  
 CHLORIDE) (2I<sup>0</sup>(β)), 2,4-δισοκυανατοτουλουόλη (2I<sup>0</sup>(γ)),  
 και ταμίγματα αυτής με 2,6-δισοκυανατοτουλουόλη  
 τα οποία αφομοιώνονται με αυτήν), αλλυλικό ισοθειο-  
 κυανικό άλας (2I<sup>0</sup>(δ)), χλωροανιλίνες (2I<sup>0</sup>(ε)), μονο-  
 νιτροανιλίνες και δινιτροανιλίνες (2I<sup>0</sup>(στ)), ναφθη-  
 λαμίνες (2I<sup>0</sup>(ζ)), 2,4-διαμινοτολουόλη (2I<sup>0</sup>(η)), δινι-  
 τροβενζόλια (2I<sup>0</sup>(ι)), χλωρονιτροβενζόλια (2I<sup>0</sup>(κ)),  
 μονονιτροτολουόλαι (2I<sup>0</sup>(λ)), δινιτροτολουόλαι (2I<sup>0</sup>(μ)),  
 νιτροξυλένια (2I<sup>0</sup>(ν)), τολουϊδίνες (2I<sup>0</sup>(ο)), ξυλιδίν-  
 νες (2I<sup>0</sup>(π)), κρεσόλια (22<sup>0</sup>(α)), ξυλένια (XYLENOLS)  
 (22<sup>0</sup>(β)), βρωμιούχο ξυλύλιο (23<sup>0</sup>(α)), χλωριούχο φαινα-  
 κύλιο (W-χλωροακετοφαινόνη) (23<sup>0</sup>(β)), βρωμιούχο φαι-  
 νακύλιο (W-βρωμοακετοφαινόνη) (23<sup>0</sup>(γ)), 4-χλωροάκετο-  
 φαινόνη (μεθυλο P-χλωροφαινυλακετόνη) (23<sup>0</sup>(δ)), συμμε-  
 τρική διχλωροακετόνη (23<sup>0</sup>(ε)), διαλύματα ανοργάνων  
 κυανιδίων (3I<sup>0</sup>(β)), διβρωμιούχο αιθυλένιο (συμμετρικο-  
 διβρωμοαιθάνιο) (6I<sup>0</sup>(α) και τετραχλωριούχος άνθραξ,  
 χλωροφόρμιο και χλωριούχο μεθυλένιο (τα οποία αφομοι-  
 ούνται με αυτό), μεθυλο-χλωρο-οξιικό άλας (METHYL  
 CHLOROACETATE) (6I<sup>0</sup>(ε)), αιθυλο-χλωρο-οξιικό άλας (6I<sup>0</sup>(στ))

χλωριούχο βενζύλιο (61<sup>ο</sup>(κ), τριχλωριούχο βενζόλιο το οποίο απομοιούται με τις ύλες της 62<sup>ο</sup>, και ύλες και παρασκευάσματα χρησιμοποιούμενα ως παρασιτοκτόνα (81<sup>ο</sup>-83<sup>ο</sup>).

61.121  
(Συνεχίζεται)

61.122-

61.126

### Δεξαμενές

61.127

Το εξωτερικόν των δεξαμενών δεν πρέπει να έχει μολυνθεί με τοξικές ύλες.

### Κενές Δεξαμενές

61.128

(1) Για να γίνονται δεκτές για μεταφορά, κενές σταθερές δεξαμενές και κενές δυνάμενες να αφαιρεθούν δεξαμενές δεν πρέπει να έχουν μολυνθεί εξωτερικώς από τοξικές ύλες· θα είναι κλεισμένες κατά τον ίδιο τρόπο και θα είναι του αυτού βαθμού στεγανές ως εάν ήσαν πλήρεις (γεμάτες).

(2) Για δεξαμενο-CONTAINERS, βλέπε περιθώριο 212.177.

(3) Κενές δυνάμενες να αφαιρεθούν (αποσυνδεθούν) δεξαμενές και κενά δεξαμενο-CONTAINERS της 91<sup>ο</sup>, εάν προωθηθούν όχι ως πλήρες φορτίο, θα φέρουν ετικέττες σύμφωνες προς το μοντέλο Νο.4 (βλέπε Παράρτημα Α, Προσθήκη Α.9).

61.129-

61.170

### Πληρώματα οχημάτων· Εποπτεία (Επιβλεψίς)

61.171

(1) Βοηθόν οδηγού θα φέρει κάθε μονάδα μεταφοράς μεταφέρουσα άνω του ενός μετρικού τόννου υλών της Κλάσεως 6.1 I<sup>ο</sup> έως 5<sup>ο</sup> και I4<sup>ο</sup>, ή άνω των 250 KG ευθραύστων κόλων περιεχόντων τις ύλες αυτές.

(2) Οι διατάξεις της παραγράφου 10.171(2) θα ισχύουν

μόνον επί των επικινδύνων εμπορευμάτων των αναγραφόμε- 61.171  
νων κατωτέρω σε ποσότητες υπερβαίνουσες τις οριζόμενες (Συνεχίζε-  
ται)  
παρακάτω:-

- Οι ύλες των I<sup>ο</sup> - 5<sup>ο</sup> : 1.000 KG
- Οι ύλες των II<sup>ο</sup>(α), I2<sup>ο</sup>(α), (β) και (δ),  
I3<sup>ο</sup>(α) και (β), I4<sup>ο</sup> και 8I<sup>ο</sup> : 5.000 KG

61.172-

61.184

Γραπτές Οδηγίες

61.185

Όσάνις μεταφέρονται ύλες της I4<sup>ο</sup>, ή δοχεία που περιείχαν αυτές, το κείμενο των γραπτών οδηγιών θα καθορίζει, μεταξύ άλλων, τα κάτωθι:-

"(Α) Προφυλάξεις που πρέπει να λαμβάνονται

Η μεταφερομένη ύλη είναι άκρως τοξική. Σε περίπτωση διαρροής εξ ενός των δοχείων πρέπει να λαμβάνονται αισθητικές προφυλάξεις:-

## I.- αποφεύγετε:

- (α) την επαφή με το δέρμα\*
- (β) την εισπνοή ατμών
- (γ) την εισαγωγήν του υγρού εις το στόμα\*

2.- οσάνις χειρίζεσθε βαρέλια ανοιγμένα ή καταστραμμένα ή βρεγμένα με υγρό, η χρήση των παρακάτω είναι υποχρεωτική:-

- (α) αναπνευστικές συσκευές (αναπνευστήρες)\*
- (β) χειροβιτριά (γάντια) λαστιχένια ή από <sup>κάποια</sup> κατάλληλη πλαστική ύλη,
- (γ) υποδήματα λαστιχένια ή από κάποια κατάλληλη πλαστική ύλη.

Σε περίπτωση σοβαρού ατυχήματος συνεπαγομένου 6Ι.Ι85 παρεμπόδιση της κυκλοφορίας εθνικής οδού, είναι ουσιώ- (Συνεχι- ζεται)  
δες όπως τα αφινοούμενα να καθαρίσουν το εμπόδιον πρόσω-  
πα ειδοποιούνται περί του δυνατού κινδύνου.

(B) Ενέργεια που πρέπει να παρθεί

Όλα τα πρακτικώς δυνατά μέτρα, συμπεριλαμβανομέ-  
νης της χρήσεως των ειδοποιήσεων των αναφερομένων εις το  
περιθώριον 6Ι.260, θα παίρνονται ώστε να κρατούνται τα πρό-  
σωπα σε απόσταση όχι μικρότερη των 15 μέτρων από τον τόπον  
του ατυχήματος\* οι ειδοποιήσεις που περιέχονται στο κιβώ-  
τιο εξαρτημάτων θα τοποθετούνται γύρω του κλεισίματος και  
οι θεατές θα κρατούνται μακριά.

Οι αναπνευστικές συσκευές, γάντια και υποδήματα  
θα παρέχουν την δυνατότητα σε ένα πρόσωπο να πλησιάσει το  
φορτίο και επαληθεύσει τη κατάστασή του.

Εάν οποιοδήποτε από τα βαρέλια ανοίξει, θα πρέπει  
να γίνουν τα παρακάτω:-

- (α) πρόσθετες αναπνευστικές συσκευές, γάντια και υποδήματα  
με τα οποία θα εφοδιασθούν οι εργάτες πρέπει να προμη-  
θευθούν επείγοντως\*
- (β) βαρέλια που εξακολουθούν να είναι άθικτα πρέπει να τί-  
θενται κατά μέρος\*
- (γ) το υγρό το χυμένο στο δχημα ή στο έδαφος πρέπει να εξου-  
δετερώνεται με άφθονο πλύσιμο με υδατινο διάλυμα υπερ-  
μαγγανικού καλλίου (άγοντος εξουδετερώσεως, φιάλη του ο-  
ποίου τηρείται εις το κιβώτιο εξαρτημάτων)\* το διάλυμα  
παρασκευάζεται ευχερώς ανακατεύοντας 0.5 KG υπερμαγγανι-  
κού με 15 λίτρες νερού σ'ένα κάδο\* το πλύσιμο θα πρέπει

να γίνεται πολλές φορές, διότι χρειάζονται 2 KG υπερ- 6I.185  
μαγγανικού καλίου για να εξουδετερώσουν εξ ολοκλήρου (Συνε-  
I KG της μεταφερομένης ύλης. χρίζε-  
ται)

Όσakis είναι πρακτικώς δυνατόν, ο καλλίτερος τρό-  
πος απολυμάνσεως της περιοχής είναι να χύσει κανείς στο  
χυμένο υγρό βενζίνη και το αναφλέξει.

(Γ) Σημαντική παρατήρηση

Σε περίπτωση ατυχήματος, ένα από τα πρώτα μέτρα  
που πρέπει να παρθούν είναι η γνωστοποίησή του δια τηλε-  
γραφήματος ή τηλεφωνικώς ... (παραθέσετε ενταύθα τις διευ-  
θύνσεις και τους τηλεφωνικούς αριθμούς των ιδρυμάτων που  
πρέπει να ειδοποιηθούν σε κάθε χώρα στην εδαφική περιοχή  
της οποίας πρόκειται να λάβει χώρα η μεταφορά).

Όχημα το ποπολο έχει μολυνθεί από τη μεταφερομένη  
ύλη δεν θα τρίθεται και πάλιν σε υπηρεσία μέχρις απολυμάν-  
σεώς του υπό την επίβλεψη του αρμοδίου προσώπου. Οιαδή-  
ποτε ξύλινα εξαρτήματα του οχήματος τα οποία προσβλήθησαν  
από τη μεταφερόμενη ύλη θα αφαιρούνται και καίονται."

6I.186-

6I.199

Άρθρο 2

Ειδικοί όροι τους οποίους πρέπει να πληρούν  
τα οχήματα και ο εξοπλισμός τους

6I.200-

6I.239

Πυροσβεστικές συσκευές

6I.240

Οι διατάξεις που περιθωρού IO.240(I)(β) και (3)  
δεν θα ισχύουν για τη μεταφορά επικινδύνων υλών της Κλά-  
σεως 6.I.

6I.24I-

6I.250

Ηλεκτρικός Εξοπλισμός

6I.25I

(I) Οι διατάξεις της Προσθήκης Β.2, περιθώριο 220.000, δεν θα ισχύουν για τη μεταφορά επικινδύνων υλών της Κλάσεως 6.I.

(2) Εν τούτοις, οχήματα μεταφέροντα υγρά της I4<sup>ο</sup> σε σταθερές δεξαμενές ή δυνάμενες να αφαιρεθούν δεξαμενές θα είναι εφοδιασμένα με διακόπτην ο οποίος παρέχει την δυνατότητα ολόκληρο το ηλεκτρικό κύκλωμα να ανοιγεί. Ο διακόπτης θα ευρίσκεται πλησίον των συσσωρευτών. Ο ηλεκτρικός εξοπλισμός θα ικανοποιεί τις διατάξεις του περιθωρίου 220.000 (2)

(γ) 2.

6I.252-

6I.259

Ειδικός εξοπλισμός

6I.260

Όσakis μεταφέρονται όλες της I4<sup>ο</sup> ή δοχεία που περιείχαν αυτές, ο οδηγός οφείλει, όταν του δίδουν το έγγραφο μεταφοράς, να του δίδουν ταυτοχρόνως φορητόν κιβώτιον εξαρτημάτων εφοδιασμένον με χειρολαβήν και περιέχον:-

- τρία αντίγραφα των γραπτών οδηγιών των οριζουσών την ενέργειαν που πρέπει να παρθεί σε περίπτωση ατυχήματος ή περιστατικού λαμβάνοντος χώραν διακοπής της μεταφοράς (βλέπε περιθώριο 6I.185)·
- δύο ζεύγη γάντια και δύο ζεύγη υποδήματα λαστιχένια ή από κάποια κατάλληλη πλαστική ύλη·



- δύο αναπνευστικές συσκευές με φυσιγγιον ενεργού ξυλάνθρακος χωρητικότητας 500  $\text{cm}^3$ . 6Ι.260 (Συνεχίζεται)
- μία φιάλη (κατασκευασμένη από βακελίτην, χπ.χ.) περιέχουσα 2 KG υπερμαγγανικού καλλίου και φέρουσα την επιγραφήν "διαλύσατε δε ... προ της χρήσεως".
- έξι ειδοποιήσεις επί ινοσανίδας φέρουσες την επιγραφή "ΚΙΝΔΥΝΟΣ - χυμένο πτητικό δηλητήριο. Μη πλησιάζετε χωρίς αναπνευστική συσκευή" στη γλώσσα ή στις γλώσσες εκάστης των χωρών στην εδαφική περιοχή της οποίας λαμβάνει χώραν η μεταφορά.

Το κιβώτιο τούτο των εξαρτημάτων πρέπει να τηρείται στη θέση του οδηγού σε χώρο όπου εύκολα μπορεί να ευρεθεί από την ομάδα απολυμάνσεως.

6Ι.26Ι-

6Ι.299

### Άρθρο 3

#### Γενικές Διατάξεις Σέρβις

6Ι.300-

6Ι.30Ι

Ενέργεια που πρέπει να παρθεί σε περίπτωση ατυχήματος

6Ι.302

(Βλέπε περιθώριο 6Ι.Ι85)

Προφυλάξεις σε σχέση με αναλώσιμα είδη

6Ι.303

Σε οχήματα και τόπους φορτώσεως, εκφορτώσεως ή μεταφορτώσεως, επικίνδυνες ύλες της Κλάσεως 6.Ι θα τηρούνται μακριά από τρόφιμα και λοιπά αναλώσιμα είδη.

6Ι.304-

6Ι.352

Φορητή φωτιστική συσκευή

6I.353

Οι διατάξεις του περιθωρίου IO.353 δεν θα έχουν ισχύν.

6I.354-

6I.373

Απαγόρευση καπνίσματος

6I.374

Οι διατάξεις του περιθωρίου IO.374 δεν θα έχουν ισχύν.

6I.375-

6I.399

## Άρθρο 4

Ειδικές Διατάξεις διέπουν την φόρτωση,  
εκφόρτωση και χειρισμόν

Μέθοδος αποστολής και περιορισμοί προώθησεως

6I.400

Οι ύλες οι αναφερόμενες εις 2<sup>ο</sup>(α) (ακυλονιτρολιό) και 6I<sup>ο</sup>(I) (I-χλωρο-I-νιτροπροπάνιο) μπορούν να μεταφέρονται σε μη-επιστρεπτέα μεταλλικά βαρέλια (βλέπε περιθώριο 2604(I)(β)2 και 2623(2)(δ) μόνον ως πλήρες φορτίον σε ανοικτά οχήματα.

6I.401-

6I.402

Απαγόρευση μικτής φορτώσεως σε ένα όχημα

6I.403

Ύλες της Κλάσεως 6.I κλεισμένες σε κδλα φέροντα ετικέτα σύμφωνα με τα μοντέλα 2A, 4 ή 4A δεν θα φορτώνονται μαζί σε ένα όχημα με ύλες ή είδη των Κλάσεων Ia, Ib ή Ic κλεισμένα σε κδλα φέροντα ετικέτα ή δύο ετικέτες σύμφωνα προς το μοντέλο No.I.

6I.404-

6I.406

6I.407

Τόποι φορτώσεως και εκφορτώσεως

(I) Αι κατωτέρω εργασίαι απαγορεύονται:-

(α) φόρτωσις ή εκφόρτωσις υλών των Ι<sup>ο</sup> έως 5<sup>ο</sup>, ΙΒ<sup>ο</sup> (β),ΙΔ<sup>ο</sup> και 8Ι<sup>ο</sup> εις δημόσιον χώρον εις κατωκημένην περιοχήν χωρίς ειδική άδεια από τις αρμόδιες αρχές:

(β) φόρτωσις ή εκφόρτωσις των παραπάνω υλών σε δημόσιο χώρο εκτός κατωκημένης περιοχής χωρίς να προειδοποιηθεί η αρμοδία αρχή, εκτός εάν οι παραπάνω εργασίες δικαιολογούνται για σοβαρούς λόγους ασφαλείας.

(2) Εάν, για οποιοδήποτε λόγο, οι εργασίες χειρισμού πρέπει να διεξαχθούν σε δημόσιο χώρο, τότε οι ύλες και είδη διαφόρων ειδών θα χωρισθούν ανάλογα με τις ετικέττες.

6I.408-

6I.414

Καθάρισμα μετά την εκφόρτωση

6I.415

(I) Μετά την εκφόρτωση, οχήματα τα οποία μετέφεραν ύλες των 4I<sup>ο</sup> και 73<sup>ο</sup> εις χύμα θα πλένονται με άφθονο νερό.(2) Όχημα το οποίον εμολύνθη από ύλες της Ι4<sup>ο</sup> ή μίγμα αυτών δεν θα τίθεται και πάλιν σε υπηρεσία μέχρις ότου απολυμανθεί υπό την επίβλεψη αρμοδίου προσώπου. Οποιαδήποτε ξύλινα εξαρτήματα του οχήματος τα οποία προσεβλήθησαν από ύλες της Ι4<sup>ο</sup> θα αφαιρούνται και καίγονται.

6I.416-

6I.499

Άρθρο 5Ειδικαί διατάξεις διέπουναι την λειτουργίαν των οχημάτωνΣήματα Οχημάτων

6I.500

(I) Οι διατάξεις του περιθωρίου IO.500, παράγραφοι (I) και (6), θα ισχύουν για τη μεταφορά των υλών I<sup>ο</sup> έως 5<sup>ο</sup>, II<sup>ο</sup> έως I4<sup>ο</sup>, 2I<sup>ο</sup> έως 23<sup>ο</sup>, 3I<sup>ο</sup> έως 33<sup>ο</sup>, 4I<sup>ο</sup>, 5I<sup>ο</sup> έως 54<sup>ο</sup>, 6I<sup>ο</sup>, 62<sup>ο</sup>, 8I<sup>ο</sup> και 82<sup>ο</sup>. Οι διατάξεις των παραγράφων (2) έως (5) θα ισχύουν επίσης για τη μεταφορά των υλών των αναγραφόμενων στη Προσθήκη B.5.

(2) Οσάντις μεταφέρονται ύλες της I4<sup>ο</sup>, το όχημα θα φέρει σε κάθε πλευρά του προειδοποίησιν αναφέρουσα ότι, εάν οιοδήποτε υγρό διαφύγει, πρέπει να ασκηθεί η μεγαλύτερα προφύλαξις και το όχημα δεν θα πρέπει να πλησιάζει κανείς χωρίς αναπνευστική συσκευή (μάσκα-αερίου), γάντια και υποδήματα από λάστιχο ή κάποια κατάλληλη πλαστική ύλη.

(3) Σταθερές δεξαμενές περιέχουσες ύλες αναγραφόμενες στη Προσθήκη B.5 θα φέρουν επιπροσθέτως σε αμφότερες τις πλευρές τους και πίσω ετικέττα σύμφωνον προς το μοντέλο Νο.4. Οι δεξαμενές που περιέχουν ή (κενές δεξαμενές, ακαθάριστες) που περιείχαν ακετονιτρίλιον, 2-κυανοπροπάνιο-2-ΟΙ (ακετόνη κυανοϊδρίνη), αλλυλικό χλωρίδιο ή ακρυλονιτρίλιο θα φέρουν επιπροσθέτως ετικέττες σύμφωνες προς το μοντέλο Νο. 2Α.

6I.50I-

6I.508

Διακοπαί (ταξιδιού) περιωρισμένης διάρκειας για ανάγ- 6I.509  
νες σέρβις

Διακοπαί (ταξιδιού) για ανάγνες σέρβις, δεν θα

γίνονται, εφόσον είναι δυνατόν, πλησίον κατωκημένων τόπων ή τόπων διαμονής. Μία διακοπή (ταξιδίου) αυτά δε τέτοια (Συνεχίζεται)  
 τή ~~ση~~ δεν θα πρέπει να παρατείνεται εκτός κατόπιν συμφωνίας με τις αρμόδιες αρχές.

6I.5I0-

6I.5I4

Προστασία κατά της ηλιακής ενεργείας

6I.5I5

Διαρκούσης της περιόδου Απριλίου - Οκτωβρίου συμπεριλαμβανομένων, όταν ένα όχημα μεταφέρει υδροκυανικά οξύ (I<sup>0</sup>(α)) είναι σταθμευμένο, τα κόλα πρέπει, εάν η νομοθεσία της χώρας εις την οποίαν το όχημα είναι σταθμευμένο το επιβάλλει, να προστατεύονται αποτελεσματικά κατά της ηλιακής ενεργείας, π.χ. δια σκεπασμάτων τοποθετημένων όχι λιγώτερον των 20 CM άνωθεν του φορτίου.

6I.5I6-

6I.599

Άρθρο 6

Μεταβατικά διατάξεις, αναλήψεις και διατάξεις ειδικές για συγκεκριμένες χώρες

6I.600-

6I.604

Μεταβατικά διατάξεις

6I.605

Συμφώνως προς την τελευταία πρότασιν του άρθρου 4, παράγραφος 2, της Συμφωνίας, οχήματα τα οποία ήσαν 62 υπηρεσία στην εδαφική περιοχή Συμβαλλομένου Μέρους κατά τον χρόνον θέσεως 62 ισχύος της Συμφωνίας κατά το άρθρον 7, παράγραφος I, ή ετέθησαν 62 υπηρεσία εντός δύο μηνών απο τότε που τέθηκε 62 ισχύος, μπορούν να χρησιμοποιηθούν για τη διεθνή μεταφορά

υλών της Ι4<sup>ο</sup> μόνον διαρκούσης περιόδου δύο ετών από της θέσεως ~~62~~ ισχύος εάν το σχέδιόν των και ο εξοπλισμός δεν πληρούν πλήρως τους όρους του παρόντος Παραρτήματος για *τένια* μεταφορά.

61.605  
61.606-  
61.999

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Κλάσις 6.2

Απεχθείς ύλες και ύλες δυνάμενες να προκαλέσουν μόλυνση

Άρθρο Ι

Γενικά

62.000-  
62.099

Εφαρμογή του Κεφαλαίου Ι του παρόντος Παραρτήματος 62.100

Οι μόνες διατάξεις του παρόντος Παραρτήματος, πλην εκείνων των Άρθρων Ι έως 6 κατωτέρω, οι οποίες ισχύουν για τη μεταφορά επικινδύνων υλών της Κλάσεως 6.2 είναι εκείνες των περιθωρίων 10.001, 10.100, 10.102, 10.111, 10.118, 10.181(Ι)(α), 10.404, 10.405, 10.413, 10.414, 10.415 και 10.419.

62.101-  
62.110

Μεταφορά εις χύμα

62.111

(1) Οι ύλες των 1<sup>ο</sup>, 2<sup>ο</sup>, 3<sup>ο</sup> και 5<sup>ο</sup> μπορούν να μεταφέρονται εις χύμα. Οι ύλες της 9<sup>ο</sup> δεν μπορούν να μεταφερθούν άλλως *παρά μόνον*<sup>62</sup> χύμα.

(2) Όταν είναι εις χύμα

(α) Οι ύλες των 1<sup>ο</sup>(α) και (γ) και 2<sup>ο</sup> θα φορτώνων-

να σε ειδικά καλυμμένα (σκέπασμένα) οχήματα εφοδιασμέ- 62.III  
 να με εγκαταστάσεις εξαερισμού. Κατά τη διάρκεια των (Συνεχίζε-  
 μηνών Νοεμβρίου - Φεβρουαρίου οι ύλες αυτές μπορούν επι-  
 της να φορτώνονται σε ανοικτά οχήματα υπό τον όρον ότι  
 θα έχουν φεκασθεί με κατάλληλο απολυμαντικό προς αφάιρε-  
 σιν της κακής οσμής.

(β) Οι κατωτέρω ύλες θα φορτώνονται σε ανοικτά οχήματα.  
 ύλες της 1<sup>ο</sup> (β), αφού φεκασθούν με κατάλληλα απο-  
 λυπαντικά προς αφάιρεσιν της κακοσμίας.

ύλες της 3<sup>ο</sup>.

ύλες της 5<sup>ο</sup>, αφού φεκασθούν με ασβεστόνερο για να  
 μην είναι αισθητή η βρώμικη (χαλασμένη) οσμή και

ύλες της 9<sup>ο</sup>.

(3) Επιπροσθέτως, όταν φορτωθούν σε ανοικτά οχήματα,  
 πρέπει να καλύπτονται με:

(α) σκέπασμα βουτυγμένο σε κατάλληλα απολυμαντικά και  
 να είναι καλυμμένο με δεύτερο σκέπασμα: ύλες των  
 1<sup>ο</sup> (α) και (γ) και 2<sup>ο</sup>.

(β) σκέπασμα ή πρισσόχαρτο (και φεκασμένα με κατάλληλα  
 απολυμαντικά): νωπά κέρατα, νύχια, οπλές ή κβηκλα  
 (1<sup>ο</sup> (β)).

(γ) σκέπασμα: ύλες της 3<sup>ο</sup>, εκτός εάν φεκασθούν  
 με κατάλληλα απολυμαντικά προς αποφυγήν οιασδήποτε  
 κακοσμίας και

(δ) σκέπασμα: ύλες της 9<sup>ο</sup>.

62.II2-

62.II7

#### Μεταφορά σε CONTAINERS

62.II8

Η μεταφορά των υλών της 9<sup>ο</sup> σε μικρά CONTAINERS απα-

γυρεύεται.

62.119-

62.170

Πληρώματα Οχημάτων· Εποπτεία (Επιβλεψη)

62.171

Οι διατάξεις του περιθωρίου ΙΟ.Ι71(2) δεν θα έχουν εφαρμογή.

62.172-

62.199

Άρθρο 2

Ειδικές διατάξεις που πρέπει να πληρούν  
τα οχήματα και ο εξοπλισμός τους

62.200-

(Ουδεμία ειδική διάταξις)

62.299

Άρθρο 3

Γενικές διατάξεις σέρβις

62.300-

62.302

Προφυλάξεις σε σχέση με αναλώσιμα είδη

62.303

Σε οχήματα και τόπους φορτώσεως, εκφορτώσεως και μεταφορτώσεως, επικίνδυνες ύλες της Κλάσεως 6.2 πλην των υλών της 7<sup>ο</sup> και πλην των υλών της 8<sup>ο</sup> συσκευασμένων συμφώνως προς τις διατάξεις του Παραρτήματος Α. περιθωρίου 2659 (2) (α) ή (β), θα τηρούνται μακριά από τρόφιμα και αναλώσιμα είδη.

62.304-

62.399

Άρθρο 4

Ειδικές Διατάξεις διέπουσαι την φόρτωση, εκφόρτωση  
και χειρισμόν



62.400-

62.402

Απαγόρευση μικτής φορτώσεως σε ένα όχημα

62.403

Όλες των 9<sup>ο</sup> και 10<sup>ο</sup> δεν θα φορτώνονται μαζί σε ένα όχημα με επικίνδυνες ύλες της Κλάσεως 5.2.

62.404-

62.414

Καθάρισμα μετά την εκφόρτωση

62.415

Μετά από εκφόρτωση, οχήματα τα οποία έχουν μεταφέρει ύλες της Κλάσεως 6.2 εις χύμα θα πλένονται με άφθονο νερό και θα απολυμαίνονται με κατάλληλα απολυμαντικά.

62.416-

62.499

Άρθρο 5Ειδικές Διατάξεις διέπουσαι τη λειτουργία των οχημάτων

(Ουδεμία ειδική διάταξη)

62.500-

62.599

Άρθρο 6Μεταβατικές Διατάξεις, αναλήψεις και διατάξειςειδικές για συγκεκριμένες χώρες

(Ουδεμία ειδική διάταξη)

62.600-

70.999

Κλάσις 7Ραδιενεργές ΎλεςΆρθρο 1ΓενικάΜεταφορά

7I.000

Για λεπτομέρειες βλέπε σχετική κατάσταση στο περιθώριο 2703.

7I.001-

7I.170

Πληρώματα Οχημάτων: εποπτεία

7I.171

Οι διατάξεις του περιθωρίου 10.171(2) θα έχουν εφαρμογή για όλες τις ύλες, οποιασδήποτε ποσότητας. Εν τούτοις, οι διατάξεις του περιθωρίου 10.171(2) δεν χρειάζεται να εφαρμόζονται οσάκις:

- (α) το φορτωμένο διαμέρισμα είναι κλειδωμένο και τα μεταφερόμενα κόλα προστατεύονται κατά οποιαδήποτε παράνομου εκφορτώσεως, και
- (β) η τιμή της δόσεως δεν υπερβαίνει τα 0.5 MR/ωριαίως σε οποιοδήποτε προσιτό σημείο επί της επιφανείας του οχήματος.

7I.172-

7I.199

Άρθρο 2

Ειδικές Διατάξεις που πρέπει να πληρούν τα οχήματα  
και ο εξοπλισμός τους

Διατάξεις

7I.200

Για λεπτομέρειες βλέπε τη σχετική κατάσταση του περιθωρίου 2703.

7I.20I-

7I.299

Άρθρο 3Γενικές Διατάξεις ΣέρβιςΔιατάξεις

7I.300

Για λεπτομέρειες βλέπε το οικείο παράρτημα/πίνακα του περιθωρίου 2703.

7I.30I

7I.373

Απαγόρευση καπνίσματος

7I.374

Οι διατάξεις του περιθωρίου IO.374 δεν θα έχουν εφαρμογήν.

Άρθρο 4Ειδικές διατάξεις διέπουναι την φόρτωση, εκφόρτωση και χειρισμόνΔιατάξεις

7I.400

Για λεπτομέρειες βλέπε το οικείο παράρτημα/πίνακα του περιθωρίου 2703.

7I.40I

7I.499

Άρθρο 5Ειδικές διατάξεις διέπουναι την λειτουργίαν των οχημάτωνΣήματα Οχημάτων

7I.500

(I) Το περιθώριο IO.500 δεν θα έχει εφαρμογήν.

(2) Κάθε δχημα οδού μεταφέρον ραδιενεργείς ύλες θα φέρει εις το εξωτερικόν των πλαϊνών και πίσω ετικέττα σύμφωνον προς το μοντέλο το εικονιζόμενο εις την Προσθήκην Β.4, περι-

θώριο 240.010. Εάν η φόρτωση γίνεται από τον αποστολέα, 7I.500  
καθήκον του θα είναι να θέσει τις ετικέτες αυτές στα (Συνεχίζε-  
οχήματα. ται)

7I.501-

7I.506

Στάθμευση οχήματος αποτελούμετος ειδικό κίνδυνος

7I.507

(Βλέπε, επιπροσθέτως του περιθωρίου IO.507, περι-  
θώριον 3695 της Προσθήκης Α.6.)

7I.508-

7I.599

Άρθρο 6

Μεταβατικές Διατάξεις, ανακλήσεις, και διατάξεις  
ειδικά για συγκεκριμένες χώρες

7I.600-

80.999

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Κλάσις 8

Διαβρωτικές Ύλες

Άρθρο I

Γενικά

8I.000-

8I.IIO

Μεταφορά εις χύμα

8I.III

(I) Ιλύς μολύβδου περιέχουσα θειϊκό δεύ (I<sup>o</sup>(ε)) και  
διθειϊκά (I3<sup>o</sup>) μπορεί να μεταφερθελ σε χύμα ως πλήρες φορ-  
τιο.

(2) Για τέτοια μεταφορά, το αμάξιμα του οχήματος θα  
επενδύεται με μόλυβδο ή με επαρκούς πάχους κηρό παραφλ-

νης ή πρισσόχαρτο και εάν το όχημα είναι σκεπασμένο το σκέπασμα θα τοποθετείται κατά τρόπο που να μη μπορεί να ακουμπά στο φορτίο. (Συνεχίζεται)

8I.III

8I.II2-

8I.II7

Μεταφορά σε CONTAINERS (εμπορευματοκιβώτια)

8I.II8

(1) Εύθραυστα κβλα εντός της εννοίας του περιθωρίου 10.102(1) και τα περιέχοντα επικίνδυνες ύλες των I<sup>o</sup> έως 7<sup>o</sup>, 9<sup>o</sup>, 14<sup>o</sup>, 33<sup>o</sup> και 41<sup>o</sup> δεν θα μεταφέρονται σε μικρά CONTAINERS.

(2) Μικρά CONTAINERS χρησιμοποιούμενα για τη μεταφορά θειϊκών (I3<sup>o</sup>) εις χύμα θα έχουν επενδυθεί με μόλυβδο ή με επαρκούς πάχους κηρώ παραφίνης ή πρισσόχαρτο.

(3) Η μεταφορά εις χύμα μικρών CONTAINERS με ιλύν μόλυβου περιέχουσαν θειϊκόν οξύ της I<sup>o</sup>(ε) απαγορεύεται.

8I.II9-

8I.I20

Μεταφορά σε δεξαμενές

8I.I2I

(1) Όλες οι ύλες του περιθωρίου 280I ή καλυπτόμενες υπό συλλογικού τίτλου μπορούν, εάν η φυσική τους κατάσταση επιτρέπει, να μεταφέρονται σε στερεωμένες (σταθερές) δεξαμενές ή σε δυνάμενες να αποσυναρμολογηθούν δεξαμενές.

(2) Αυτές οι ίδιες ύλες μπορούν επίσης να μεταφέρονται σε δεξαμενο-CONTAINERS. Εν τούτοις, το υδροφθόριο (άνυδρο υδροφθορικό οξύ) (6<sup>o</sup>(α)) μπορεί να μεταφερθεί σε δεξαμενο-CONTAINERS κυβικής χωρητικότητας υπερβαινούσης το 1 M<sup>3</sup>.

(3) Οι παρακάτω ύλες μπορούν να μεταφέρονται σε ενισχυμένες-πλαστικές δεξαμενές συμμορφούμενες προς τις διατάξεις

της Πρόσθηκης Β.Ιγ:- ύλες των I<sup>ο</sup>(β), (γ) και (δ) και 2<sup>ο</sup> (β) και (γ), διαλύματα υδροχλωρικού οξέως της 5<sup>ο</sup>, και (Συνεχίζε-  
ται)  
ύλες των 32<sup>ο</sup>, 37<sup>ο</sup> και 4I<sup>ο</sup>.

8I.I22-

8I.I27

Κενές δεξαμενές

8I.I28

(I) Κενές σταθερές δεξαμενές και κενές αποσυναρμολο-  
γούμενες δεξαμενές της 5I<sup>ο</sup> θα κλείνονται κατά τον αυτόν  
τρόπον και θα είναι του αυτού βαθμού στεγανές σαν νάσαν  
πλήρεις. Σταθερές δεξαμενές που περιείχαν βρώμιο (I4<sup>ο</sup>) θα  
είναι ερμητικά κλεισμένες.

(2) Για δεξαμενο-CONTAINERS, βλέπε περιθώριο 222.I77.

(3) Τα δεξαμενο-CONTAINERS και οι αποσυναρμολογούμε-  
νες δεξαμενές που περιείχαν υδροφθορικό οξύ (6<sup>ο</sup>) ή βρώμιο  
(I4<sup>ο</sup>) θα φέρουν ετικέττα σύμφωνα προς το μοντέλο Νο.5  
(Προσθήκη Α.9). Δεν θα έχουν ίχνη οξέως ή βρωμίου εις το  
εξωτερικό.

8I.I29-

8I.I70

Πληρώματα Οχημάτων· Επίβλεψη (Εποπτεία)

8I.I7I

(I) Βοηθός οδηγός θα φέρει κάθε μονάς μεταφοράς μετα-  
φέρουσα άνω των 250 KG επικινδύνων υλών της Κλάσεως 8 σε  
εύθραυστα κόλα, ή άνω των τριών μετρικών τόννων υλών των  
6<sup>ο</sup>, 7<sup>ο</sup>, II<sup>ο</sup>, I4<sup>ο</sup>, 22<sup>ο</sup>, 3I<sup>ο</sup>, 32<sup>ο</sup> και 37<sup>ο</sup>.

(2) Οι διατάξεις του περιθωρίου IO.I7I(2) θα έχουν  
εφαρμογήν μόνον επί επικινδύνων εμπορευμάτων αναφερόμενων  
κατωτέρω σε ποσότητες υπερβαίνουσες τις κατωτέρω ειδικώς  
οριζόμενες. -

χλωροσουλφονικό οξύ, χλωρίδια και οξυχλωρίδια του 8I.171  
 θείου, τετραχλωροπυρίτιο, της 11<sup>ο</sup> (α), πενταφθορι- (Συνεχίζε-  
 ούχο αντιμόνιο της 15<sup>ο</sup> (β), τριφθοριοούχο βρώμιο και ται)  
 πενταφθοριοούχο βρώμιο της 15<sup>ο</sup> (δ), ακετυλοχλωρίδιο,  
 ακετυλοβρωμίδιο και βενζυλοχλωρίδιο της 22<sup>ο</sup>, και  
 υδραζίνη σε υδατινα διαλύματα περιέχοντα όχι άνω  
 του 72% υδραζίνης, της 34<sup>ο</sup>: 10.000 KG.  
 Βρώμιον της 14<sup>ο</sup> : 1.000 KG.

8I.172-

8I.199

Άρθρο 2

Ειδικές διατάξεις τις οποίες πρέπει να πληρούν τα  
οχήματα και ο εξοπλισμός τους

8I.200-

8I.239

Πυροσβεστικές συσκευές

8I.240

Οι διατάξεις του περιθωρίου 10.240(I)(β) και (3)  
 δεν θα έχουν εφαρμογή για τη μεταφορά επικινδύνων υλών της  
 Κλάσεως 8 πλην εκείνων της 2<sup>ο</sup> (α) και 3<sup>ο</sup> (α).

8I.241-

8I.250

Ηλεκτρικός εξοπλισμός

8I.251

Οι διατάξεις της Προσθήκης Β.2, περιθώριο 220.000,  
 δεν θα έχουν εφαρμογή για τη μεταφορά επικινδύνων υλών της  
 Κλάσεως 8 πλην εκείνων των 2<sup>ο</sup> (α) και 3<sup>ο</sup> (α).

8I.252-

8I.299

Άρθρο 3Γενικές διατάξεις σέρβις

8Ι.300-

8Ι.352

Φορητή συσκευή φωτισμού

8Ι.353

Η διάταξις του περιθωρίου ΙΟ.353 δεν θα έχει εφαρμογήν.

8Ι.354-

8Ι.373

Απαγόρευση καπνίσματος

8Ι.374

Οι διατάξεις του περιθωρίου ΙΟ.374 δεν θα έχουν εφαρμογήν.

8Ι.375-

8Ι.399//

Άρθρο 4Ειδικές διατάξεις διέπουσαι την φόρτωση, εκφόρτωση και χειρισμόν

8Ι.400-

8Ι.402

Απαγόρευση μικτής φορτώσεως σε ένα δχημα

8Ι.403

(1) Οι ύλες της Κλάσεως 8 οι κλεισμένες σε κδλα φέροντα ετικέττα ή δύο ετικέττες σύμφωνες προς το μοντέλο Νο.5 δεν θα φορτώνωνται μαζί σε ένα δχημα με ύλες ή είδη των Κάσεων Ια, Ιβ ή Ιγ κλεισμένες σε κδλα φέροντα ετικέττα ή δύο ετικέττες σύμφωνες προς το μοντέλο Νο.Ι.

(2) Υγρά της Κλάσεως 8 κλεισμένα σε κδλα φέροντα δύο ετικέττες σύμφωνες προς το μοντέλο Νο. 5 δεν θα φορτώνωνται μαζί σε ένα δχημα με:-



(α) Όλες των Κλάσεων 3, 4.1 ή 4.2 κλεισμένες σε κόλα 8I.403 φέροντα δύο ετικέττες σύμφωνα προς τα μοντέλα (Συνεχίζεται) No. 2A, 2B ή 2Γ· ή με

(β) Όλες των Κλάσεων 5.1 ή 5.2 κλεισμένες σε κόλα φέροντα δύο ετικέττες σύμφωνα προς το μοντέλο No.3.

8I.404-

8I.4I2

#### Καθάρισμα προ της φορτώσεως

8I.4I3

Οχήματα για τη μεταφορά κόλων περιεχόντων όλες της 2<sup>ο</sup>(α) και 3<sup>ο</sup>(α) θα καθαρίζονται προσεκτικά και, ειδικότερον, από οιαδήποτε εύκαυστα υπολείμματα (άχυρο, χαρτί, κλπ.).

#### Χειρισμός και στοιβάδα

8I.4I4

(1) Όλα τα κόλα τα περιέχοντα όλες των 2<sup>ο</sup>(α) και 3<sup>ο</sup>(α) θα τοποθετούνται σε γερβό δάπεδο, με τα ανοίγματά τους προς τα άνω, και καλά σφηνωμένα για να μη μπορούν να αναποδογυρίσουν.

(2) Η χρήση ευχερώς ευφλέιτων υλών για τη στοιβάδα τοιούτων κόλων σε οχήματα απαγορεύεται.

(3) Εύθραυστα κόλα θα σφηνώνονται κατά τοιούτον τρόπον ώστε να εμποδίζεται οιαδήποτε μετατόπισις των και οιονδήποτε χύσιμον του περιεχομένου.

8I.4I5-

8I.499

#### Άρθρο 5

#### Ειδικές διατάξεις διέπουσαι την λειτουργίαν των οχημάτων

#### Σήματα Οχημάτων

8I.500

(I) Οι διατάξεις του περιθωρίου IO.500, φωτογραφία (I)

και (δ), θα έχουν εφαρμογή για τη μεταφορά υλών των Ι<sup>ο</sup> 8Ι.500  
 έως 7<sup>ο</sup>, 9<sup>ο</sup>, ΙΙ<sup>ο</sup>, Ι2<sup>ο</sup>, Ι4<sup>ο</sup>, Ι5<sup>ο</sup>, 2Ι<sup>ο</sup>(β), (γ) και (ε), (Συνεχίζε-  
 22<sup>ο</sup>, 3Ι<sup>ο</sup> έως 35<sup>ο</sup>, 37<sup>ο</sup> και 4Ι<sup>ο</sup>. Οι διατάξεις των παραγρά-  
 φων (2) έως (5) θα έχουν επίσης εφαρμογήν στις ύλες τις  
 αναγραφόμενες στη Προσθήκη Β.Ρ.

(2) Σταθερές δεξαμενές περιέχουσες ή (κενές δεξαμε-  
 νές, ακαθάριστες) που περιείχαν ύλες αναγραφόμενες στη Προ-  
 σθήκη Β.5 θα φέρουν επιπροσθέτως στα πλαϊνά (αμφότερες τις  
 πλευρές) και στο πίσω μέρος ετικέττα σύμφωνον προς το μον-  
 τέλο Νο.5.

8Ι.50Ι-

8Ι.599

Άρθρο 6

Μεταβατικά διατάξεις, ανακλήσεις, και διατάξεις  
ειδικές για συγκεκριμένες χώρες

(Ουδεμία ειδική διάταξη)

8Ι.600-

Ι99.999

## ΠΡΟΣΘΗΚΑΙ

## ΔΙΑΤΑΞΕΙΣ ΚΟΙΝΕΣ ΓΙΑ ΤΙΣ ΠΡΟΣΘΗΚΕΣ Β.Ι.-

(I) Το αντικείμενον εφαρμογής των διαφόρων Προσθη- 200.000  
κών έχει ως κάτωθι:-

- (α) Προσθήκη Β.Ια, έχει εφαρμογήν εις δεξαμενές πλην των δεξαμενο-CONTAINERS\*
- (β) Προσθήκη Β.Ιβ, έχει εφαρμογήν εις δεξαμενο-CONTAINERS\*
- (γ) Προσθήκη Β.Ιγ, έχει εφαρμογήν εις δεξαμενές, πλην των συσσωρευτών δοχείων και δεξαμενο-CONTAINERS, κατασκευασμένες από ενισχυμένη πλαστική ύλην\*
- (δ) Για δοχεία, βλέπε τις οικείες διατάξεις του Παραρτήματος Α (Κόλα)\* και
- (ε) Η Προσθήκη Β.Ιδ αφορά τα υλικά και την κατασκευήν των σταθερών δεξαμενών, των αποσυναρμολογούμενων δεξαμενών, και κελυφών των δεξαμενο-CONTAINERS, των προοριζομένων για τη μεταφορά των πολύ-κατεψυγμένων υγροποιημένων αερίων της Κλάσεως 2.

(2) Δι'ανακλήσεως του ορισμού του διδομένου εις περιθώριον ΙΟ.ΙΟ2(Ι), ο όρος "δεξαμενή" χρησιμοποιούμενος μόνος εις την Προσθήκην Β.Ια και την Προσθήκην Β.Ιγ δεν καλύπτει τις δεξαμενο-CONTAINERS. Εν τούτοις, μερικά των διατάξεων της Προσθήκης Β.Ια μπορούν να έχουν εφαρμογήν επί δεξαμενο-CONTAINERS δια των διατάξεων του Παραρτήματος Β και της Προσθήκης Β.Ιβ.

(3) Υπενθυμίζομεν ότι το περιθώριον ΙΟ.Ι2Ι(Ι) 200.000  
 απαγορεύει τη μεταφορά επικινδύνων υλών σε δεξαμενές (Συνρχίζε-  
 χρησιμοποιούμενες για επιχειρήσεις μεταφοράς αι οποια  
 απαγορεύονται ρητώς. ται)

200.00Ι-  
 2ΙΙ.099

Προσθήκη Β.Ια

ΔΙΑΤΑΞΕΙΣ ΔΙΕΠΙΟΥΣΑΙ ΣΤΑΘΕΡΕΣ ΔΕΞΑΜΕΝΕΣ (ΒΥΤΙΟΦΟΡΑ),  
 ΑΠΟΣΥΝΑΡΜΟΛΟΓΟΥΜΕΝΕΣ ΔΕΞΑΜΕΝΕΣ ΚΑΙ ΣΥΣΣΩΡΕΥΤΕΣ  
 ΔΟΧΕΙΩΝ

Σημείωσις:- Το Κεφάλαιον Ι εκθέτει τις διατάξεις που έχουν  
 εφαρμογήν επί σταθερών δεξαμενών (βυτιοφόρων), αποσυναρμο-  
 λογουμένων δεξαμενών και συσσωρευτών δοχείων προοριζομένων  
 για τη μεταφορά υλών οιασδήποτε Κλάσεως. Το Κεφάλαιον ΙΙ  
 περιέχει ειδικές διατάξεις που συμπληρώνουν ή τροποποιούν  
 τις διατάξεις του Κεφαλαίου Ι.

Κεφάλαιο Ι

ΔΙΑΤΑΞΕΙΣ ΠΟΥ ΕΧΟΥΝ ΕΦΑΡΜΟΓΗΝ ΣΕ ΟΛΕΣ ΤΙΣ  
 ΚΛΑΣΕΙΣ

Άρθρο Ι

Γενικά· αντικείμενον· ορισμοί

Οι διατάξεις αυτές θα έχουν εφαρμογήν σε σταθε- 2ΙΙ.Ι00  
 ρές δεξαμενές (βυτιοφόρα), αποσυναρμολογούμενες δεξαμε-  
 νές και συσσωρευτές δοχείων που χρησιμοποιούνται για τη  
 μεταφορά υγρών, αεριωδών, εις κόκκιν ή κόκκους υλών.

(Ι) Επιπροσθέτως του κανονικού οχήματος, ή των 2ΙΙ.Ι0Ι  
 μονάδων του μηχανισμού λειτουργίας των χρησιμοποιουμέ-

νων αντί αυτού, το βυτιοφόρον αποτελείται από ένα ή περισ- 2II.ΙΟΙ  
σότερα κελύφη, τα ανταλλακτικά των και εξαρτήματα της (Συνεχίζε-  
συνδέσεώς των με το δχημα ή τας μονάδας μηχανισμού-λει-  
τουργίας. ται)

(2) Όταν συνδέεται με το δχημα-μεταφορέα, η απο-  
συναρμολογούμενη δεξαμενή ή ο συσσωρευτής δοχείων θα πλη-  
ρουν τις διατάξεις τις προβλεπόμενες για τα βυτιοφόρα.

Στις παρακάτω διατάξεις:-

2II.ΙΟ2

- (I) (α) Δια του όρου "κέλυφος" νοείται η κανονική  
δεξαμενή (συμπεριλαμβανομένων του στομίου  
και πάματος αυτών)·
- (β) Δια του όρου "εξοπλισμός εξυπηρετήσεως  
του κελύφους" νοούνται η πλήρωσις, εκκέν-  
νωσις, εξαερισμός, ασφάλεια, μηχανισμοί  
(συσκευαί) θερμάνσεως και θερμο-μονώσεως  
και τα όργανα μετρήσεως·
- (γ) Δια του όρου "εξοπλισμός κατασκευής"  
νοούνται τα εξωτερικά και εσωτερικά μέλη  
ενισχύσεως, προσδέσεως, προστασίας και στα-  
θεροποιήσεως του κελύφους·
- (2) (α) Δια του όρου "πίεσις υπολογισμού" νοείται  
μία θεωρητική πίεσις η οποία χρησιμοποι-  
είται προς υπολογισμόν του πάχους των τοι-  
χωμάτων του κελύφους. Ισοδυναμεί με την  
πίεσιν δοκιμής εκτός εν σχέσει με ωρισμένα  
επικίνδυνα εμπορεύματα δια τα οποια ειδική,  
ανωτέρου υπολογισμού πίεσις καθορίζεται.

Εξωτερικοί ή εσωτερικοί μηχανισμοί ενισχύσεως δεν θα λαμβάνονται υπόψη κατά τον υπολογισμό αυτόν.

211.102

(Συνεχίζεται)

(β) Δια του όρου "ανωτάτη πίεσις λειτουργίας" νοείται η ανωτάτη των κατωτέρω τριών πιέσεων:

1.- της ανωτάτης δραστηκής πίεσεως της επιτρεπομένης εις το κέλυφος διαρκούσης της πληρώσεως (επιτρεπομένη ανωτάτη πίεσις πληρώσεως)·

2.- της ανωτάτης δραστηκής πίεσεως της επιτρεπομένης εις το κέλυφος διαρκούσης της εκκενώσεως (επιτρεπομένη ανωτάτη πίεσις εκκενώσεως)·

3.- της δραστηκής πίεσεως εις την οποίαν το κέλυφος υποβάλλεται εκ του περιεχομένου του (συμπεριλαμβανομένων τοιούτων ξένων αερίων τα οποία ενδέχεται να περιέχει) εις την ανωτάτην θερμοκρασίαν λειτουργίας·

(γ) Δια του όρου "πίεση δοκιμής" νοείται η ανωτάτη ουσιαστική πίεση που εφαρμόζεται κατά τη δοκιμή πίεσεως του κελύφους.

(δ) Δια του όρου "πίεση πληρώσεως" νοείται η ανωτάτη πίεση η πραγματικώς δημιουργουμένη εις το κέλυφος όταν τούτο πληρούται υπό πίεση.

(ε) Δια του όρου "πίεση εκκενώσεως" νοείται η ανωτάτη πίεση η πραγματικώς δημιουργουμένη εις το κέλυφος όταν τούτο εκκενούται υπό πίεση.

(3) Δια του όρου "δοκιμή διαρροής" ή "δοκιμή στεγανότητος" νοείται η δοκιμή η οποία συνίσταται εις την υποβολήν του κελύφους εις δραστηκήν εσωτερικήν πίεσιν ίσην προς την ανωτάτην πίεσιν λειτουργίας, αλλά όχι κάτω των  $0.2 \text{ KG/CM}^2$

(πρέσσις θλιβομέτρου), διά τινος μεθόδου εγκριθείσης υπό 2II.Ι02 της αρμοδίου αρχής.

(Συνεχίζεται)

2II.Ι03-

2II.ΙΙ9

## Άρθρο 2

### Κατασκευή

Τα χρησιμοποιούμενα υλικά πρέπει να πληρούν τις παρακάτω διατάξεις:- 2II.Ι20

(1) Τα κελύφη θα είναι κατασκευασμένα από κατάλληλα μεταλλικά υλικά τα οποία, εκτός εάν άλλαι τιμαί θερμοκρασίας προβλέπονται για διάφορες κλάσεις, θα αντέχουν εις το εύθραυστο ρήγμα και εις το ρήγμα εκ διαβρώσεως υπό πρέσιν εφελκυσμού μεταξύ των  $-20^{\circ}\text{C}$  και  $+50^{\circ}\text{C}$ .

(2) Για συγκολλημένα κελύφη μόνο υλικά μη-ελαττωματικής συγκολλητικότητας, και των οποίων η κατάλληλος αντοχή εις κρούσιν εις θερμοκρασίαν περιβάλλοντος των  $-20^{\circ}\text{C}$  μπορεί να εγγυηθεί, ειδικώτερον στα σημεία συγκολλησεως και τις παρακείμενες αυτών ζώνες, θα χρησιμοποιούνται.

(3) Αι συγκολλήσεις θα γίνωνται επιδέξια και θα παρέχουν την πληρεστέραν ασφάλειαν.

Αναφορικώς με την εκτέλεσιν και τον έλεγχον των λωρίδων συγκολλήσεως, βλέπε επίσης περιθώριον 2II.Ι27(7).

Κελύφη των οποίων το κατώτατον πάχος του τοιχώματος έχει καθορισθεί συμφώνως προς το περιθώριον 2II.Ι27 (3) έως (6) θα ελέγχωνται δια των μεθόδων των περιγραφομένων εις τον ορισμόν του συντελεστού συγκολλήσεως 0.8.

(4) Η προστατευτική επένδυσις θα έχει έτσι σχεδια-

σθελ' ώστε η στεγανότης της να μην εξασθενείται ανεξαρτήτως της παραμορφώσεως που ενδέχεται να προκύψει κατά την συνήθη μεταφοράν (2II.127(I)). (Συνεχίζεται)

(5) Τα υλικά των κελυφών, ή των προστατευτικών των επενδύσεων των ερχομένων εις επαφήν με το περιεχόμενον, δεν θα περιέχουν ύλες υποκειμένες εις επικίνδυνον αντιδράσιν με το περιεχόμενον, εις τον σχηματισμόν επικινδύνων ενώσεων, ή ουσιαστικώς εξασθενήσουν το υλικόν.

(6) Εάν η επαφή μεταξύ της μεταφερομένης ύλης και του χρησιμοποιηθέντος δια' την κατασκευήν του κελύφους υλικού συνεπάγεται προοδευτικήν μείωσιν του πάχους των τοιχωμάτων, το πάχος τούτο θα αυξηθεί κατά την κατασκευήν κατά κάποιον ενδεδειγμένο ποσό. Το πρόσθετον τούτο πάχος το αφορών την διάβρωσιν δεν θα λαμβάνεται υπόψη κατά τον υπολογισμόν του πάχους των τοιχωμάτων του κελύφους.

(I) Τα κελύφη, αι συνδέσεις των και ο εξοπλισμός 2II.121 των εξυπηρετήσεως και κατασκευής θα είναι σχεδιασμένα κατά τρόπον ώστε να ανθίστανται άνευ απώλειας του περιεχομένου (πλην των ποσοτήτων αερίου που διαφεύγουν εκ των οπών απαερώσεως):

- εις την στατικήν και δυναμικήν πρέσιν συνήθους μεταφοράς·
- εις τις προβλεπόμενες κατώτατες πιέσεις ως ορίζονται εις τα περιθώρια 2II.125 και 2II.127.

(2) Εις την περίπτωσιν οχημάτων εις τα οποία το κέλυφος αποτελεί πιεζόμενον αυτο-υποστηριζόμενον μέλος, το κέλυφος θα είναι σχεδιασμένον να ανθίσταται κατά των ούτω



επιβαλλομένων πιέσεων επιπροσθέτως των εξ ετέρων πηγών πιέσεων.

Η πίεση επί της οποίας το πάχος του τοιχώματος 2II.I22 του κελύφους βασίζεται δεν θα είναι μικρότερα της πίεσης υπολογισμού, αλλά οι πιέσεις οι αναφερόμενες εις το περιθώριον 2II.I2I θα λαμβάνονται επίσης υπόψη.

Εκτός εάν άλλως ειδικώς προβλέπεται εις τις 2II.I23 διάφορες κλάσεις, τα κάτωθι στοιχεία θα λαμβάνονται υπόψη κατά την σχεδίασιν των κελυφών:-

(1) τα κελύφη εκκενώσεως δια βαρύτητος τα προοριζόμενα για τη μεταφορά υλών που έχουν εις τους 50°C ολική πίεση (τ.έ. πίεσις ατμού πλέον, τυχόν, μερικής πίεσεως αδρανών αερίων) όχι άνω των 1.1 KG/CM<sup>2</sup> (απόλυτον) θα σχεδιάζονται δια πίεση υπολογισμού διπλασίαν της στατικής πίεσεως της υπό μεταφοράν ύλης, αλλά όχι κάτω της διπλασίας στατικής πίεσεως του ύδατος.

(2) πληρούμενα δια πίεσεως ή εκκενούμενα δια πίεσεως κελύφη προοριζόμενα για τη μεταφορά υλών εχουσών εις τους 50°C ολικήν πίεσιν (τ.έ. πίεσιν ατμού πλέον μερικής πίεσεως, τυχόν, αδρανών αερίων) όχι μεγαλύτεραν των 1.1 KG/CM<sup>2</sup> (απόλυτον) θα σχεδιάζονται δια πίεσιν υπολογισμού ίσην προς 1.3 φορές την πίεσιν πληρώσεως ή εκκενώσεως.

(3) κελύφη - ανεξαρτήτως του συστήματος πληρώσεως ή εκκενώσεως των - προοριζόμενα για την μεταφοράν υλών εχουσών εις τους 50°C ολικήν πίεσιν (τ.έ. πίεσιν ατμού πλέον μερικής πίεσεως, τυχόν, αδρανών αερίων) όχι μικρότεραν των 1.1 και όχι μεγαλύτεραν των 1.75 KG/CM<sup>2</sup> (απόλυτον) θα σχε-

διάζονται για πρέσιν υπολογισμού τουλάχιστον  $1.5 \text{ KG/CM}^2$  2II.I23  
(πρέσιν θλιβομέτρου), ή 1.3 φορές την πρέσιν πληρώσεως (Συνεχίζεται)  
ως ή εκκενώσεως, οιασδήποτε τούτων ούσης υψηλότερας·

(4) κελύφη - ανεξαρτήτως του συστήματος πληρώσεως ή εκκενώσεως των - προοριζόμενα για τη μεταφορά υλών εχουσών εις τους  $50^{\circ}\text{C}$  ολικήν πρέσιν (τ.έ. πρέσιν ατμού πέραν μερικής πίεσεως, τυχόν, αδρανών αερίων) άνω των  $1.75 \text{ KG/CM}^2$  (απόλυτον) θα σχεδιάζονται για πρέσιν υπολογισμού ίσην προς την ανωτέραν των κάτωθι δύο πιέσεων:-

- 1.5 φορές την ολικήν πρέσιν εις τους  $50^{\circ}\text{C}$ , μέσον  $1 \text{ KG/CM}^2$ , υπό την επιφύλαξιν κατωτάτης εκ  $4 \text{ KG/CM}^2$  (θλιβομέτρου)·
- 1.3 φορές την πρέσιν πληρώσεως ή εκκενώσεως.

Δεξαμενές προοριζόμενες να περιέχουν ωρισμέ- 2II.I24  
νες επικίνδυνες ύλες θα είναι εφοδιασμένες με ειδικήν προστασίαν η οποία θα καθορίζεται για τις διάφορες κλάσεις.

Κατά την πρέσιν υπολογισμού, η τάσις (πρέσις)  $\sigma$  2II.I25  
(σίγμα) εις το περισσότερον πιεζόμενον σημειον του κελύφους δεν θα υπερβαίνει τα εκ του υλικού εξαρτώμενα όρια τα προβλεπόμενα κατωτέρω. Ανοχή θα υπάρχει για κάθε εξασθένηση οφειλομένην στις συγκολλήσεις. Επιπροσθέτως, κατά την επιλογήν του υλικού και τον καθορισμόν του πάχους του τοιχώματος, θα λαμβάνωνται υπόψη αι ανώταται και κατώταται θερμοκρασίαι πληρώσεως και λειτουργίας.

(I) Για μέταλλα και κράματα που παρουσιάζουν σαφώς-οριζόμενον σημειον υποχωρήσεως η χαρακτηριζόμενα από ένα εγγυημένον συμβατικόν κρίσιμον σημειον ελαστικδ-

τητος (Re) (γενικώς 0.2 ~~στα~~ εκατό της υπολειμματικής 2II.I25 (Συνεχίζε-  
(παραμενούσης) επιμηκύνσεως και, προκειμένου περι (Συνεχίζε-  
ωστενίου χάλυβος, I ~~στα~~ εκατό της ανωτάτης επιμηκύν-  
σεως):

(α) όπου ο λόγος  $R_e/R_m$  δεν είναι άνω των 0.66:

( $R_e$  = εμφανές κρίσιμον σημείον ελαστικότη-  
τος, ή 0.2 ~~στα~~ εκατό πλείσις δοκι-  
μής ή I ~~στα~~ εκατό πλείσις δοκιμής  
προκειμένου περι ωστενίου χάλυβος·

$R_m$  = εγγυημένη κατωτάτη αντοχή εις εφελκυσμόν):

$$\sigma \leq 0.75 R_e$$

(β) όπου ο λόγος  $R_e/R_m$  υπερβαίνει τα 0.66:

$$\sigma \leq 0.5 R_m$$

(2) Για μέταλλα και κράματα που παρουσιάζουν όχι σαφώς-  
οριζόμενον κρίσιμον σημείον ελαστικότητας και χαρακτηριζό-  
μενα από εγγυημένην κατωτάτην αντοχήν εις εφελκυσμόν  $R_m$ :

$$\sigma \leq 0.43 R_m$$

(3) Για χάλυβα, η επιμηκυνσις εις το ρήγμα δεν θα είναι  
μικροτέρα του

$$\frac{1.000}{\text{οριζομένη αντοχή εις εφελκυσμόν εις KG/MM}^2}$$

αλλά εν πάση περιπτώσει δεν θα είναι μικροτέρα του 16 ~~στα~~  
εκατό για λεπτόκοκκον χάλυβα και όχι μικροτέρα του 20 ~~στα~~  
εκατό για άλλους χάλυβες. Για κράματα αλουμινίου η επιμη-  
κυνσις του ρήγματος δεν θα είναι μικροτέρα του 12 ~~στα~~ εκατό.

(Προκειμένου περί ελάσματος ο άξων του τεμαχίου δοκιμής 2II.I25 της αντοχής εις εφελκυσμόν θα είναι δε δεξιές γωνίες (Συνεχίζεται) προς την κατεύθυνσιν του κυλίσματος. Η μόνιμος επιμήκυνσις εις ρήγμα ( $I = 5\delta$ ) θα μετράται επί τεμαχίου δοκιμής κυκλικής διατομής εις την οποίαν το μήκος βαθμίσεως  $I$  είναι ίσον προς πέντε φορές την διάμετρον  $\delta$ · εάν χρησιμοποιηθούν τεμάχια-δοκιμής ορθογωνίου τομής, το μήκος της βαθμίσεως θα υπολογίζεται δια του τύπου  $I = 5.65 \sqrt{F_0}$ , όπου  $F_0$  είναι η αρχική επιφάνεια διατομής του τεμαχίου δοκιμής.)

Αεξοαμενές προοριζόμενες για τη μεταφορά υγρών ε- 2II.I26 χόντων σημειον αναφλέξεως  $55^{\circ}\text{C}$  ή κάτω των  $55^{\circ}\text{C}$  και για τη μεταφορά ευφλέκτων αερίων θα συνδέονται με όλα τα εξαρτήματα του οχήματος με ισοδυναμικήν σύνδεσιν καθ' ου είναι ικανές να γειωθούν ηλεκτρικώς. Κάθε μεταλλική επαφή ικανή να προκαλέσει ηλεκτροχημικήν διάβρωσιν θα αποφεύγεται.

Τα κελύφη και αι προσδέσεις των θα ανθίστανται 2II.I27 στις τάσεις (πιέσεις) τις οριζόμενες στην παράγραφο (I), και το πάχος του τοιχώματος των κελυφων θα είναι τουλάχιστον ως καθωρίσθη συμφώνως προς τας κατωτέρω παραγράφους (2) έως (6).

(I) Τα κελύφη και αι προσδέσεις των θα είναι ικανά να απορροούν, υπό το ανώτατον επιτρεπτόν φορτίον, τις κάτωθι τάσεις (πιέσεις):-

- προς την κατεύθυνσιν του ταξιδίου:
- δύο φορές το ολικόν βάρος·
- σε ορθές γωνίες προς την κατεύθυνσιν του τα-

- Ξιδίου: το ολικόν βάρος°
- καθέτως προς τα άνω: το ολικόν βάρος°
- καθέτως προς τα κάτω: δύο φορές το ολικόν βάρος.
- 2II.I27  
(Συνεχίζεται)

Υπό τις τάσεις (πίεσεις) τις οριζόμενες ανωτέρω, η τάσις (πίεσις) εις το περισσότερον πιεζόμενον σημείον του κελύφους και τις προσδέσεις του δεν θα υπερβάλνει την τιμήν σ την οριζομένην εις το περιθώριον 2II.I25.

(2) Το πάχος του κυλινδρικού τοιχώματος του κελύφους θα είναι τουλάχιστον ίσον προς το λαμβανόμενον δια του κατωτέρω τύπου:

$$e = \frac{P \times D}{200 \times \sigma \times \lambda} \text{ MM,}$$

όπου P = πίεσις υπολογισμού εις KG/CM<sup>2</sup>.

D = εσωτερική διάμετρος του κελύφους εις MM°

σ = επιτρεπτή τάσις (πίεσις), ως ορίζεται εις το περιθώριον 2II.I25(I), (α) και (β), και (2), εις KG/MM<sup>2</sup>. και

λ = συντελεστής, μη υπερβαίνων το I, επιτρέπων οιαδήποτε ποτε εξασθένησιν οφειλομένην εις τις συγκολλήσεις.

Το πάχος εν ουδεμιά περιπτώσει θα είναι μικρότερον του οριζομένου στις παραγράφους (3) έως (6) κατωτέρω.

(3) Τα τοιχώματα και άκρα των κελυφών κυκλικής διατομής όχι μεγαλύτερας των I.80 μ εις διάμετρον, 2/ πλην των αναφερομένων εις την παράγραφον (6), δεν θα είναι πάχους μικροτέρου των 5 MM (χιλ.) προκειμένου περί μαλακού χάλυβος, 3/ ή ισοδύναμου πάχους προκειμένου περί ετέρου μετάλλου. Εάν η διάμετρος υπερβάλνει τα I.80 μ, 2/ το πάχος τούτο θα αυξά-

νεταί εις 6 MM (χιλ.) εάν το κέλυφος είναι από μαλακόν 2ΠΙ.Ι27  
 χάλυβα, 3/ ή ισοδύναμου πάχους εάν το κέλυφος είναι από (Συνεχίζεται)  
 έτερον μέταλλον. Δια του όρου "ισοδύναμον πάχος" νοείται  
 το πάχος το λαμβανόμενον εκ του κατωτέρω τύπου:

$$\epsilon_I = \frac{I_0 \times \epsilon_0}{\sqrt[3]{R_{\mu_I} \times A_I}}$$

2/ Για κελύφη όχι κυκλικής διατομής, π.χ. κελύφη σχήματος κυτλου ή ελλειπτικά κελύφη, αι σημειούμεναι διάμετροι θα αντιστοιχούν προς τας υπολογιζόμενας βάσει κυκλικής διατομής της αυτής επιφανείας. Για τέτοια μεγέθη διατομής η ακτίς κυρτότητος (RADIUS OF CONVEXITY) του τοιχώματος του κελύφους δεν θα υπερβαίνει τα 2,000 MM (χιλ.) εις τα πλευρά ή τα 3,000 MM (χιλ.) εις το άνω και κάτω μέρος.

3// Δια του όρου "μαλακός χάλυψ" νοείται ο χάλυψ ο έχων κατωτάτην αντοχήν θραύσεως μεταξύ 37 και 44 KG/MM<sup>2</sup>.

(4) Οσάκις παρέχεται προστασία του κελύφους κατά ζημίας δια πλευρικής προσκρούσεως ή αναποδογυρίσματος, η αρμοδία αρχή μπορεί να επιτρέψει το προρρηθέν κατώτατον πάχος να μειωθεί κατ'αναλογίαν με την παρεχομένην προστασίαν· εν τούτοις, το ρηθέν πάχος δεν θα είναι μικρότερον των 3 MM (χιλ.) προκειμένου περι μαλακού χάλυβος, 3/, ή του ισοδύναμου πάχους προκειμένου περι άλλων μετάλλων, για κελύφη διαμέτρου όχι μεγαλύτερας των 1.80 μ. 2/ Για κελύφη με διάμετρον υπερβαίνουσαν τα 1.80 μ 2/ το προρρηθέν κατώτατον πάχος

θα αυξάνεται μέχρι 4 MM (χιλ.) προκειμένου περί μαλακού 2II.I27 χάλυβος 3/ και μέχρι οσοδύναμου πάχους προκειμένου περί (Συνεχίζεται) άλλου μετάλλου. Δια του όρου "Ισοδύναμον πάχος" νοείται το πάχος το λαμβανόμενον δια του κάτωθι τύπου:-

$$\epsilon_I = \frac{I_0 \times \epsilon_0}{\sqrt[3]{R_{\mu_I} \times A_I}} \quad 4/$$

4/ Ο ανωτέρω τύπος προέρχεται από τον γενικόν τύπον

$$\epsilon_I = \epsilon_0 \sqrt[3]{\frac{R_{\mu_0} \times A_0}{R_{\mu_I} \times A_I}}$$

όπου  $R_{\mu_0} = 37^{\circ}$

$A_0 = 27$  για τον χάλυβα παραπομπής\*

$R_{\mu_I}$  = κατωτάτη αντοχή εις εφελκυσμόν του επιλεγέντος μετάλλου, εις KG/MM<sup>2</sup>. και

$A_I$  = κατωτάτη επιμήκυνσις του επιλεγέντος μετάλλου επί ρήγματος υπό πρέσιν (τάσιν) εφελκυσμού, εις ποσοστόν στα εκατό.

Σημείωσις:- Τα παρακάτω μέτρα ή ισοδύναμα μέτρα μπορούν να υιοθετηθούν για τη προστασία του κελύφους κατά ζημιών:

(α) Στο κέλυφος μπορεί να παρασχεθεί σε αμφότερες τις πλευρές, σε ύψος κείμενο μεταξύ της κεντρικής γραμμής/και του κάτω ημίσεώς του, προστασία κατά της πλευρικής κρούσεως αποτελουμένη εκ κυλινδρωμένης μεταλλικής δοκού

εκτεινόμενης τουλάχιστον 25 MM (χιλ.) πέραν του με- 2II.I27  
γίστου εξωτερικού άκρου του κελύφους. Η δοκός αυτή  
θα είναι τέτοιας διατομής ώστε εάν είναι από μαλακόν  
χάλυβα  $\frac{3}{4}$  ή από ισχυρότερο υλικό να έχει ροπήν αντι-  
στάσεως τουλάχιστον  $5 \text{ CM}^3$ , της δυνάμεως κατευθυνομένης  
οριζοντίως και σε ορθές γωνίες προς την κατεύθυνσιν  
του ταξιδίου. Εάν γτιό αδύνατα υλικά χρησιμοποιηθούν,  
η ροπή αντιστάσεως θα αυξάνεται αναλογικώς προς τα όρια  
της επιμηκύνσεως. Η προστασία κατά του αναποδογυρίσμα-  
τος μπορεί να πάρει τη μορφή ενισχυτικών δακτυλίων,  
προστατευτικών προφυλακτικών καλυμμάτων (CANOPIES), ή  
εγκαρσίων ή επιμήκων μελών τριούτου σχήματος που εν  
περιπτώσει αναποδογυρίσματος ουδεμία ζημία να προκληθεί  
εις τα εξαρτήματα και παρελκόμενα τα συναρμολογημένα  
στο άνω μέρος του κελύφους.

(β) Υπάρχει επίσης προστασία:

- 1.- οσάκις τα κελύφη είναι κατασκευασμένα με διπλά τοι-  
χώματα, του χώρου μεταξύ των τελευταίων έχοντος εκ-  
κενωθεί από τον αέρα. Το ολικόν πάχος του εξωτερικού  
μεταλλικού τοιχώματος και του τοιχώματος του κελύ-  
φους θα αντιστοιχούν προς το κατώτατον πάχος τοιχώ-  
ματος το προβλεπόμενον στην παράγραφο (3), και το  
κατώτατον πάχος του τοιχώματος αυτού τούτου του κε-  
λύφους δεν θα είναι μικρότερον του κατωτάτου πάχους  
του προβλεπομένου στη παράγραφο (4)•
- 2.- οσάκις τα κελύφη είναι κατασκευασμένα με διπλά τοι-  
χώματα με ενδοιάμεσο στρώμα στερεών υλικών πάχους



τουλάχιστον 50 MM (χιλ.), του εξωτερικού τοιχώμα- 2II.127  
 (Συνεχίζεται)  
 τος έχοντος πάχος τουλάχιστον 0.5 MM εάν είναι κατα-  
 σκευασμένο από μαλακόν χάλυβα  $\frac{3}{8}$  και τουλάχιστον  
 2 MM εάν είναι κατασκευασμένο από πλαστικήν ύλην  
 ενισχυμένην με ύαλον εις ίνας (GLASS FIBRE). Στερεός  
 αφρός (με ικανότητα απορροφήσεως της κρούσεως, ομοί-  
 αν π.χ. του αφρού πολυουρεθάνης πυκνότητος περίπου  
 400 KG/M<sup>3</sup>) μπορεί να χρησιμοποιηθεί ως το ενδιάμεσο  
 στρώμα στερεού υλικού.

(5) Το πάχος των κελύφων δεξαμενών το προβλεπόμενον  
 συμφώνως προς το περιθώριον 2II.123(I), αι οποίαι δεξαμε-  
 ναί είναι χωρητικότητος μεγαλυτέρας των 5.000 λιτρών ή εί-  
 ναι διηρημέναι σε στεγανά διαμερίσματα χωρητικότητος μονά-  
 δος όχι μεγαλυτέρας των 5.000 λιτρών, μπορεί να ρυθμισθεί  
 σε επίπεδο το οποίον, εκτός εάν προεβλέφθη άλλως στις διά-  
 φορες Κλάσεις, εν τούτοις δεν θα είναι μικρότερον της κατα-  
 λήλου τιμής της εικονιζομένης στον κατωτέρω πίνακα:-

Ανωτάτη ακτίς καμπυλότητος του κελύφους (M)	Χωρητικότης Κελύφους ή διαμέρισμα κελύφους (M <sup>3</sup> )	Κατώτατο Πάχος (MM) Μαλακός Χάλυψ
2	5.0	3
2 - 3	3.5	3
	3.5 αλλά 5.0	4

Όσκις χρησιμοποιείται μέταλλο διάφορο του μαλακού χάλυβα, το πάχος θα καθορίζεται δι' ισοδύναμου τύπου (Συνεχίζεται) διδομένου στη παράγραφο (3). Το πάχος των χωρισμάτων και των κυματοειδών ελασμάτων ~~σε όλα~~ <sup>σε μία περίπτωση</sup> θα είναι μικρότερον εκείνου του κελύφους.

(6) Τα κυματοειδή ελάσματα και τα χωρίσματα θα έχουν κοιλανθελ, με βάθος του κοιλώματος όχι μικρότερον των 10 CM, ή θα έχουν αυλακωθελ, υποστει κατατομήν ή άλλως ενισχυθελ ~~για~~ <sup>δυναμική</sup> αντοχή. Η επιφάνεια του κυματοειδούς ελάσματος θα είναι τουλάχιστον 70 ~~πτα~~ <sup>πτα</sup> εκατό της επιφανείας διατομής της δεξαμενής εντός της οποίας έχει εφαρμοσθελ το κυματοειδές έλασμα.

(7) Τα προσόντα του κατασκευαστού ~~για~~ <sup>για</sup> την εκτέλεση των εργασιών συγκολλήσεως θα είναι τα αναγνωριζόμενα υπό της αρμόδας αρχής. Η συγκόλλησις θα εκτελεσθελ υπό επιδεξίων συγκολλητών χρησιμοποιούντων μέθοδον συγκολλήσεως η αποτελεσματικότης της οποίας (συμπεριλαμβανομένων οιωνδήποτε απαιτούμένων θερμικών κατεργασιών) κατεδειχθη δια δοκιμής. Μη-καταστρεπτικά δοκιμαία θα εκτελούνται δια ραδιογραφίας ή υπερηχητικών κυμάτων, πρέπει δε να επιβεβαιούν ότι η ποιότης της συγκολλήσεως είναι η ενδεδειγμένη δια τις τάσεις (πιέσεις).

Κατά τον καθορισμόν του πάχους των τοιχωμάτων κελύφους συμφώνως προς την παράγραφον (2), αι κάτωθι τιμαί του συντελεστού λάμτα (λ) θα υιοθετούνται ~~για~~ <sup>για</sup> τις συγκολλήσεις:

0.8 : οσκις αι λωρδές συγκολλήσεως επιθεωρούνται δσον είναι δυνατόν οπτικώς επ' αμφοτέρων των δ-

ψεών και υποβάλλονται εις μη-καταστρεπτικόν επι- 2ΠΙ.Ι27  
τόπιον έλεγχον με ιδιαιτέραν προσοχήν εις τας συν- (Συνεχί-  
δέσεις. ζεται)

0.9: οσάνκις όλες οι επιμήκεις λωρίδες καθ' όλον το μήκος των, όλες οι ενώσεις, το 25 στα εκατό των κυκλικών λωρίδων, και συγκολλήσεις για την συγκέντρωση (συναρμολόγησιν) ειδών εξοπλισμού μεγάλης διαμέτρου υποβάλλονται εις μη-καταστρεπτικούς ελέγχους. Οι λωρίδες θα ελέγχωνται οπτικώς εις αμφότερες τις πλευρές όσον είναι δυνατόν.

Ι.0: οσάνκις όλες οι λωρίδες υποβάλλονται εις μη-καταστρεπτικούς ελέγχους και επιθεωρούνται όσον είναι δυνατόν οπτικώς εις αμφότερες τις πλευρές. Τεμάχιον δοκιμής μιας συγκολλήσεως θα αφαιρείται.

Οσάνκις η αρμοδια αρχή έχει αμφιβολίες αναφορικώς με την ποιότητα των λωρίδων συγκολλήσεως, ενδέχεται να απαιτήσει συμπληρωματικούς ελέγχους.

(8) Θα λαμβάνωνται μέτρα προστασίας των κελυφών κατά του κινδύνου της παραμορφώσεως των ως αποτέλεσμα αρνητικής εσωτερικής πίεσεως.

(9) Η θερμική μόνωσις θα είναι έτσι σχεδιασμένη ώστε να εμποδίζεται η είσοδος εις, ή η λειτουργία των μηχανισμών πληρώσεως και εκκενώσεως και των βαλβίδων ασφαλείας.

#### Σταθερότης

Το ολικόν πλάτος της επιφανείας επιπέδου-εδάφους 2ΙΙ.Ι28 (GROUND-LEVEL BEARING SURFACE) (αποστάσεως μεταξύ των εξωτερικών σημείων επαφής με το έδαφος του δεξιού ελαστι-

κού και του αριστερού ελαστικού του ίδιου άξονος) θα ελ- 2II.I28  
 ναί τουλάχιστον ίσον προς 90 στα εκατό του ύψους του (Συνεχι-  
 κέντρου βαρύτητας του εμφόρτου βυτιοφόρου οχήματος. Σε ζεται)  
 αρθρωτό όχημα το βάρος των αξόνων της μεταφερούσης το φορ-  
 τίο μονάδος του εμφόρτου ημι-ρυμουλκούμενου οχήματος (SEMI-  
 TRAILER) δεν θα υπερβάλει το 60 στα εκατό του ονομαστι-  
 κού ολικού εμφόρτου βάρους ολοκλήρου του αρθρωτού οχήματος.

### Άρθρο 3

#### Είδη Εξοπλισμού

Τα είδη εξοπλισμού, οπουδήποτε ευρισκόμενα, 2II.I30  
 θα είναι έτσι τακτοποιημένα (διατεταγμένα) ώστε να προ-  
 φυλάσσονται από του κινδύνου να αποσπασθούν ή καταστρα-  
 φούν διαρκούσης της μεταφοράς ή του χειρισμού. Θα κατέχουν  
 τον βαθμόν ασφαλείας τον εφαρμοζόμενον και συγκρινόμενον  
 με τον βαθμόν ασφαλείας αυτών τούτων των κελυφων, και ει-  
 δικώτερα:

- θα είναι σύμφωνα με τις μεταφερόμενες ύλες<sup>ο</sup>  
 και
- θα πληρούν τις διατάξεις του περιθωρίου 2II.I2I.

Όσο το δυνατόν περισσότερα τμήματα (εξαρτήματα)  
 λειτουργίας θα εξυπηρετούνται από τον μικρότερον δυνατόν  
 αριθμόν οπών (ανοιγμάτων, θυρών) του τοιχώματος του κε-  
 λύφους.

Η στεγανότης των ειδών εξοπλισμού θα εξασφαλίζε-  
 ται ακόμη και εις την περίπτωσιν αναποδογυρίσματος του ο-  
 χήματος.

Τα παρεμβάσματα θα είναι κατασκευασμένα από υλι-

κον σύμφωνον προς την μεταφερομένην ύλην και θα αντι- 2II.I30  
κρίστανται ευθύς ως η αποτελεσματικότης των εξασθενή- (Συνεχίζεται)  
σει, π.χ. λόγω ηλικίας.

Παρεμβάσματα εξασφαλίζοντα την στεγανότητα των εξαρτημάτων λειτουργίας, αναγκαιούντα χειρισμόν διαρκούσης της κανονικής χρήσεως του οχήματος, θα είναι έτσι σχεδιασμένα και διατεταγμένα ώστε ο χειρισμός του εξαρτήματος λειτουργίας εις τον οποίον είναι ενσωματωμένα να μη τα καταστρέψει.

Κάθε κέλυφος πυθμενο-εικκινώσεως (BOTTOM- 2II.I31  
DISCHARGE SHELL), και στη περίπτωση διαμερισματοποιημένων πυθμενο-εικκινώσεως κελυφών κάθε διαμέρισμα, θα είναι εφωσ διασμένον με δύο αμοιβαίως ανεξαρτήτους μηχανισμούς κλεισίματος (SHUT-OFF DEVICES) συναρμολογημένους εν σειρά, του πρώτου λαμβάνοντος την μορφήν εσωτερικού ατμοφράκτου 5/ συναρμολογημένου, με την έδραν του, εσωτερικώς του κελύφους και του δευτέρου την μορφήν βαλβίδος εκροής (SLUICE-VALVE) ή ετέρου ισοδυνάμου μηχανισμού, εις έκαστον άκρον του φέροντος στορέα σωλήνος εικκινώσεως. Ο εσωτερικός ατμοφράκτης θα είναι σε θέση να λειτουργεί από επάνω ή από κάτω. Εάν είναι δυνατόν, η ρύθμισης -ανοικτός ή κλειστός - του εσωτερικού ατμοφράκτου θα είναι σε θέση να επαληθεύεται εκ του εδάφους σε αμφότερες τις περιπτώσεις. Οι μοχλοί ελέγχου του εσωτερικού ατμοφράκτου θα είναι έτσι σχεδιασμένοι ώστε να αποφεύγεται οιονδήποτε εξ απροσεξίας άνοιγμα λόγω προσκρούσεως ή εξ απερισκεπτού ενεργείας. Ο εσωτερικός μηχανισμός κλεισίματος πρέπει να εξακολουθεί να λειτουρ-

γεί εν περιπτώσει βλάβης (ζημίας) που εξωτερικού μοχλού 2II.I31  
ελέγχου. (Συνεχίζεται)

Η θέσις ή και η κατεύθυνσις του κλεισίματος των βαλβίδων εκροής (υδατοφρακτών) πρέπει να είναι σαφώς εμφανής.

Δια να αποφευχθεί οιαδήποτε απώλεια του περιεχομένου εν περιπτώσει ζημίας (βλάβης) των εξωτερικών εξαρτημάτων πληρώσεως και εκκενώσεως (σωλήνων, πλευρικών μηχανισμών κλεισίματος), ο εσωτερικός ατμοφράκτης και η έδρα του θα προστατεύωνται κατά του κινδύνου να αποσπασθούν υπό εξωτερικών πιέσεων ή θα είναι έτσι σχεδιασμένος ο εσωτερικός ατμοφράκτης και η έδρα του ώστε να ανθίστανται κατ'αυτών. Οι μηχανισμοί πληρώσεως και εκκενώσεως (συμπεριλαμβανομένων των φλαντζών ή ελικοτετμημένων πωμάτων) και αι (τυχόν) προστατευτικά καλύπτραι θα έχουν την δυνατότητα ασφαλίσεώς των κατά οιαδήποτε απροσέκτου ανοσίγματος.

Το κέλυφος ή έκαστον των διαμερισμάτων του θα είναι εφωδιασμένον με θυρίδα (άνοιγμα) αρκετά μεγάλην ώστε να επιτρέπεται η επιθεώρησις των.

Κελύφη προοριζόμενα δια την μεταφοράν υλών 2II.I32  
όλαι αι οπαί (θυρίδες) των οποίων είναι άνω του επιπέδου επιφανείας του υγρού μπορούν να είναι εφωδιασμένα, εις το κάτω μέρος του κορμού των, με θυρίδα καθαρισμού (σχήματος γροθιάς οπή/θυρίς). Η οπή (θυρίς) αυτή πρέπει να είναι σε θέση να ασφαρίζεται με φλάντζα έτσι κλεισμένη ώστε να υπάρχει στεγανότης, το σχέδιό της δε πρέπει να έχει εγκριθεί υπό

της αρμοδίας αρχής ή υπό υπηρεσίας ορισθείσης υπό της 2II.I32  
εν λόγω αρχής. (Συνεχίζεται)

Κελύφη προοριζόμενα ~~για~~ για την μεταφοράν υγρών 2II.I33  
εχόντων πρeσιν ατμού όχι μεγαλύτεραν των  $1.1 \text{ KG/CM}^2$   
(απόλυτον) εις  $50^\circ\text{C}$  θα έχουν σύστημα εξαερισμού και μη-  
χανισμόν ασφαλείας ~~για~~ να αποφεύγεται το χύσιμον του πε-  
ριεχομένου εάν το κέλυφος αναποδογυρίσει· άλλως πρέπει  
να συμμορφούνται προς τας διατάξεις των περιθωρίων  
2II.I34 ή 2II.I35.

Κελύφη προοριζόμενα δια την μεταφοράν υγρών 2II.I34  
εχόντων πρeσιν ατμού όχι μικροτέραν των  $1.1$  και όχι  
μεγαλυτέραν των  $1.75 \text{ KG/CM}^2$  (απόλυτον) εις  $50^\circ\text{C}$  θα έχουν  
βαλβίδα ασφαλείας ρυθμισμένην εις πρeσιν θλιβομέτρου όχι  
μικροτέραν των  $1.5 \text{ KG/CM}^2$  και η οποία βαλβίς πρέπει να  
είναι ολωσδιδλου ανοικτή εις πρeσιν μη υπερβαίνουσαν  
την πρeσιν δοκιμής· άλλως πρέπει να συμμορφούνται προς  
τις διατάξεις του περιθωρίου 2II.I35.

5/ Εκτός ως ενδέχεται να προβλέπεται άλλως στη  
περίπτωση κελυφών προοριζομένων δια την μεταφοράν ωρι-  
σμένων κρυσταλλοποιουμένων ή υψηλώς ιξωδών ουσιών, ή  
λίαν κατεψυγμένων υγροποιημένων αερίων, ή κογιτοποιημέ-  
νων ή κοκκιδών υλών.

Κελύφη προοριζόμενα για την μεταφοράν υγρών 2II.I35  
 εχόντων πρέσιν ατμού όχι μικρότεραν των 1.75 και όχι  
 μεγαλυτέραν των 3 KG/CM<sup>2</sup> (απόλυτον) εις 50°C θα έχουν  
 βαλβίδα ασφαλείας ρυθμισμένην εις πρέσιν θλιβομέτρου  
 όχι μικρότεραν των 3 KG/CM<sup>2</sup> και η οποια (βαλβίδα) πρέ-  
 πει να είναι πλήρως ανοικτή εις πρέσιν μη υπερβαίνουσαν  
 την πρέσιν δοκιμής· άλλως πρέπει να είναι ερμητικώς κλει-  
 σμένη. 6/

Μη κινούμενα εξαρτήματα όπως καλύμματα, κλεισί- 2II.I36  
 ματα, κλπ. τα οποια είναι δυνατόν να έλθουν εις επαφήν  
 τριβής ή επικρούσεως με κελύφη εξ αλουμινίου προοριζό-  
 μενα δια την μεταφοράν ευφλέκτων υγρών εχόντων σημειον  
 αναφλέξεως 55°C και κάτω ή δια την μεταφοράν ευφλέκτων  
 αερίων μπορούν να κατασκευασθούν εις μη προστατευομένου  
 δυναμένου να διαβρωθεί (CORRODIBLE) χάλυβος.

2II.I37-

2II.I39

#### Άρθρο 4

#### Έγκρισις Τύπου

Η αρμοδία αρχή ή υπηρεσία ορισθείσα υπό της αρ- 2II.I40  
 χής αυτής θα εκδίδει ~~ε~~ σχέση με ~~κάθε~~ νέο τύπο δε-  
 ξαμενής πιστοποιητικόν βεβαιούν ότι, η πρωτότυπος δεξαμε-  
 νή συμπεριλαμβανομένων των στερεώσεων του κελύφους τα ο-  
 ποια έχει επιθεωρήσει, είναι κατάλληλος για τον σκοπόν  
 για τον οποίον προορίζεται και πληροί τους όρους κατα-  
 σκευής του Άρθρου 2, τις διατάξεις περί εξοπλισμού του  
 Άρθρου 3 και τους ειδικούς όρους των Κλάσεων των μεταφε-



ρομένων υλών.

2II.I40

Τα αποτελέσματα της δοκιμής, οι ύλες δια την μεταφοράν των οποίων η δεξαμενή εγκρίνεται, και ο αριθμός εγκρίσεώς της ως πρωτοτύπου θα καταχωρούνται σε έκθεσιν δοκιμής.

(Συνεχίζεται)

Η έγκρισις αυτή θα είναι ισχυρή δια δεξαμενές κατασκευασμένες συμφώνως προς το πρωτότυπον τούτο άνευ τροποποιήσεως.

2II.I4I-

2II.I49

Άρθρο 5

Δοκιμαί (Έλεγχοι)

Οι δεξαμενές και ο εξοπλισμός τους πρέπει, είτε μαζί είτε χωριστά, να υφίστανται αρχικήν επιθεώρησιν προτού τεθούν σε υπηρεσίαν. Η επιθεώρησις αυτή θα περιλαμβάνει έλεγχον ότι η δεξαμενή συμμορφούται προς το εγκριθέν πρωτότυπον, έλεγχον των χαρακτηριστικών του σχεδίου, εξωτερικήν και εσωτερικήν εξέτασιν, έλεγχον υδραυλικής πίεσεως εις την πίεσιν δοκιμής την σημειωμένην εις την πλάκα στοιχείων, και έλεγχον ικανοποιητικής λειτουργίας του εξοπλισμού.

2II.I50

6/ Δια του δρου "Κελύφη ερμητικώς κλεισμένα" νοούνται τα κελύφη των οποίων τα ανοίγματα είναι ερμητικώς κλεισμένα και τα οποία δεν είναι εφοδιασμένα με βαλβίδες ασφαλείας, εσθραυστον δίσκον ή άλλους ομοίους μηχανισμούς ασφαλείας. Κελύφη έχοντα βαλβίδες ασφαλείας των οποίων προηγεί-

τα εύθραυστος δίσκος θα θεωρούνται ερμητικώς κλεισμένα.

Ο έλεγχος της υδραυλικής πίεσεως θα διεξάγεται 2II.150  
προ της εγκαταστάσεως τοιαύτης θερμικής μονώσεως η (Συνεχίζεται)  
ποια ήθελεν είναι απαραίτητος. Εάν τα κελύφη και ο εξοπλισμός των ελεγχθούν χωριστά, θα υποβάλλονται από κοινού  
εις έλεγχον στεγανότητας μετά την συναρμολόγησιν.

Οι δεξαμενές θα υφίστανται περιοδικές επιθεωρήσεις εις τακτά χρονικά διαστήματα. 2II.151

Αι περιοδικές επιθεωρήσεις θα περιλαμβάνουν εξωτερικό και εσωτερικό έλεγχο και, ως γενικόν κανόνα, έλεγχον υδραυλικής πίεσεως. 7/ Η επικάλυψις (επένδυσις) δια θερμικήν μόνωσιν και τα παρεμφερή θα αφαιρείται μόνον καθ' ό μέτρον απαιτείται δι' αξιόπιστον εκτίμησιν των χαρακτηριστικών του κελύφους.

Το ανώτατον χρονικόν διάστημα το μεσολαβούν μεταξύ περιοδικών επιθεωρήσεων θα είναι έξι έτη.

Επιπροσθέτως, έλεγχος στεγανότητας και έλεγχος ικανοποιητικής λειτουργίας όλου του εξοπλισμού θα εκτελούνται κάθε τρία έτη.

7/ Σε ειδικές περιπτώσεις, και με την σύμφωνον γνώμην του εμπειρογνώμονος του εγκριθέντος υπό της αρμοδίας αρχής, ο έλεγχος της υδραυλικής πίεσεως μπορεί να αντικατασταθεί με έλεγχον πίεσεως χρησιμοποιούντα έτερον υγρόν ή αέριον, οσάντις τοιαύτη επιχείρησις δεν συνεπάγεται οιονδήποτε κίνδυνον.

Οι δοκιμές, επιθεωρήσεις και έλεγχοι συμφώνως 2II.152 προς τα περιθώρια 2II.150 και 2II.151 θα εκτελούνται υπό εμπειρογνώμονος εγκεκριμένου υπό της αρμόδιας αρχής. Πιστοποιητικά θα εκδίδονται εικονίζοντα τα αποτελέσματα των επιχειρήσεων αυτών.

Οσάκις η ασφάλεια του κελύφους ή του εξοπλισμού 2II.153 του ενδέχεται να εξασθενήσει ως αποτέλεσμα επισκευών, τροποποιήσεων ή ατυχήματος, εξαιρετικός έλεγχος θα διεξαχθεί υπό της αρμόδιας αρχής ή υπό εμπειρογνώμονος εγκριθέντος υπό της αρχής αυτής.

2II.154-

2II.159

#### Άρθρο 6

#### Μαρκάρισμα (Χάραξεις)

Κάθε κέλυφος θα είναι εφοδιασμένον με μεταλλικήν πλάκα ανθεκτικήν εις την διάβρωσιν μονίμως συνδεδεμένην εις το κέλυφος εις θέσιν ευχερώς προσιτήν δι' επιθεώρησιν. Τα κατωτέρω στοιχεία τουλάχιστον θα χαρασσονται επί της πλάκας δια σφραγίσεως ή δι' οιασδήποτε άλλης παρεμφερούς μεθόδου. Τα στοιχεία αυτά μπορούν να χαρασσονται απ' ευθείας επί των τοιχωμάτων αυτού τούτου του κελύφους, εάν τα τοιχώματα είναι έτσι ενισχυμένα ώστε η αντοχή του κελύφους να μην εξασθενείται:

αριθμός εγκρίσεως·

επωνυμία ή σήμα κατασκευαστού·

αύξων αριθμός κατασκευαστού·

έτος κατασκευής·

πίεση δοκιμής σε  $\text{KG}/\text{CM}^2$  (πίεση θλιβομέτρου)• 2II.I60  
 χωρητικότητας σε λίτρες - στη περίπτωση κελύφων (Συνεχίζεται)  
 πολλαπλών στοιχείων, η χωρητικότητας εκάστου  
 στοιχείου•

θερμοκρασία σχεδίου (μόνον εάν ανω των  $+50^{\circ}\text{C}$  ή  
 κάτω των  $-20^{\circ}\text{C}$ )•

ημερομηνία (μην και έτος) αρχικού ελέγχου και εάν  
 προσφάτου περιοδικού ελέγχου• και  
 σφραγίς του εμπειρογνώμονος ο οποίος διεξήγαγε  
 τους ελέγχους.

Επιπροσθέτως, η επιτρεπομένη ανωτάτη πίεσις λειτουργίας θα εγγράφεται επί των δια πίεσεως πληρουμένων ή δια πίεσεως εκκενουμένων κελύφων.

Τα κατωτέρω στοιχεία θα είναι εγγεγραμμένα επ' 2II.I61  
 αυτού τούτου του βυτιοφόρου ή επί πλακός:

ονοματεπώνυμον χειριστού•

βάρος άνευ φορτίου• και

επιτρεπόμενον ανώτατον βάρος.

Επιπροσθέτως, τα βυτιοφόρα θα φέρουν τις προβλεπόμενες ετικέττες κινδύνου.

2II.I62-

2II.I69

#### Άρθρο 7

#### Λειτουργία

Το πάχος των τοιχωμάτων του κελύφους δεν θα πρέπει, καθ' όλην την χρήσιν του, κάτω του κατωτάτου αριθμού του προβλεπομένου εις περιθώριον 2II.I27(2). 2II.I70

Τα κελύφη δεν θα φορτώνονται με οποιεσδήποτε 2II.I71  
επικίνδυνες ύλες πλην εκείνων για τις οποίες έχει εγκρι-  
θεί η μεταφορά. Τρόφιμα δεν θα μεταφέρονται εις τα κελύ-  
φη αυτά εκτός εάν έχουν παρθεί τα απαραίτητα μέτρα για  
να προληφθεί οιοσδήποτε κίνδυνος για τη δημόσια υγεία.

Οι παρακάτω βαθμοί πληρώσεως δεν θα υπερβαί- 2II.I72  
νονται σε κελύφη προοριζόμενα για τη μεταφορά υγρών σε  
θερμοκρασίες περιβάλλοντος:

(I) (α) οσάντις εύφλεκτες ύλες μη παρουσιάζουσες προσθέ-  
τους κινδύνους (π.χ. τοξικές ή διαβρωτικές ιδιο-  
τητες) φορτώνονται σε κελύφη με σύστημα εξαερι-  
σμού, μετά ή άνευ βαλβίδων ασφαλείας:

$$\text{βαθμός πληρώσεως} = \frac{100}{I \neq \alpha (50 - T_F)} \quad \text{ή} \quad \frac{100}{I \neq 35\alpha} \%$$

της χωρητικότητας\*

(β) οσάντις τοξικές ή διαβρωτικές ύλες, ανεξαρτήτως εάν  
παρουσιάζουν ή δεν παρουσιάζουν κίνδυνον πυρκαϊάς,  
φορτώνονται σε κελύφη με σύστημα εξαερισμού, μετά  
ή άνευ βαλβίδων ασφαλείας:

$$\text{βαθμός πληρώσεως} = \frac{98}{I \neq \alpha (50 - T_F)} \quad \text{ή} \quad \frac{98}{I \neq 35\alpha} \%$$

της χωρητικότητας\*

(γ) οσάντις χαμηλής <sup>συμπυκνώσεως</sup> ~~πυκνότητας~~ εύφλεκτες ύλες και χαμηλής  
πυκνότητας οξέα και αλκαλικά διαλύματα φορτώνονται  
σε κλειστά κελύφη:

$$\text{βαθμός πληρώσεως} = \frac{97}{I \neq \alpha (50 - T_F)} \quad \text{ή} \quad \frac{97}{I \neq 35\alpha} \%$$

της χωρητικότητας·

2ΠΙ.Ι72

- (δ) οσάνεις υψηλής συμπυκνώσεως τοξικές ύλες και υψηλής συμπυκνώσεως οξέα και αλκαλικά διαλύματα φορτώνονται σε κλειστά κελύφη:

$$\text{βαθμός πληρώσεως} = \frac{95}{I \neq \alpha (50 - T_F)} \quad \text{ή} \quad \frac{95}{I \neq 35\alpha} \%$$

της χωρητικότητας.

- (2) Στους ανωτέρω τύπους, το  $\alpha$  αντιπροσωπεύει (παριστά) τον μέσον συντελεστήν της διαστολής κατ'όγκον του υγρού μεταξύ 15° και 50°C, τ.έ. δι'ανωτάτην μεταβολήν θερμοκρασίας 35°C.

το  $\alpha$  υπολογίζεται δια του τύπου:  $\alpha = \frac{D_{15} - D_{50}}{35 \times D_{50}}$ ,

όπου  $D_{15}$  και  $D_{50}$  είναι οι πυκνότητες του υγρού στους 15°C και 50°C αντιστοίχως και  $T_F$  είναι η μέση θερμοκρασία του υγρού κατά τον χρόνο της πληρώσεως.

- (3) Οι διαπάξεις της ανωτέρω παραγράφου (I) δεν θα ισχύουν για κελύφη των οποίων το περιεχόμενον συντηρείται, μέσω μηχανισμού (συσκευής) θερμάνσεως εις θερμοκρασίαν άνω των 50°C διαρκούσης της μεταφοράς. Σε τέτοια περίπτωση, ο βαθμός πληρώσεως στην αρχή θα είναι τέτοιος, και η θερμοκρασία θα έχει έτσι ρυθμισθελ, ώστε το κέλυφος να μη πληρούται άνω του 95 τοις εκατόν της χωρητικότητος του οποτεδήποτε διαρκούσης της μεταφοράς, και η θερμοκρασία πληρώσεως να μην υπερβαίνεται.
- (4) Οσάνεις θερμές ύλες φορτώνονται, η θερμοκρασία της εξωτερικής επιφανείας του κελύφους ή της θερμικής μονώσεως δεν θα

υπερβαίνει τους 70°C διαρκούσης της μεταφοράς.

Οσάνκις κελύφη προοριζόμενα για τη μεταφορά υγρών  $\beta$ / δεν χωρίζονται με χωρίσματα ή κυματοειδή ελάσματα σε τμήματα χωρητικότητας όχι μεγαλύτερας των 7.500 λίτρων, θα πληρούνται όχι ολιγώτερο του 80 τοις εκατόν της χωρητικότητος των εκτός εάν είναι πρακτικώς άδεια. 2II.I73

Τα κελύφη θα κλείουν κατά τριούτον τρόπον ώστε το περιεχόμενον να μη μπορεί να τρέξει ανεξέλεγκτον. Η στεγανότης των κλεισιμάτων του κελύφους, ειδικώτερον εις το άνω μέρος του βυθομετρικού-σωλήνος, θα επαληθεύεται υπό του αποστολέως μετά την πλήρωσιν του κελύφους. 2II.I74

Όπου έχουν εφαρμοσθελ πολλά συστήματα κλεισίματος εν σειρά, το σύστημα που είναι πλησιέστερον προς την μεταφερομένη ύλην θα κλείεται πρώτον. 2II.I75

Ουδέν επικίνδυνον υπόλειμμα θα παραμένει εις τό εξωτερικόν των κελυφων διαρκούσης της μεταφοράς, ασχέτως εάν είναι πλήρη ή άδεια. 2II.I76

Για να είναι δεκτά για μεταφορά, τα άδεια κελύφη πρέπει να είναι κλεισμένα και και να έχουν τον αυτόν βαθμόν στεγανότητος ως εάν ήσαν πλήρη. 2II.I77

Οι σωλήνες συνδέσεως μεταξύ ανεξαρτήτων αλλά διασυνδεομένων κελυφων μονάδος μεταφοράς θα είναι κενοί διαρκούσης της μεταφοράς. 2II.I78

Ευκαμπτοι σωλήνες πληρώσεως και εκκενώσεως οι οποιοι δεν είναι μονίμως συνδεοδεμένοι με το κελύφος θα είναι άδειοι (κενοί) διαρκούσης της μεταφοράς. 2II.I79

Άρθρο 8Μεταβατικά ΜέτραΜεταβατικά Μέτρα

2II.180

Σταθερές (μόνιμες δεξαμενές, βυτιοφόρα), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων κατασκευής προ της 1ης Οκτωβρίου 1978 και μη συμμορφούμενοι προς τας διατάξεις της παρούσης Προσθήκης μπορούν, εάν κατασκευάσθηκαν συμφώνως προς τας διατάξεις της ADR, να χρησιμοποιηθούν δια περιόδον ἑξῆς ετών από 1ης Οκτωβρίου 1978. Σταθερές (μόνιμες δεξαμενές, βυτιοφόρα), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων προοριζόμενες για τη μεταφορά αερίων της Κλάσεως 2 μπορούν εν τούτοις να χρησιμοποιηθούν για 12 έτη από της αυτής ημερομηνίας εάν ετηρήθη ο όρος της περιοδικής δοκιμής (ελέγχου).

Κατά την λήξιν της περιόδου αυτής οι προρρηθείσες 2II.181 μονάδες μπορούν να διατηρηθούν ἔξῃ υπηρεσία εάν ο εξοπλισμός του κελύφους πληροί τους παρόντας όρους. Το πάχος του τοιχώματος του κελύφους, ειτὸς στη περίπτωση κελύφων προοριζομένων για τη μεταφορά αερίων της Κλάσεως 2, 7<sup>ο</sup> και 8<sup>ο</sup>, θα είναι κατάλληλον για πρῆση υπολογισμού ὄχι μικροτέραν των 4 KG/CM<sup>2</sup> (πρῆση θλιβομέτρου) προκειμένου περὶ μαλακοῦ χάλυβος και ὄχι μικροτέραν των 2 KG/CM<sup>2</sup> (πρῆση θλιβομέτρου) προκειμένου περὶ αλουμινίου και κραμάτων αλουμινίου. Για ἄλλες, πλην των κυκλικῆς διατομῆς δεξαμενῶν, η χρησιμοποιομένη ως βᾶσις υπολογισμού διάμετρος θα είναι εκείνη κύκλου του οποίου το εμβαδόν είναι ἴσον πρὸς εκείνο της πραγματικῆς διατομῆς της δεξαμενῆς.



8/ Για την εφαρμογή της παρούσης διατάξεως, ύλες των οποίων ο χρόνος εκροής εις τούς 20°C από κύπελο DIN (DIN CUP) με οπήν εκροής 4-MM δεν υπερβαίνει τα 10 λεπτά (αντιστοιχούντα σε χρόνον εκροής μικρότερον των 96 δευτερολέπτων εις 20°C από κύπελο FORD No. 4 ή μικρότερον των 2,680 CENTISTOKES) θα θεωρούνται ότι είναι υγρά.

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Οι περιοδικοί έλεγχοι για σταθερές (μόνιμες δεξα- 2II.182 μενές, βυτιοφόρα), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων/εν υπηρεσία δυνάμει των μεταβατικών διατάξεων τούτων θα διεξάγονται συμφώνως προς τις διατάξεις του Άρθρου 5 και τις οικείες ειδικές διατάξεις των διαφόρων Κλάσεων. Εντός εάν αι προηγηθείσαι διατάξεις προβλεπαν υψηλοτέραν πρέσιν δοκιμής, πρέσις δοκιμής εκ 2 KG/CM<sup>2</sup> (πρέσις θλιβομέτρου) θα επαρκεί για κελύφη εξ αλουμινίου ή κελύφη κράματος αλουμινίου.

Σταθερές (μόνιμες δεξαμενές, βυτιοφόρα), αποσυναρ- 2II.183 μολογούμενες δεξαμενές και συστοιχίες δοχείων που πληρούν τις μεταβατικές αυτές διατάξεις μπορούν να χρησιμοποιηθούν για περίοδον 15 ετών από 1ης Οκτωβρίου 1978 για τη μεταφορά των επικινδύνων υλών δια τις οποίες ενεκρίθησαβ. Η μεταβατική περίοδος αυτή δεν θα ισχύει για σταθερές (μόνιμες) δεξαμενές (βυτιοφόρα), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων προοριζόμενες για τη μεταφορά υλών της Κλάσεως 2, ή για σταθερές (μόνιμες) δεξαμενές (βυτιοφόρα), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων των οποί-

ων το τεχος του τοιχώματος, και τα είδη εξοπλισμού πληρούσ-  
τες διατάξεις της παρούσης Προσθήκης.

2Π.184-

2Π.199

Πρόσθήκη Β.Ια

Κεφάλαιο ΙΙ

ΕΙΔΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΣΥΜΠΛΗΡΟΥΣΑΙ Η ΤΡΟΠΟΠΟΙΟΥΣΑΙ ΤΙΣ  
ΔΙΑΤΑΞΕΙΣ ΤΟΥ ΚΕΦΑΛΑΙΟΥ Ι

Κλάσις 2

Αέρια: πεπιεσμένα, υγροποιημένα ή διαλυμένα υπό πίεση

2Π.200-

2Π.219

Άρθρο Ι

Γενικά· αντικείμενον· ορισμοί

2Π.220

Άρθρο 2

Κατασκευή

Κελύφη προοριζόμενα για τη μεταφορά των υλών των 2Π.221  
1<sup>ο</sup> έως 6<sup>ο</sup> και 9<sup>ο</sup> θα είναι κατασκευασμένα από χάλυβα.

Δι' αποκλίσεως εκ του περιθωρίου 2Π.125(3), κατωτάτη επι-  
μήκυνση εις ρήγμα εκ 14 στα εκατό μπορεί να γίνεται  
δεικτή προκειμένου περι μη-συγκολλημένων κελύφων.

Οι διατάξεις της Προσθήκης Β.Ιδ, περιθώρια 2Π.222  
2Ι4.250 έως 2Ι4.285, θα ισχύουν για τα υλικά και την κατα-  
σκευήν κελύφων προοριζομένων για τη μεταφορά αερίων των  
7<sup>ο</sup> και 8<sup>ο</sup>.

Κελύφη προοριζόμενα για τη μεταφορά χλωρίου ή φωσ-

γενίου (3° (α Τ)) θα σχεδιάζονται για πίεση τουλάχιστον 22 KG/CM (πίεση θλιβομέτρου).

2II.223-

2II.229

### Άρθρο 3

#### Είδη Εξοπλισμού

Οι σωλήνες εκκενώσεως των κελύφων θα είναι ικανές να κλείουν όχι μόνον δια των μηχανισμών (συσκευών) των προβλεπομένων εις περιθώριον 2II.131 αλλά επιπροσθέτως δια τυφλής φλάντζας ή κάποιου άλλου εξίσου αξιοπιστού μηχανισμού (συσκευής). 2II.230

Κελύφη προοριζόμενα για τη μεταφορά υγροποιημένων αερίων μπορούν να είναι εφοδιασμένα, επιπροσθέτως των οπών (θυρίδων) των προβλεπομένων υπό του περιθωρίου 2II.131, με οπές (θυρίδες, ανοίγματα) για την εφαρμογήν δεικτών, συμπεριλαμβανομένων θλιφομέτρων πίεσεως, και θερμομέτρων και με οπές διαφυγής, ως απαιτείται για τη λειτουργία και ασφάλειά τους. 2II.231

Οι μηχανισμοί ασφαλείας θα πληρούν τους κάτωθι δρους:- 2II.232

(I) Οπές (ανοίγματα) πληρώσεως και εκκενώσεως κελύφων προοριζομένων για τη μεταφορά υγροποιημένων ευφλεκτών ή και τοξικών αερίων θα είναι εφοδιασμένες με στιγμιαίου κλεισίματος εσωτερικού μηχανισμού ασφαλείας ο οποίος κλείνει αυτομάτως σε περίπτωση απροσέκτου κινήσεως της δεξαμενής. Πρέπει επίσης να είναι δυνατόν να κλείνει ο μηχανισμός με τηλεχειριστήριο.

(2) Όλες οι οπές (ανοίγματα), πλην εκείνων που στε- 2II.232  
γάζουν βαλβίδες ασφαλείας και των κλειστών οπών εκροής, (Συνεχι-  
ζεται)  
των κελύφων των προοριζομένων για τη μεταφορά υγροποιη-  
μένων ευφλέκτων ή και τοξικών αερίων, εάν η ονομαστική  
των διάμετρος είναι μεγαλύτερα των 1.5 MM, θα είναι εφοδια-  
σμένες με εσωτερικόν μηχανισμόν κλεισίματος.

(3) Δι' αποκλίσεως εκ των διατάξεων των παραγράφων (1)  
και (2), κελύφη προοριζόμενα για τη μεταφορά πολύ-κατεψυγ-  
μένων (DEEPLY-REFRIGERATED) ευφλέκτων ή και τοξικών υγρο-  
ποιημένων αερίων μπορούν να είναι εφοδιασμένα με εξωτερι-  
κούς μηχανισμούς αντί εσωτερικών μηχανισμών εάν οι εξωτε-  
ρικοί μηχανισμοί παρέχουν προστασίαν τουλάχιστον ισοδύναμον  
της παρεχομένης υπό του τοιχώματος του κελύφους.

(4) Εάν τα κελύφη είναι εφοδιασμένα με δείκτες (θλιβό-  
μετρα), οι τελευταίοι δεν θα κατασκευάζονται από διαφανές  
υλικόν έρχόμενον εις άμεσον επαφήν με την μεταφερομένην  
ύλην. Εάν υπάρχουν θερμομέτρα δεν θα προεξέχουν απ' ευθείας  
εις το αέριον ή το υγρόν μέσω του τοιχώματος του κελύφους.

(5) Κελύφη προοριζόμενα για τη μεταφορά χλωρού ή/θελ-  
ου (3° (α T)) ή μεθυλο-μερκαπτόνης ή υδροθειού (3° (β T))  
δεν θα έχουν οπήν κάτωθι της στάθμης επιφανείας του υγρού.  
Επιπροσθέτως, οπές καθαρισμού (οπές σχήματος γροθιάς) ως  
αναφέρονται εις το περιθώριον 2II.132 δεν θα επιτρέπωνται.

(6) Οπές πληρώσεως και εκκενώσεως κείμεναι εις το άνω  
μέρος των κελυφών θα είναι εφοδιασμένοι όχι μόνον με ό,τι  
προβλέπεται εις την παράγραφον (1), αλλά επιπροσθέτως με  
δεύτερον, εξωτερικόν, μηχανισμόν κλεισίματος. Ο μηχανισμός

αυτός θα είναι ικανός να κλείει δια τυφλής φλάντζας 2II.232  
 κάποιου άλλου εξ ίσου αξιοπύστου μηχανισμού. (Συνεχίζεται)

Οι βαλβίδες ασφαλείας θα πληρούν τους κάτωθι 2II.233  
 όρους:-

(I) Κελύφη προοριζόμενα για τη μεταφορά αερίων των I<sup>ο</sup> έως 6<sup>ο</sup> και 9<sup>ο</sup> μπορεί να είναι εφοδιασμένα με όχι περιμωσότερες των δύο βαλβίδων ασφαλείας των οποίων η συνολική καθαρή επιφάνεια διατομής της διελεύσεως εις την έδραν ή τις έδρες δεν θα είναι μικρότερη των 20 CM<sup>2</sup> ανά 30 M<sup>3</sup> ή μέρους αυτών της χωρητικότητας του δοχείου. Οι βαλβίδες αυτές θα είναι ικανές να ανοίγουν αυτομάτως με πίεσιν μεταξύ 0.9 και 1.0 φορές την πίεσιν δοκιμής του κελύφους εις το οποίον έχουν εφαρμοσθεί. Θα είναι τοιούτου τύπου ώστε να ανθίστανται κατά των δυναμικών τάσεων (πιέσεων) συμπεριλαμβανομένης της υγρής αποτόμου ροής. Η χρήσις βαλβίδων νεκρού-βάρους ή αντιβάρου απαγορεύεται.

Κελύφη προοριζόμενα για τη μεταφορά αερίων των I<sup>ο</sup> έως 9<sup>ο</sup>, επικινδύνων δια τα αναπνευστικά όργανα ή συνεπαγομένων κίνδυνον δηλητηρίασεως 9/ δεν θα έχουν βαλβίδες ασφαλείας εκτός εάν των βαλβίδων ασφαλείας προηγείται εύθραυστος δίσκος. Εις την τελευταίαν περίπτωσην η διάταξις του εύθραυστου δίσκου και της βαλβίδος ασφαλείας θα απαιτείται να είναι ικανοποιητική δια την αρμόδιαν αρχήν.

9/ Αέρια χαρακτηριζόμενα με το γράμμα "T" εις την Κατάστασιν των υλών θεωρούνται ως αέρια βλαβερά δια τα αναπνευστικά όργανα ή συνεπαγόμενα κίνδυνον δηλητηρίασεως.

Οσάνεις βυτιοφόρα προορίζονται για μεταφορά δια 2ΠΙ.233 θαλάσσης, οι διατάξεις της παρούσης παράγραφου δεν θα (Συνεχίζε-  
ται)  
απαγορεύουν την εφαρμογήν βαλβίδων ασφαλείας συμφώνως προς τας διατάξεις τας διεπούσας τον τρόπον μεταφοράς.

(2) Κελύφη προοριζόμενα για τη μεταφορά αερίων των 7<sup>ο</sup> και 8<sup>ο</sup> θα είναι εφοδιασμένα με δύο ανεξαρτήτους βαλβίδες ασφαλείας, εκάστη των οποίων έτσι σχεδιασμένη ώστε να επιτρέπουν τα αέρια τα σχηματιζόμενα δι' εξατμίσεως διαρκούσης της κανονικής λειτουργίας να διαφεύγουν εκ του κελύφους κατά τοιούτον τρόπον ώστε η πρέσις να μην υπερβαίνεται οποτεδήποτε περισσότερο του 10 στα εκατό της πίεσεως λειτουργίας της οριζομένης επί του κελύφους. Μία των δύο βαλβίδων ασφαλείας μπορεί να αντικατασταθεί με ένα εύθραυστο δίσκο ο οποίος θα είναι τέτοιος ώστε να εκρήγνυται εις την πρέσιν δοκιμής. Σε περίπτωση απώλειας του κενού κελύφους διπλού-τοιχώματος, ή καταστροφής του 20 στα εκατό της μονώσεως του κελύφους εντός-τοιχώματος, η βαλβίς ασφαλείας και ο εύθραυστος δίσκος θα επιτρέπουν μία τέτλια εκροή ώστε η πρέσις εντός του κελύφους να μη μπορεί να υπερβεί την πρέσιν δοκιμής.

(3) Οι βαλβίδες ασφαλείας των κελύφων των προοριζομένων για την μεταφοράν αερίων των 7<sup>ο</sup> και 8<sup>ο</sup> θα είναι ικανές να ανοίγουν εις την πρέσιν λειτουργίας την οριζομένην επί του κελύφους. Θα είναι έτσι σχεδιασμένες ώστε να λειτουργούν χωρίς βλάβην (ελάττωμα) ακόμη και εις την χαμηλωτέραν των θερμοκρασιών λειτουργίας. Η αξιοπιστία της

λειτουργίας των εις την θερμοκρασίαν αυτήν θα διαπι- 2II.233  
στούται και ελέγχεται είτε με έλεγχο κάθε βαλβι- (Συνεχίζεται)  
δας είτε με έλεγχο δείγματος βαλβίδος κάθε τύπου-  
σχεδίου.

Θερμική Μόνωση

2II.234

(I) Εάν κελύφη προοριζόμενα δια την μεταφοράν υγροποιημένων αερίων των 3<sup>ο</sup> και 4<sup>ο</sup> είναι εφοδιασμένα με θερμικήν μόνωσιν, η τεταία μόνωσις θα αποτελείται είτε:-

- από προστατευτικόν κάλυμμα/ηλίου καλύπτον κατά του  
ολιγά-  
δχι/πέρον του άνω τρίτου αλλά δχι περισσότε-  
τέρον του άνω ημισσεως της επιφανείας του κε-  
λύφους και χωριζόμενον από το κέλυφος με διά-  
στημα αέρος τουλάχιστον 4 CM εγκάρσιως· ή
- από πλήρη επένδυσιν, καταλλήλου πάχους, μονω-  
τικών υλικών.

(2) Κελύφη προοριζόμενα για την μεταφοράν αερίων των 7<sup>ο</sup> και 8<sup>ο</sup> θα είναι θερμικώς μονωμένα. Η θερμική μόνωσις θα εξασφαλίζεται με συνεχή επικάλυψιν. Εάν το διάστημα μεταξύ του κελύφους και της επικάλυψεως έχει εξαντληθεί από αέρα (μόνωσις κενού), η προστατευτική επικάλυψις θα είναι έτσι σχεδιασμένη ώστε να αντέχει άνευ παραμορφώσεως σε μία εξωτερικήν πίεσιν εκ τουλάχιστον 1 KG/CM<sup>2</sup> (πίεσιν θλιβομέτρου). Δι' αποκλίσεως εκ του περιθωρίου 2II.102(2), εξωτερικοί και εσωτερικοί ενισχυτικοί μηχανισμοί μπορούν να λαμβάνωνται υπόψη κατά τους υπολογισμούς. Εάν η επικάλυψις είναι έτσι κλεισμένη ώστε να είναι αεριο-

στεγανή, θα προμηθευθεί μηχανισμός ο οποίος θα προ- 2II.234  
 λαιβάνει οιαδήποτε επικίνδυνον πλεσιν να αναπτυχθελ (Συνεχίζε-  
 εις το απομονωτικόν στρώμα ~~θε~~ περίπτωσιν μη-καταλλήλου <sup>ται</sup>  
 αεριο-στεγανότητας του κελύφους ή των ειδών εξοπλισμού  
 αυτού. Ο μηχανισμός θα εμποδίζει την διεισδυσιν της  
 υγρασίας εις την θερμο-μονωτικήν επικάλυψιν.

(3) Κελύφη προοριζόμενα ~~για~~ για την μεταφοράν υγρο-  
 ποιημένων αερίων εχόντων σημείον βρασμού κάτω των  $-182^{\circ}\text{C}$   
 εις ατμοσφαιρικήν πλεσιν ~~δεν~~ θα περιλαμβάνουν οιαδήποτε  
 καθσιμον υλικόν ελτε εις την θερμικήν μόνωσιν ελτε εις  
 το μέσον συνδέσεως (στερεώσεως) με το πλαίσιον.

Το μέσον συνδέσεως (στερεώσεως) των κελυφων  
 των προοριζομένων ~~για~~ για την μεταφοράν αργού, αζώτου, ηλίου  
 ή νέου της  $7^{\circ}(\alpha)$  ή υδρογόνου της  $7^{\circ}(\beta)$  μπορεί, με την  
 συναίνεσιν της αρμοδίας αρχής, να περιέχει πλαστικήν ύ-  
 λην μεταξύ της εσωτερικής και της εξωτερικής επικάλυψεως.

Για συστοιχίες δοχείων (βλέπε περιθώριον 2II.235  
 22I2(I)(γ)) IO/ θα τηρούνται οι κάτωθι όροι:-

(I) Εάν ένα των στοιχείων κελύφους πολλαπλών  
 στοιχείων είναι εφοδιασμένον με βαλβίδα ασφαλείας και  
 μηχανισμός κλεισίματος έχουν προμηθευθελ μεταξύ των  
 στοιχείων, κάθε στοιχείον θα είναι έτσι εφοδιασμένον.

(2) Οι μηχανισμοί πληρώσεως και εκκενώσεως μπο-  
 ρούν να στερεωθούν σε σωλήνωσιν.

(3) ~~Κάθε~~ Κάθε στοιχείον κελύφους πολλαπλών-  
 στοιχείων προοριζομένου δια την μεταφοράν πεπιεσμένων  
 αερίων των  $1^{\circ}$  και  $2^{\circ}$  τα οποια είναι επιβλαβή ~~για~~ για τα ανα-



πνευματικά όργανα ή συνεπάγονται κίνδυνον δηλητηρίασεως 2II.235  
 9/ ή είναι εύφλεκτα, θα είναι ικανά να μονωθούν με (Συνεχίζεται)  
 βαλβίδα (κρουρόν διηλίδος).

(4) Τα στοιχεία κελύφους πολλαπλών στοιχείων προοριζομένου για την μεταφοράν υγροποιημένων αερίων των 3<sup>ο</sup> έως 6<sup>ο</sup> θα είναι έτσι σχεδιασμένα ώστε να μπορούν να πληρούνται χωριστά και να μπορούν να τηρούνται μονωμένα με βαλβίδα ικανή να στεγανοποιηθεί.

(5) Οι όροι θα έχουν εφαρμογήν για δεξαμενές αποσυναρμολογούμενες (λυόμενες):-

(α) θα διασυνδέωνται με σωλήνωσιν\* και

(β) εάν οι αποσυναρμολογούμενες (λυόμενες) δεξαμενές μπορεί να κυλινδροσυμπιεσθούν, οι βαλβίδες θα είναι εφοδιασμένες με προστατευτικά πάματα.

Με απόκλιση από τις διατάξεις του περιθωρίου 2II.236  
 2II.231, κελύφη προοριζόμενα για την μεταφοράν λίανκατεφυγμένων υγροποιημένων αερίων δεν χρειάζεται να έχουν θυρίδα επιθεωρήσεως.

2II.237-

2II.239

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 10/ Οι διατάξεις της παρούσης Προσθήκης δεν έχουν εφαρμογήν επί πλαισίων κυλινδρών.

Άρθρο 4Εγκρίσεις Τύπου

(Ουδεμία ειδική διάταξις)

2II.240

2II.249

Άρθρο 5Δοκιμές/Ελέγχοι

Τα υλικά των κελυφών των προοριζομένων για την μεταφοράν αερίων των 7<sup>ο</sup> και 8<sup>ο</sup> θα ελέγχωνται δια της μεθόδου της περιγραφομένης εις την Προσθήκην V.Ιδ, περιθώρια 2I4.275 έως 2I4.285. 2II.250

Τα επίπεδα της πίεσεως-δοκιμής θα έχουν ως κάτωθι:- 2II.25I

(I) Δια κελύφη προοριζόμενα δια την μεταφοράν αερίων των I<sup>ο</sup> έως και 2<sup>ο</sup>: τα επίπεδα τα οριζόμενα εις περιθώριον 22I9 (I) και (3).

(2). Δια κελύφη προοριζόμενα δια την μεταφοράν αερίων των 3<sup>ο</sup> και 4<sup>ο</sup>:

(α) εάν τα κελύφη δεν είναι διαμέτρου άνω των I.5 M, τα επίπεδα τα οριζόμενα εις περιθώριον 2220(2)•

(β) εάν τα κελύφη είναι διαμέτρου μεγαλύτερας των I.5 M, τα επίπεδα II/ τα οριζόμενα κατωτέρω:

II/ I.- Αι προβλεπόμεναι πιέσεις δοκιμής είναι:-

(α) εάν το κέλυφος είναι εφοδιασμένον με θερμικήν μόνωσιν, τουλάχιστον ίσην προς την πίεσιν ατμού, ελαττωμένην κατά I KG/CM<sup>2</sup>, του υγρού εις 60<sup>ο</sup>C, και όχι μικροτέραν των IO KG/CM<sup>2</sup>.

(β) εάν το κέλυφος δεν είναι εφοδιασμένον με θερμικήν μόνωσιν, τουλάχιστον ίση προς την πίεσιν ατμού, ελαττωμένη κατά  $1 \text{ KG/CM}^2$ , του υγρού εις  $65^{\circ}\text{C}$ , και όχι μικροτέρα των  $10 \text{ KG/CM}^2$ .

2.- Εν όψει της υψηλής τοξικότητας του φωσγενίου ( $3^{\circ}$  (α Τ)), η κατωτάτη πίεσις δοκιμής του αερίου τούτου ορίζεται εις  $15 \text{ KG/CM}^2$  εάν το κέλυφος είναι εφοδιασμένον με θερμικήν μόνωσιν και εις  $17 \text{ KG/CM}^2$  εάν δεν είναι έτσι εφοδιασμένον.

3.- Οι ανώταται τιμές σε  $\text{KG/λίτρον}$  αι προβλεπόμεναι για τον βαθμόν της πληρώσεως υπολογίζονται ως κάτωθι: ανώτατον βάρος του περιεχομένου ανά λίτρον χωρητικότητας =  $0.95 \times$  ειδικόν βάρος της υγράς φάσεως εις  $50^{\circ}\text{C}$ .

2II.25I (Συνεχ.)

Περιγραφή ύλης	Αριθμός Είδους	Κατωτάτη Πίεσις		Ανώτατον Βάρος Περιεχομένου ανά λίτρον χωρητικότητας
		Δοκιμής δια μέτρα	Κελύφη - άνευ θερμικής μόνωσης	
		$\text{KG/CM}^2$	$\text{KG/CM}^2$	$\text{KG}$
Βρωμοχλωροδιφθορομεθάνιο (R 12 BI), Αριθμός Είδους $3^{\circ}$ (α)	10	10		1.61
Χλωροδιφθορομεθάνιο (R 22) $3^{\circ}$ (α)	24	26		1.03
Χλωροπενταφθοροαιθάνιο (R 115) $3^{\circ}$ (α)	20	23		1.08
I-Χλωρο-2,2,2-τριφθοροαιθάνιο (R 133 α) $3^{\circ}$ (α)	10	10		1.18
Διχλωροδιφθορομεθάνιο (R 12) $3^{\circ}$ (α)	15	16		1.15

## 211.251 (Συνεχίζεται)

Περιγραφή ύλης	Αριθμός	Κατωτάτη Πίεσις	Ανώτατον	
	Είδους	Δοκιμής δια Κελύφη	Βάρους Περιε-	ματά - άνευ
		θερμικής μονώσεως	χομένου ανά	λίτρον χωρη-
			τικότητας	
			KG/CM <sup>2</sup>	KG/CM <sup>2</sup>
				KG

## ( Σ υ ν ε χ ε ι α )

Διχλωροφθορομεθάνιο (R 2I)	3 <sup>0</sup> (α)	10	10	1.23
1,2-Διχλωρο-1,2,2-τετραφθορο- αιθάνιο (R II4)	3 <sup>0</sup> (α)	10	10	1.30
Οκταφθοροκυκλοβουτάνιο (RC 3I8)	3 <sup>0</sup> (α)	10	10	1.34
Αμμωνία	3 <sup>0</sup> (α T)	26	29	0.53
Μεθυλοβρωμίδιο	3 <sup>0</sup> (α T)	10	10	1.51
Χλώριο	3 <sup>0</sup> (α T)	17	19	1.25
Εξαφθοροπροπυλένιο (R 2I6)	3 <sup>0</sup> (α T)	17	19	1.11
Υδροβρωμίδιο	3 <sup>0</sup> (α T)	50	55	1.20
Διοξειδίου Αζώτου NO <sub>2</sub>	3 <sup>0</sup> (α T)	10	10	1.30
Φωσγένιο	3 <sup>0</sup> (α T)	15	17	1.23
Διοξειδίου Θείου	3 <sup>0</sup> (α T)	10	12	1.23
Βουτάνιο	3 <sup>0</sup> (β)	10	10	0.51
1-Βουτένιο	3 <sup>0</sup> (β)	10	10	0.53
1-Χλωρο-1,1-διφθοροαιθάνιο (R I42β)	3 <sup>0</sup> (β)	10	10	0.99
CIS-2-βουτένιο	3 <sup>0</sup> (β)	10	10	0.55
Κυκλοπροπάνιο	3 <sup>0</sup> (β)	16	18	0.53
1,1-διφθοροαιθάνιο (R I52α)	3 <sup>0</sup> (β)	14	16	0.79

## 211.25I (Συνεχίζεται)

Περιγραφή ύλης	Αριθμός Είδους	Κατωτάτη Πίεσις		Ανώτατον Βάρος Περιε- χομένου ανά λίτρον χωρη- τικότητας
		Δοκιμής δια μέτρη - άνευ θερμικής μονώσεως	Κελύφη	
		KG./CM <sup>2</sup>	KG/CM <sup>2</sup>	KG
( Σ υ ν έ χ ε ι α )				
Ισοβουτάνιο	3 <sup>ο</sup> (β)	10	10	0.49
Ισοβουτένιο	3 <sup>ο</sup> (β)	10	10	0.52
Προπάνιο	3 <sup>ο</sup> (β)	21	23	0.42
Προπυλένιο	3 <sup>ο</sup> (β)	25	27	0.43
Τράνς-2-βουτένιο	3 <sup>ο</sup> (β)	10	10	0.54
Ι, Ι, Ι-Τριφθοροαιθάνιο	3 <sup>ο</sup> (β)	28	32	0.79
Διμεθυλαμίνη	3 <sup>ο</sup> (β Τ)	10	10	0.59
Διμεθυλαιθέρας	3 <sup>ο</sup> (β Τ)	14	16	0.58
Αιθυλαμίνη	3 <sup>ο</sup> (β Τ)	10	10	0.61
Αιθυλοχλωρίδιο	3 <sup>ο</sup> (β Τ)	10	10	0.80
Υδροθειο	3 <sup>ο</sup> (β Τ)	45	50	0.67
Μεθυλαμίνη	3 <sup>ο</sup> (β Τ)	10	11	0.58
Μεθυλοχλωρίδιο	3 <sup>ο</sup> (β Τ)	13	15	0.81
Μεθυλομερκαπτάνη	3 <sup>ο</sup> (β Τ)	10	10	0.78
Τριμεθυλαμίνη	3 <sup>ο</sup> (β Τ)	10	10	0.56
Ι, 3-Βουταδιένιο	3 <sup>ο</sup> (β Τ)	10	10	0.55
Βινυλοχλωρίδιο	3 <sup>ο</sup> (γ)	10	11	0.81
Μεθυλοβινυλαιθέρας	3 <sup>ο</sup> (γ Τ)	10	10	0.67
Τριφθοροχλωραιθυλένιο (R.HI3)	3 <sup>ο</sup> (γ Τ)	15	17	1.13

## 211.251 (Συνεχίζεται)

Περιγραφή ύλης	Αριθμός Κατωτάτη Πίεσις		Ανώτατον
	Είδους	Δοκιμής δια	Βάρος Περιε-
	μετά	- άνευ	χομένου ανά
	θερμικής	μονώσεως	λίτρον χωρη-
			τικότητας
	KG/CM <sup>2</sup>	KG/CM <sup>2</sup>	KG

## ( Σ υ ν έ χ ε ι α )

Βινυλοβρωμίδιο	3 <sup>ο</sup> (γ Τ)	10	10	1.37
Μίγμα F I	4 <sup>ο</sup> (α)	10	11	1.23
Μίγμα F 2	4 <sup>ο</sup> (α)	15	16	1.15
Μίγμα F 3	4 <sup>ο</sup> (α)	24	27	1.03
Μίγμα αερίων R 500	4 <sup>ο</sup> (α)	18	20	1.01
Μίγμα αερίων R 502	4 <sup>ο</sup> (α)	25	28	1.05
Μίγματα των 19 έως 21 τοις εκατόν κατά βάρος διχλωροδοφθορομεθανίου (R 12) και 79 έως 81 τοις εκατόν κατά βάρος βρωμοχλωροδιφθορομεθανίου (R 12 BI)	4 <sup>ο</sup> (α)	10	11	1.50
Μίγματα μεθυλοβρωμίδιου και χλωροπικρίνης	4 <sup>ο</sup> (α Τ)	10	10	1.51
Μίγμα A (εμπορικό όνομα: βουτάνιο)	4 <sup>ο</sup> (β)	10	10	0.50
Μίγμα A O (εμπορικό όνομα: βουτάνιο)	4 <sup>ο</sup> (β)	12	14	0.47
Μίγμα A I	4 <sup>ο</sup> (β)	16	18	0.46
Μίγμα B	4 <sup>ο</sup> (β)	20	23	0.43
Μίγμα Γ (εμπορικό όνομα: προπάνιο)	4 <sup>ο</sup> (β)	25	27	0.42

## 2ΠΙ.25Ι (Συνεχίζεται)

Περιγραφή ύλης	Αριθμός Είδους	Κατωτάτη Δοκιμής μετά	Πίεσις δια Κελύφη - άνευ θερμικής μονώσεως	Ανώτατον
				Βάρος Περιε- χομένου ανά λίτρον χωρη- τικότητας
				KG/CM <sup>2</sup>
				KG/CM <sup>2</sup>
				KG

## ( Σ υ ν έ χ ε ι α )

Μίγματα υδρογονανθράκων περιεχόντων μεθάνιον	4 <sup>ο</sup> (β)	-	225	0.187
		-	300	0.244
Μίγματα μεθυλοχλωριδίου και μεθυλενοχλωριδίου	4 <sup>ο</sup> (β T)	I3	I5	0.8I
Μίγματα μεθυλοχλωριδίου και χλωροπικρίνης	4 <sup>ο</sup> (β T)	I3	I5	0.8I
Μίγματα μεθυλοβρωμιδίου και αιθυλενοβρωμιδίου	4 <sup>ο</sup> (β T)	IO	IO	I.5I
Μεθυλακετυλένιο/προπαδιένιο και μίγματα υδρογονανθράκων				
Μίγμα P <sub>I</sub>	4 <sup>ο</sup> (γ)	25	28	0.49
Μίγμα P <sub>2</sub>	4 <sup>ο</sup> (γ)	22	23	0.47
Αιθυλενοξειδίο περιέχον όχι άνω του 10 <sup>ο</sup> /ο διοξειδίου του άνθρακος κατά βάρος	4 <sup>ο</sup> (γ T)	24	26	0.73
Αιθυλενοξειδίο με άζωτον ολικής πίεσεως μέχρι IO KG/CM <sup>2</sup> εις 50 <sup>ο</sup> C	4 <sup>ο</sup> (γ T)	I5	I5	0.78
Διχλωροδιφθορομεθάνιο περιέχον I2 τοις εκατόν αιθυλενοξειδίο κατά βάρος	4 <sup>ο</sup> (γ T)	I5	I6	I.09

(3) Δύο κελύφη προοριζόμενα δια την μεταφοράν αερίων των 2II.25I  
5<sup>ο</sup> και 6<sup>ο</sup>: (Συνεχίζε-  
ται)

(α) εάν τα κελύφη δεν έχουν επενδυθεί με θερμικήν μόνωσιν: τα επίπεδα τα οριζόμενα εις το περιθώριον 2220 (3) και (4)·

(β) εάν τα κελύφη έχουν επενδυθεί με θερμικήν μόνωσιν: τα κατωτέρω οριζόμενα επίπεδα:

Περιγραφή ύλης	Αριθμός Είδους	Κατωτάτη	Ανώτατον Βάρος
		Πίεσις Δοκι- μής KG/CM <sup>2</sup>	περιεχομένου ανά λίτρον χωρητικό- τητος KG
Βρωμοτριφθορομεθάνιο (R I3 B I) 5 <sup>ο</sup> (α)		I20	I.50
Διοξείδιο του άνθρακος	5 <sup>ο</sup> (α)	I90 225	0.73 0.78
Χλωροτριφθορομεθάνιο (R I3)	5 <sup>ο</sup> (α)	I20 225	0.96 I.I2
Εξαφθοροαιθάνιο (R II6)	5 <sup>ο</sup> (α)	I60 200	I.28 I.34
Υποξείδιο του αζώτου N <sub>2</sub> O	5 <sup>ο</sup> (α)	225	0.78
Εξαφθοριούχο θείο	5 <sup>ο</sup> (α)	I20	I.34
Τριφθορομεθάνιο (R 23)	5 <sup>ο</sup> (α)	I90 250	0.92 0.99
Ξένον	5 <sup>ο</sup> (α)	I20	I.30
Υδροχλώριο	5 <sup>ο</sup> (α T)	I20	0.69
Αιθάνιο	5 <sup>ο</sup> (β)	I20	0.32
Αιθυλένιο	5 <sup>ο</sup> (β)	I20 225	0.25 0.36



## 211.251 (Συνεχίζεται)

Περιγραφή ύλης	Αριθμός Είδους	Κατωτάτη Πίεσις Δοκι- μής KG/CM <sup>2</sup>	Ανώτατον Βάρος περιεχομένου ανά λίτρον χωρητικό- τητας KG
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( Σ υ ν ε χ ε ι α )

I, I-Διφθοροαιθυλένιο	5 <sup>ο</sup> (γ)	I20	0.66
		225	0.78
Βινυλοφθορίδιο	5 <sup>ο</sup> (γ)	I20	0.58
		225	0.65
Μίγματα αερίων R 503	6 <sup>ο</sup> (α)	31	0.11
		42	0.21
		100	0.76
Διοξειδίο του άνθρακος περιέχον όχι άνω του 35 τοις εκατόν αι- θυλενοξειδίου κατά βάρος	6 <sup>ο</sup> (γ)	I90	0.73
		225	0.78
Αιθυλενοξειδίο περιέχον άνω του 10 <del>τοις</del> εκατόν αλλά όχι άνω του 50 <del>τοις</del> εκατόν διοξειδίου του άνθρακος κατά βάρος *	6 <sup>ο</sup> (γ T)	I90	0.66
		250	0.75

Όσakis χρησιμοποιούνται κελύφη επενδεδυμένα με θερμική μόνωση, υποβληθέντα εις πίεσιν δοκιμής κατωτέραν της ει-  
κονιζομένης εις τον πίνακα, το ανώτατον βάρος περιεχομένου ανά  
λίτρον χωρητικότητος θα είναι τέτοιο ώστε η εις το κέλυφος πίε-  
σις υπό της περι ής πρόκειται ύλης εις τους 55<sup>ο</sup>C να μην υπερ-  
βάλνει την πίεσιν δοκιμής την σφραγισθείσαν επί του κελύφους.

Εν τοιαύτη περιπτώσει το επιτρεπόμενον ανώτατον φορτίον 2ΠΙ.25Ι θα προβλέπεται υπό του εμπειρογνώμονος του εγκριθέντος υπό της αρμοδίας αρχής. (Συνεχίζεται)

(4) Για κελύφη προοριζόμενα για την μεταφοράν αμμωνίας διαλυθείσης υπό πρeσιν ( $9^{\circ}$  (α Τ)):

Περιγραφή ύλης	Αριθμός Κατωτάτη Είδους Πίεσις Δοκι- μής	Ανώτατον Βάρος περιεχομένου ανά λίτρον χωρητικότητας
	KG/CM <sup>2</sup>	KG

( Σ υ ν έ χ ε ι α )

Αμμωνία διαλυθείσα υπό πρeσιν εντός θάλασσας

με άνω του 35 <del>πλά</del> εκα- το <del>πλά</del> αλλά όχι άνω του 40 <del>πλά</del> εκατο <del>πλά</del> κατά βάρος	$9^{\circ}$ (α Τ)	10	0.80
με άνω του 40 <del>πλά</del> εκα- το <del>πλά</del> αλλά όχι άνω του 50 <del>πλά</del> εκατο <del>πλά</del> αμμωνίας κατά βάρος	$9^{\circ}$ (α Τ)	10	0.77

(5) Για κελύφη προοριζόμενα για την μεταφοράν αερίων των  $7^{\circ}$  και  $8^{\circ}$ : όχι ολιγώτερον των 1.3 φορών την ανωτάτην επιτρεπομένην πρeσιν λειτουργίας, ως αυτή ορίζεται εις το κέλυφος, αλλά όχι ολιγώτερον των 4 KG/CM<sup>2</sup> (πρeσις θλιβομέτρου) για κελύφη με μόνωση κενού η πρeσις δοκιμής δεν θα είναι μικρότερα των 1.3 φορών της ανωτάτης επιτρεπομένης πρeσεως αυξηθείσης κατά 1 KG/CM<sup>2</sup>.

Η πρώτη δοκιμή υδραυλικής πίεσεως θα εκτελεσθεί 2II.252  
πρo του τεθεί εις θέσιν η θερμική μόνωσις.

Η χωρητικότης εκάστου κελύφους που προορίζεται 2II.253  
για τη μεταφορά αερίων των 3<sup>ο</sup> έως 6<sup>ο</sup> και 9<sup>ο</sup> θα καθορίζεται,  
υπό την επίβλεψιν εμπειρογνώμονος της εγκρίσεως της αρμοδίας  
αρχής, δια ζυγίσεως ή ογκομετρικής μετρήσεως της ποσότητος  
του ύδατος η οποία γεμίζει το κέλυφος· οποιοδήποτε σφάλμα  
κατά την μέτρηση της χωρητικότητος του κελύφους θα είναι  
μικρότερο ν του ενός ~~έως~~ εκατό. Καθορισμός (της χωρητικότη-  
τητος) βασιζόμενος εις τας διαστάσεις του κελύφους δεν επι-  
τρέπεται. Τα ανώτατα βάρη πληρώσεως τα επιτρεπόμενα συμφώνως  
προς τα περιθώρια 2220 (4) και 2II.25I (3) θα καθορίζονται  
υπό εγκεκριμένου εμπειρογνώμονος.

Ο έλεγχος των συγκολλήσεων θα διεξάγεται συμφώνως 2II.254  
προς τας περί συντελεστού-λάμπα Ι.Ο διατάξεις του περιθωρί-  
ου 2II.127 (7).

Δι' ανακλήσεως (τροποποιήσεως) των διατάξεων του 2II.255  
περιθωρίου 2II.15I, οι περιοδικές δοκιμές θα λαμβάνουν χώ-  
ραν:-

(I) κάθε τρία έτη

προκειμένου περί κελυφών προοριζομένων για την μεταφοράν  
τριφθοριούχου βορίου (1<sup>ο</sup> (α Τ)), αερίου πύλεως (2<sup>ο</sup> (β Τ)),  
υδροβρωμίου, χλωρίου, διοξειδίου του αζώτου, διοξειδίου  
του θείου ή φωσγενίου (3<sup>ο</sup> (α Τ)), υδροθειου (3<sup>ο</sup> (β Τ)), ή  
υδροχλωρίου (5<sup>ο</sup> (α Τ)).

(2) κάθε έξη έτη

προκειμένου περί κελυφών προοριζομένων για την μεταφοράν

Άλλων περιεπιρριμένων και υγροποιημένων αερίων ή αμμωνίας 2II.255  
 διαλελυμένης υπό πρέσιν (9° (α Τ))· και (Συνεχίζεται)

(3) μετά από υπηρεσίαν έξι ετών και έτη συνέχεια  
 κάθε δώδεκα χρόνια

προκειμένου περί κελυφών προοριζομένων για την μεταφοράν  
 αερίων των 7° ή 8°. Ο έλεγχος στεγανότητας θα εκτελεσται  
 υπό εγκριθέντος εμπειρογνώμονος έξι χρόνια μετά από κάθε μία  
 περιοδική δοκιμή.

Οι δοκιμές στεγανότητας κελυφών προοριζομένων για την μετα-  
 φοράν αερίων των 1° έως 6° και 9° θα εκτελούνται σε πρέ-  
 σση όχι μικρότεραν των 4 KG/CM<sup>2</sup> (πρέσιν θλιβομέτρου).

Προκειμένου περί κελυφών θερμο-μονωθέντων δια 2II.256  
 κενού, η δοκιμή υδραυλικής πιέσεως και ο έλεγχος της εσω-  
 τερικής καταστάσεως μπορούν, με την συναίνεσιν του εγκρι-  
 θέντος εμπειρογνώμονος, να αντικατασταθούν δια δοκιμής στε-  
 γανότητας και μετρήσεως του κενού.

Εάν οπές έχουν γίνει, κατά τας περιοδικάς επι- 2II.257  
 θεωρήσεις, εις κελύφη προοριζόμενα για την μεταφοράν αερί-  
 ων των 7° ή 8°, η μέθοδος δια της οποίας θα κλεισθούν ερ-  
 μη-τικώς προτού τα κελύφη τεθούν εις νέου σε υπηρεσία θα  
 εγκρίνεται υπό του εγκριθέντος εμπειρογνώμονος και θα δια-  
 σφαλίζει την ακεραιότητα του κελύφους.

2II.258-

2II.259

#### Άρθρο 6

#### Μαρκάρια (Σήμανσις)

Τα κατωτέρω πρόσθετα στοιχεία θα μαρκάρωνται 2II.260

διασφραγίσεως ή δι' οιασδήποτε άλλης μεθόδου επί της πλα- 2II.260  
κός της προβλεπομένης υπό του περιθωρίου 2II.160, ή απ' (Συνεχίζε-  
ευθείας επί των τοιχωμάτων αυτού τούτου τού κελύφους εάν ται)  
τα τοιχώματα είναι έτσι ενισχυμένα ώστε να μην εξασθενεί-  
ται η αντοχή του κελύφους:

(1) επί κελυφών προοριζομένων δια την μεταφοράν μίας  
μόνον ύλης: η πλήρης ονομασία του αερίου.

Η ένδειξη αυτή θα συμπληρώνεται στη περίπτωση κελυφών  
προοριζομένων για τη μεταφορά πεπιεσμένων αερίων των 1<sup>ο</sup>  
και 2<sup>ο</sup> με ένδειξη της ανωτάτης πίεσεως πληρώσεως εις  
15<sup>ο</sup>C της επιτρεπομένης για το κέλυφος, και στη περιπτώ-  
ση κελυφών προοριζομένων για την μεταφοράν υγροποιημέ-  
νων αερίων των 3<sup>ο</sup> έως 8<sup>ο</sup> ή αμμωνίας διαλυθείσης υπό  
πίεσιν της 9<sup>ο</sup> (α II) με την ένδειξη του επιτρεπομένου  
ανωτάτου φορτίου εις KG και της θερμοκρασίας πληρώσεως  
εάν κάτω των -20<sup>ο</sup>C.

(2) επί κελυφών πολλαπλών σκοπών:

Οι πλήρεις ονομασίες των αερίων για την μεταφοράν  
των οποίων εγκρίνεται το κέλυφος.

Τα στοιχεία αυτά θα συμπληρώνωνται με την ένδειξη του  
επιτρεπομένου ανωτάτου φορτίου εις KG για κάθε ένα αέριον.

(3) επί κελυφών προοριζομένων για την μεταφοράν αερίων  
των 7<sup>ο</sup> ή 8<sup>ο</sup>: η πίεσις λειτουργίας και

(4) επί κελυφών εφοδιασμένων με θερμικήν μόνωσιν:

η επιγραφή "θερμικώς μονωμένα" ή "θερμικώς μονωμένα  
δια κενού".

Το πλαίσιον κελύφους ~~από~~ πολλαπλών στοιχείων θα φέρει πλησίον του σημείου πληρώσεως πλάνα οριζουσα:

την πρῆσιν δοκιμῆς των στοιχείων·

την ανωτάτην πρῆσιν πληρώσεως εἰς  $15^{\circ}\text{C}$  την επιτρεπομένην δια στοιχεία προοριζόμενα δια πεπιεσμένα αέρια· τον αριθμὸν των στοιχείων·

την ολικὴν χωρητικότητα (ικανότητα) των στοιχείων εἰς λίτρος·

την πλήρη ονομασίαν του αερίου·

και, στη περίπτωση υγροποιημένων αερίων:

το επιτρεπόμενον ανώτατον φορτίον ανά στοιχείον, εἰς KG.

Επιπροσθέτως των στοιχείων των προβλεπομένων υπό του περιθωρίου 2II.161, τα κάτωθι θα αναγράφωνται εἴτε εἰς αὐτό τούτο το βυτιοφόρον εἴτε σε πλάνα: 2II.262

(α) εἴτε: "επιτρεπομένη κατωτάτη θερμοκρασία πληρώσεως:  $-20^{\circ}\text{C}$ "

ἢ : "επιτρεπομένη κατωτάτη θερμοκρασία πληρώσεως: ....."·

(β) ὅταν το κέλυφος προορίζεται ἄναι τὴν μεταφορὰν μίας μόνον ὕλης:

ἡ πλήρης ονομασία του αερίου·

για υγροποιημένα αέρια των  $3^{\circ}$  ἕως  $8^{\circ}$  και για αμμωνίαν διαλυθεῖσαν υπό πρῆσιν εντός ὕδατος ( $9^{\circ}$  (α T)), το επιτρεπόμενον ανώτατον φορτίον εἰς KG·

(γ) ὅταν το κέλυφος εἶναι κέλυφος πολλαπλῶν σκοπῶν:

ἡ πλήρης ονομασία ὄλων των αερίων ἄναι τὴν μετα-

φοράν των οποίων προορίζεται το κέλυφος, μαζί με την ένδειξη του επιτρεπομένου ανωτάτου φορτίου εις KG, *για μιά ή περισσότερα αέρια*. 2II.262  
(Συνεχίζεται)

(δ) όταν το κέλυφος είναι ρηφωδιασμένο με θερμικήν μόνωσιν:

η επιγραφή "θερμικώς μονωμένον" ή "θερμικώς μονωμένον δια κενού", *εξ ε επίσημοι γλώσσα* της αποστολεύσης χώρας ως και εις την Αγγλικήν, Γαλλικήν ή Γερμανικήν, εκτός εάν, τυχόν, διεθνή δασμολόγια οδικής μεταφοράς, ή συμβάσεις συναφθείσαι μεταξύ των χωρών των ενδιαφερομένων δια την επιχείρησιν μεταφοράς, ορίζουν άλλως.

Οι πινακίδες που βρίσκονται πάνω στα οχήματα τα οποία μεταφέρουν δεξαμενές που μπορούν να αποσυναρμολογηθούν, όπως αναφέρονται στο περιθώριο 211 235 (5), δεν θα φέρουν τα στοιχεία τα οριζόμενα στα περιθώρια 211.161 και 211.262.

211 263

2II.264-

2II.269

### Άρθρο 7

#### Λειτουργία

Κέλυφος ορισθέν εις διαφόρους χρόνους, *για* την μεταφοράν διαφόρων υγροποιημένων αερίων των 3<sup>ο</sup> έως 8<sup>ο</sup> (κέλυφος πολλαπλών σκοπών) δεν μπορεί να μεταφέρει ύλες πλην εκείνων των αναφερομένων εις μίαν, και μόνον μίαν, των κάτωθι ομάδων:

Ομάς I:— αλογονοποιημένοι υδρογονάνθρακες των 3<sup>ο</sup> (α) και 4<sup>ο</sup> (α).

- Ομάς 2: υδρογονάνθρακες των 3<sup>ο</sup> (β) και 4<sup>ο</sup> (β). 2II.270
- Ομάς 3: αμμωνία (3<sup>ο</sup> (α T))· διμεθυλαιθέρας, δθμεθυ- (Συνεχί-  
λαμίνη, αιθυλαμίνη, μεθυλαμίνη και τριμεθυ- ζεται)  
λαμίνη (3<sup>ο</sup> (β T))· και βινυλοχλωρίδιο  
(3<sup>ο</sup> (γ))·
- Ομάς 4: μεθυλοβρωμίδιο (3<sup>ο</sup> (α T))· αιθυλοχλωρίδιο  
και μεθυλοχλωρίδιο (3<sup>ο</sup> (β T))·
- Ομάς 5: μίγματα αιθυλενοξειδίου με διοξειδίου του άν-  
θρακος και αιθυλενοξειδίου με άζωτον (4<sup>ο</sup> (γ T))·
- Ομάς 6: άζωτον, διοξειδίου του άνθρακος, σπάνια αέρια,  
υποξείδιο του αζώτου N<sub>2</sub>O, και οξυγόνο (7<sup>ο</sup> (α))·  
αήρ, μίγματα αζώτου με σπάνια αέρια, και μίγ-  
ματα οξυγόνου με άζωτον, επίσης όταν περιέχουν  
απάνια αέρια (8<sup>ο</sup> (α))·
- Ομάς 7: αιθάνιον, αιθυλένιον, και μεθάνιον (7<sup>ο</sup> (β))·  
και μίγματα μεθανίου με αιθάνιον, επίσης όταν  
περιέχουν προπάνιον ή βουάνιον (8<sup>ο</sup> (β))·

Κελύφη τα οποία έχουν πληρωθεί με ύλην της ομάδος 2II.27I

I ή της ομάδος 2 θα εκκενούνται του υγροποιημένου αερίου  
προτού φορτωθούν με άλλην ύλην ανήκουσαν εις την αυτην ο-  
μάδα. Κελύφη τα οποία έχουν πληρωθεί με ύλην των ομάδων  
3 έως 7 θα εκκενούνται πλήρως του υγροποιημένου αερίου  
και θα φουσουνται ~~εξ~~ συνέχεία προτού φορτωθούν με άλλην ύ-  
λην ανήκουσαν εις την αυτην ομάδα.

Η πολλαπλή χρήσις των κελυφων ~~για~~ την μεταφοράν 2II.272  
υγροποιημένων αερίων της αυτης ομάδος θα επιτρέπεται εάν  
τηρηθούν όλα ~~οι~~ διατάξεις ~~οι~~ προβλεπόμενες ~~για~~ αέρια τα



οποια πρόκειται να μεταφερθούν σε ένα και το αυτό κελύ- 2II.272  
φος. Η τοιαύτη πολλαπλή χρήση θα υπόκειται εις την έγ- (Συνεχίζε-  
κρισιν εγκριθέντος εμπειρογνώμονος. ται)

Η πολλαπλή χρήση κελύφων για την μεταφοράν 2II.273  
αερίων διαφόρων ομάδων θα εγκρίνεται εάν επιτραπεί υπό  
του εγκριθέντος εμπειρογνώμονος.

Όταν κελύφη προορίζονται εις νέου δι' αέρια δια-  
φόρου ομάδος θα εκκενούνται πλήρως των υγροποιημένων αε-  
ρίων, ~~εξ~~ συνέχεια θα φυσούνται και, τέλος, θα απαραιούν-  
ται. Η απαέρωσις κελυφών θα επαληθεύεται και πιστοποιεί-  
ται υπό του εγκριθέντος εμπειρογνώμονος.

Όταν φορτωμένοι δεξαμενάς ή άδειαι αλλά αναθά- 2II.274  
ριστοι δεξαμενάς παραδίδονται δια μεταφοράν, μόνον τα  
στοιχεία τα οριζόμενα εις περιθώριον 2II.262 τα ισχύον-  
τα δια το φορτωθέν ή μόλις εκφορτωθέν αέριον θα είναι ο-  
ρατά. Όλα τα στοιχεία τα αφορώντα λοιπά αέρια θα καλύπτων-  
ται.

Όλα τα στοιχεία κελύφους πολλαπλών στοιχείων 2II.275  
θα περιέχουν μόνον ένα και το αυτό αέριο. Στη περίπτωση  
κελύφους πολλαπλών στοιχείων προοριζομένου δια την μετα-  
φοράν υγροποιημένων αερίων, τα στοιχεία θα πληροούνται χω-  
ριστά και θα τηρούνται μονωμένα δια στεγανοποιημένης βαλ-  
βίδος.

Η ανωτάτη πρέσις πληρώσεως για πεπιεσμένα αέ- 2II.276  
ρια των 1<sup>ο</sup> και 2<sup>ο</sup> πλην φθοριούχου βορίου δεν θα υπερβαίνει  
τες τιμές τις προβλεπόμενες υπό του περιθωρίου 22I9(2).

Δια φθοριούχον βόριον (I<sup>ο</sup> (α T)) το ανώτατον βά-

Ρος πληρώσεως ανά λίτρον χωρητικότητας δεν θα υπερβαί- 2II.276  
 νει τα 0.86 KG. (Συνεχίζεται)

Το ανώτατον βάρος πληρώσεως ανά λίτρον χωρητι-  
 κότητας συμφώνως προς τα περιθώρια 2220, (2), (3) και (4),  
 και 2II.25I, (2), (3) και (4), θα τηρείται.

Ο βαθμός πληρώσεως κελυφων προοριζομένων για 2II.277  
 την μεταφοράν αερίων των 7<sup>ο</sup>(β) και 8<sup>ο</sup>(β) θα παραμένει  
 κάτωθι του επιπέδου εις το οποίον, εάν το περιεχόμενον  
 υφούτο εις την θερμοκρασίαν εις την οποίαν η πίεσις του  
 ατμού ισούτο προς την πίεσιν ανοίγματος-βαλβίδος, ο όγκος  
 του υγρού θα έφθανε το 95 ~~εκατό~~ εκατό της χωρητικότητας  
 (ικανότητας) του κελύφους εις την θερμοκρασίαν αυτήν.  
 Κελύφη προοριζόμενα για την μεταφοράν αερίων των 7<sup>ο</sup>(α) και  
 8<sup>ο</sup>(α) μπορούν να πληρούνται μέχρι 98 ~~εκατό~~ εκατό εις την  
 θερμοκρασίαν φορτώσεως και την πίεσιν φορτώσεως.

Επί κελυφων προοριζομένων δια την μεταφοράν υπο- 2II.278  
 ξειδίου του αζώτου και οξυγόνου (7<sup>ο</sup>(α)), αέρος, ή μιγμά-  
 των περιεχόντων οξυγόνον (8<sup>ο</sup>(α)), υλών περιεχόντων λίπος  
 ή έλαιον δεν θα χρησιμοποιούνται προς εξασφάλισιν της στε-  
 γανότητας των ενώσεων ή δια την συντήρησιν των κλεισιμάτων.

Η διάταξις του περιθωρίου 2II.175 δεν θα ισχύει 2II.279  
 δια τα αέρια των 7<sup>ο</sup> και 8<sup>ο</sup>.

Κλάσις 3Ευφλεκτα ΥγράΆρθρο 1Γενικά αντικείμενον ορισμοί

2II.300-

2II.319

Άρθρο 2Κατασκευή

Κελύφη προοριζόμενα για την μεταφορά <sup>1</sup>εξοξειδωμένου διθειάνθρακος (I<sup>ο</sup> (α)) θα σχεδιάζονται δια πρέσιν 10 KG/CM<sup>2</sup> (πρέσιν θλιβομέτρου).

2II.320

2II.321-

2II.329

Άρθρο 3Είδη Εξοπλισμού

Κελύφη τα οποία είναι εφοδιασμένα με μηχανισμό εξερισμού μη δυνάμενον να κλεισθεί και τα οποία προορίζονται δια την μεταφοράν ευφλέκτων υγρών εχόντων σημείον αναφλέξεως μη υπερβαίνον τους 55<sup>ο</sup>C θα έχουν φλογοπαγίδα εις τον μηχανισμόν εξερισμού.

2II.330

Όλα τα ανοίγματα των κελυφών των προοριζομένων δια την μεταφοράν αλδεΐδης του αλκοολικού πνεύματος (ακρολείνης), χλωροπρενίου (χλωροβουταδιενίου) και διθειάνθρακος (I<sup>ο</sup> (α)) θα είναι άνω της <sup>στάθμης της</sup> επιφανείας του υγρού. Ουδέμια σωλήνωσις ή συνδέσεις σωλήνων θα διέρχωνται δια των τοιχωμάτων του κελύφους κάτω της στάθμης επιφανείας του υγρού. Τα ανοίγματα, πλην των εφοδιασμένων με βαλβίδες, θα είναι ικανά να κλείουν με στεγανά κλεισίματα, και τα

2II.331

ταλβυτάλα θα είναι ικανά να προστατεύονται με σφραγι- 2ΠΙ.331  
 στικόν (ασφαλιστικόν) πώμα. Εάν τα κελύφη είναι εφω- (Συνεχίζε-  
 διασμένα με βαλβίδες ασφαλείας, θα προηγείται αυτών ται)  
 εϋθραυστος δίσκος. Σε τέτοια περίπτωση η διάταξις του  
 εϋθραυστου δίσκου και της βαλβίδος ασφαλείας θα επιβάλ-  
 λεται (χρειάζεται) να ικανοποιεί την αρμοδίαν αρχήν.

2ΠΙ.332-

2ΠΙ.339

Άρθρο 4Έγκρισις Τύπου

(Ουδεμία ειδική διάταξις)

2ΠΙ.340-

2ΠΙ.349

Άρθρο 5Δοκιμασί/Έλεγχοι

Η κατωτάτη πίεσις δοκιμής εις την οποίαν κελύ- 2ΠΙ.350  
 φη προοριζόμενα δια την μεταφοράν διθειούχου άνθρακος  
 (I<sup>ο</sup> (α)) θα υποβάλλονται θα είναι 4 KG/CM<sup>2</sup> (πίεσις θλι-  
 βομέτρου). Η κατωτάτη πίεσις δοκιμής εις την οποίαν κε-  
 λύφη προοριζόμενα δια την μεταφοράν άλλων υλών της κλά-  
 σεως θα υποβάλλονται θα είναι ίση με εκείνην, όπως ορίζε-  
 ται υπό του περιθωριου 2ΠΙ.123, που χρησιμοποιείται δια  
 τον σχεδιασμόν των.

2ΠΙ.351-

2ΠΙ.359

Άρθρο 6Μαρτύρισμα/Σήμανσις)

(Ουδεμία ειδική διάταξις)

2ΠΙ.360-

2ΠΙ.369

Άρθρο 7Λειτουργία

Οι ~~αφαινού~~ βαθμοί πληρώσεως δεν θα υπερβαίνονται 2II.370  
 ότα κελύφη γεμισμένα με υγρά έχοντα πίεσιν ατμού άνω των  
 $1.75 \text{ KG/CM}^2$  (απόλυτον) εις  $50^{\circ}\text{C}$  είναι ερμητικώς κλεισμένα  
 κελύφη:

στη περίπτωση μυρμηκικού μεθυλεστέρος ( $1^{\circ}$  (α)) και άλλων  
 υγρών έχόντων συντελεστήν κυβικής διαστολής άνω των  
 $150 \times 10^{-5}$  αλλά όχι άνω των  $180 \times 10^{-5}$ : .....  
 91 ~~εία~~ εκατό της χωρητικότητας·

στη περίπτωση αλδεΰδης του αλκοολικού πνεύματος ( $5^{\circ}$ ) και  
 άλλων υγρών έχόντων συντελεστήν κυβικής διαστολής άνω των  
 $180 \times 10^{-5}$  αλλά όχι άνω των  $230 \times 10^{-5}$ : .....  
 90 ~~εία~~ εκατό της χωρητικότητας·

Κέλυφος κράματος αλουμινίου δεν θα χρησιμοποιεί- 2II.371  
 ται ~~για~~ την μεταφοράν αλδεΰδης του αλκοολικού πνεύματος  
 ( $5^{\circ}$ ) ειτός εάν το κέλυφος προορίζεται αποκλειστικώς ~~για~~  
~~τέτλια~~ μεταφορά και η αλδεΰδη του αλκοολικού πνεύ-  
 ματος είναι ελευθέρα οξέως.

Κατά την ψυχράν σαιζόν (Οκτώβριος - Μάρτιος), 2II.372  
 ελαφρά αποστάγματα δια ρωγμάς και λοιπο~~ς~~ υγρο~~ς~~ υδρογονάν-  
 θρακες έχοντες πίεσιν ατμού μη υπερβα~~λ~~νουσ~~α~~ε το  $1.5 \text{ KG/CM}^2$   
 (απόλυτον) εις  $50^{\circ}\text{C}$  μπορούν να μεταφέρονται σε κελύφη του  
 τύπου του προβλεπομένου υπό του περιθωρίου 2II.133.

2II.373-

2II.399

Κλάσις 4.1Εύφλεκτα ΣτερεάΚλάσις 4.2Υλεις υποκειμενες σε στιγμιαία καύσινΚλάσις 4.3Υλεις αναδύουσες εύφλεκτα αέρια σε επαφήμε το νερόΆρθρο 1Γενικά αντικειμενον ορισμοί

2II.400-

2II.419

Άρθρο 2Κατασκευή

Κελύφη προοριζόμενα για τη μεταφορά λευκού ή κιτρίνου φωσφόρου του περιθωρίου 243I, I<sup>ο</sup>, ή τριχλωροσιλανίου (σιλικοχλωροφορμίου) του περιθωρίου 247I, 4<sup>ο</sup>, θα σχεδιάζονται για πρέση τουλάχιστον 10 KG/CM<sup>2</sup> (πρέση θλιβομέτρου).

2II.420

2II.421-

2II.429

Άρθρο 3Είδη εξοπλισμού

Κελύφη προοριζόμενα για τη μεταφορά θείου (2<sup>ο</sup> (β)) ή ναφθαλινίου (II<sup>ο</sup> (γ)) του περιθωρίου 240I θα εφοδιαζονται με θερμική μόνωσιν κατασκευασμένην εξ υλικών τα οποία δεν είναι ευχερώς εύφλεκτα. Μπορούν να είναι εφοδιασμένα με βαλβίδες ανοίγουσες αυτομάτως προς τα μέσα ή

2II.430

προς τα έξω υπό την επίδρασιν διαφοράς πίεσεως εκ 0.2 2II.430  
έως 0.3 KG/CM<sup>2</sup>. Οι μηχανισμοί εκκενώσεως θα είναι ικανοί (Συνεχίζε-  
ται)  
να προστατεύονται υπό ασφαλιστικού μεταλλικού πώμα-  
τος.

Κελύφη προοριζόμενα για τη μεταφορά λευκού ή 2II.43I  
κιτρίνου φωσφόρου του περιθωρίου 243I, I<sup>0</sup>, θα πληρούν τις  
παρακάτω διατάξεις:-

(1) Ο μηχανισμός θερμάνσεως δεν θα εισχωρεί εις,  
αλλά θα είναι εξωτερικά, του κορμού του κελύφους. Εμ τού-  
τοις, ο σωλήν ο χρησιμοποιούμενος για την εξαγωγή του φω-  
σφόρου μπορεί να είναι εφοδιασμένος με χιτώνιο θερμάνσεως.  
Ο μηχανισμός (συσκευή) που θερμαίνει το χιτώνιο θα είναι  
έτσι ρυθμισμένο ώστε να εμποδίζει την θερμοκρασία του φω-  
σφόρου να υπερβεί τη θερμοκρασία πληρώσεως του κελύφους.  
Άλλη σωλήνων θα εισέρχεται εις το κέλυφος εις το άνω μέ-  
ρος του\* τα ανοίγματα θα ευρισκονται υπεράνω της ανωτάτης  
επιτρεπτής στάθμης του φωσφόρου και θα είναι ικανά να κλει-  
σουν πλήρως με ασφαλιστικά πώματα. Επιπροσθέτως, οι οπές κα-  
θαρισμού (οπές είδους γροθιάς) οι αναφερόμενες εις το περι-  
θώριον 2II.132 δεν θα επιτρέπωνται.

(2) Το κέλυφος θα είναι εξοπλισμένο με σύστημα  
μετρήσεως (μετρητήν) για την επαλήθευσιν της στάθμης του φω-  
σφόρου και, εάν ύδωρ χρησιμοποιείται ως ο προστατευτικός ά-  
γων, με σταθερόν σημείον μετρήσεως εικονίζον την ανωτάτην  
επιτρεπτήν στάθμην του ύδατος.

Τα ανοίγματα και οι οπές (βαλβίδες, χιτώνια, 2II.432  
ανθρωποθυρίδες, κλπ.) κελυφών προοριζομένων για τη μεταφο-

ρα υλών του περιθωρίου 247I, I<sup>ο</sup> (α), θα προστατεύονται 2II.432  
 με στεγανά ασφαλιστικά πώματα, και τα τέτοια κελύφη θα  
 είναι εξοπλισμένα με θερμική μόνωση κατασκευασμένη από  
 υλικά τα οποία δεν είναι ευχερώς εύφλεκτα.

2II.433-

2II.439

Άρθρο 4Έγκρισις Τύπου

(Ουδεμία ειδική διάταξις)

2II.440-

2II.449

Άρθρο 5Δοκιμαί/Έλεγχοι

Κελύφη προοριζόμενα για τη μεταφορά θείου 2II.450  
 (2<sup>ο</sup> (β)) ή ναφθαλενίου (II<sup>ο</sup> (γ)) του περιθωρίου 240I ή  
 λευκού ή κιτρινού φωσφόρου του περιθωρίου 243I, I<sup>ο</sup>, και τα  
 προοριζόμενα για τη μεταφορά τριχλωροσιλανίου (σιλικιοχλω-  
 ροφορμίου) του περιθωρίου 247I, 4<sup>ο</sup>, θα ελέγχονται σε πρέ-  
 σση 4 KG/CM<sup>2</sup> (πίεσις θλιβομέτρου).

2II.451-

2II.459

Άρθρο 6Μαρίάρισμα (Σήμανσις)

(Ουδεμία ειδική διάταξις)

2II.460-

2II.469

Άρθρο 7Λειτουργία

Κελύφη προοριζόμενα για τη μεταφορά θείου (2<sup>ο</sup> 2II.470  
 (β)) ή ναφθαλιενίου (II<sup>ο</sup> (γ)) του περιθωρίου θα πληρούν-



ται μέχρις όχι άνω του 98 ~~εκατ~~ εκατ της χωρητικότητάς 2II.470  
των. (Συνεχί-  
ζεται)

Ο λευκός ή κίτρινος φωσφόρος του περιθωρίου 243I, I<sup>ο</sup>, εάν το ~~εξέ~~ χρησιμοποιηθεί ως προστατευτικός ά-  
γων, θα καλυφθεί με βάθος όχι μικρότερον των 12 CM ύδατος  
κατά τον χρόνο της πληρώσεως· ο βαθμός πληρώσεως σε θερ-  
μοκρασία 60<sup>ο</sup>C δεν θα υπερβαίνει το 98 ~~εκατ~~ εκατ. Εάν το  
άζωτον χρησιμοποιηθεί ως προστατευτικός άγων, ο βαθμός πλη-  
ρώσεως σε θερμοκρασία 60<sup>ο</sup>C δεν θα υπερβαίνει το 96 ~~εκατ~~ εκα-  
τ.

Ο απομένων χώρος θα πληρούται με άζωτον κατά τοι-  
ούτον τρόπον ώστε, ακόμη μετά ψύξιν, η πρέσις ουδέποτε θα  
πέσει κάτω της ατμοσφαιρικής πίεσεως. Το κέλυφος θα κλείει  
ερμητικώς κατά τρόπον ώστε ουδεμία διαρροή αερίου να προκύπτει.

Για τη μεταφορά υλών του περιθωρίου 247I, I<sup>ο</sup> 2II.472  
(α), τα πάματα θα ασφαλιζονται συμφώνως προς το περιθώριο  
2II.432.

Στη περίπτωση του τριχλωροσιλανίου (σιλικοχλω- 2II.473  
ροφορμίου) του περιθωρίου 247I, 4<sup>ο</sup>, ο βαθμός πληρώσεως δεν  
θα υπερβαίνει τα 1.14 KG ανά λίτρον χωρητικότητος εάν η πλή-  
ρωσις είναι κατά βάρος ή το 85 τοις εκατόν εάν η πλήρωσις  
είναι κατ' όγκον.

Κελύφη τα οποία περιέχον φωσφόρον του περιθω- 2II.474  
ρίου 243I, I<sup>ο</sup>, όταν παραδίδονται για μεταφορά, θα:

- πληρούνται είτε με άζωτον· ο αποστολεύς θα πιστοποιεί  
εις το έγγραφον μεταφοράς ότι το κέλυφος, μετά το κλει-  
σιμον είναι αεριοστεγανόν· είτε

με νερό όχι κάτω του 96 ~~δ~~ εκατό και όχι άνω του 2II.474  
 98 στα εκατό της χωρητικότητας των μεταξύ Ιης Οκτω (Συνεχίζε-  
 βρού και 3Ιης Μαρτίου το ~~νερό~~ τούτο θα περιέχει έναν ται)  
 ή πλεονας αντι-ψυκτικός άγοντας απηλλαγμένους δια-  
 βρωπικής ενεργείας, μη δυναμένους να αντιδράσουν με φω-  
 σφόρον, και τέτοιας συμπυκνώσεως ώστε να είναι αδύνατον  
 το ~~νερό~~ να ψυχθεί διαρκούσης της μεταφοράς.

2II.475-

2II.499

Κλάσις 5.1Υλες ΟξειδώσεωςΚλάσις 5.2Οργανικά ΥπεροξειδίαΆρθρο 1Γενικά αντικειμενον ορισμοί

2II.500-

2II.519

Άρθρο 2Κατασκευή

Κελύφη προοριζόμενα για τη μεταφορά ~~ε~~ υγρά κατα- 2II.520  
 στάση ύλες αναφερόμενες εις το περιθώριο 5I.12I(I) θα σχε-  
 διάζωνται ~~για~~ πλέση τουλάχιστον 4 KG/CM<sup>2</sup> (πλέσιν θλιβομέ-  
 τρού).

Κελύφη, και τα ελδη εξοπλισμού των, προοριζόμενα 2II.52I  
 για τη μεταφορά υπεροξειδίου του υδρογόνου ή υδατίνων δια-  
 λυμάτων υπεροξειδίου του υδρογόνου του περιθωρίου 250I, I<sup>o</sup>,  
 ή υγρών οργανικών υπεροξειδίων του περιθωρίου 255I, I<sup>o</sup>, IO<sup>o</sup>,

14°, 15° και 18° θα κατασκευάζονται από αλουμίνιο όχι λιγότερο του 99.5 ~~στα~~ εκατό καθαρού ή κατάλληλου χάλυβα μη δυνάμενου να προκαλέσει την αποσύνθεση του υπεροξειδίου του υδρογόνου ή των οργανικών υπεροξειδίων. 2II.521 (Συνεχίζεται.)

Κελύφη προοριζόμενα για τη μεταφορά συμπευκνωμένων και θερμών υδάτινων διαλυμάτων νιτρικού αμμωνίου του περιθωρίου 250I, 6° (α), θα κατασκευάζονται από ωστενιτικό χάλυβα. 2II.522

2II.523-  
2II.529

### Άρθρο 3

#### Είδη Εξοπλισμού

Κελύφη προοριζόμενα για τη μεταφορά υπεροξειδίου του υδρογόνου και υδάτινων διαλυμάτων υπεροξειδίου του υδρογόνου περιεχόντων άνω του 70 ~~στα~~ εκατό υπεροξειδίου του υδρογόνου, του περιθωρίου 250I, 1°, θα έχουν τα ανοίγματά τους πάνω από το επίπεδο της επιφανείας του υγρού. Επιπροσθέτως, οπές καθαρισμού (οπαλ-σχήματος γροθιάς) ως αναφέρονται εις περιθώριον 2II.132 δεν θα επιτρέπονται. Εις την περίπτωση διαλυμάτων περιεχόντων άνω του 60 ~~στα~~ εκατό αλλά όχι άνω του 70 ~~στα~~ εκατό υπεροξειδίου του υδρογόνου, ανοίγματα κάτω από το επίπεδο επιφανείας του υγρού θα επιτρέπονται. Εις την περίπτωση αυτή το σύστημα εκκενώσεως του κελύφους θα είναι εξοπλισμένο με δύο αμοιβαία ανεξάρτητους μηχανισμούς κλεισίματος συναρμολογημένους ~~σε~~ σειρά, του πρώτου λαμβάνοντος την μορφήν μιάς ταχείας-κλεισίματος εσωτερικής βαλβίδας διακοπής (ατμοφράκτου) εγκεκριμένου τύπου και του δευτέρου την μορ-

2II.530

φης βαλβίδος εκροής (υδατοφράκτου), ~~σε~~ <sup>σε</sup> εκάστη άκρο του σωλήνα-εκκενώσεως-με-στορέα (PIPE-SOCKET). Μία φλάτζα τυφλή, ή άλλος μηχανισμός παρέχων τον αυτόν βαθμόν ασφαλείας, θα τοποθετείται επίσης εις την έξοδον <sup>εξωτερικής</sup> εκάστης/βαλβίδος εκροής (υδατοφράκτου). Η εσωτερική βαλβίδα διακοπής (ατμοφράκτης) θα είναι τέτοια ώστε εάν ο σωλήνας περιδτραφεί η βαλβίδα διακοπής (ο ατμοφράκτης) θα παραμείνει συμπαγής με το κέλυφος και στη θέση κλειστή.

2II.530

(Συνεχίζεται)

Οι συνδέσεις με τους εξωτερικούς σωλήνες-με-στορέα των κελύφων θα γίνονται με υλικά μη δυνάμενα να προκαλέσουν αποσύνθεση του υπεροξειδίου του υδρογόνου.

2II.531

Κελύφη προοριζόμενα για τη μεταφορά υπεροξειδίου του υδρογόνου ή υδάτινων διαλυμάτων υπεροξειδίου του υδρογόνου της I<sup>0</sup>, ή συμπυκνωμένων και θερμών υδάτινων διαλυμάτων νιτρικού αμμωνίου της 6<sup>0</sup>(α), του περιθωρίου 250I θα είναι εφοδιασμένα εις τά άνω μέρος αυτών με μηχανισμόν κλεισίματος (SHUT-OFF DEVICE) εμποδίζοντα οιαδήποτε δημιουργίαν υπερβαλλούσης πίεσεως εις το εσωτερικόν του δοχείου, οιαδήποτε διαρροήν του υγρού, και οιαδήποτε είσοδον ξένης ύλης εις το δοχείο. Οι μηχανισμοί κλεισίματος (δικλείδες) κελύφων προοριζομένων για τη μεταφορά συμπυκνωμένων και θερμών υδάτινων διαλυμάτων νιτρικού αμμωνίου θα έχουν έτσι σχεδιασθεί ώστε να αποκλείεται ή έμφραξις των μηχανισμών (δικλείδων) από στερεοποιημένο νιτρικό αμμώνιο διαρκούσης της μεταφοράς.

2II.532

Οσάκις κελύφη προοριζόμενα για τη μεταφορά

2II.533

συμπιεστικωμένων και θερμών διαλυμάτων νιτρικού αμμωνίου 2II.533  
του περιθωρίου 250I, 6° (α), οπλίζονται (επενδύονται) (Συνεχίζε-  
ται)  
με θερμικάς-μονωτικές υλικόν, το υλικόν θα είναι ανοργά-  
νου φύσεως και εξ ολοκλήρου απηλλαγμένον από καύσιμον ύλην.

Κελύφη προοριζόμενα για τη μεταφορά οργανικών 2II.534  
υπεροξειδίων του περιθωρίου 255I, 1°, 10°, 14°, 15° και 18°,  
θα είναι εξοπλισμένα με μηχανισμό εξαερισμού εφοδιασμένον  
με φλογοπαγίδα και ακολουθούμενον εν σειρά υπό ανοίγματος  
βαλβίδος ασφαλείας (ασφαλιστικού επιστομίου) σε πίεση θλι-  
βομέτρου 1.8 έως 2.2 KG/CM<sup>2</sup>.

Κελύφη προοριζόμενα για τη μεταφορά υγρών ορ- 2II.535  
γανικών υπεροξειδίων του περιθωρίου 255I, 1°, 10°, 14°, 15°  
και 18°, θα είναι εξοπλισμένα με θερμικήν μόνωσιν συμφώνως  
προς τις διατάξεις του περιθωρίου 2II.234(I). Το κάλυμμα  
και οιονδήποτε ακάλυπτον τμήμα του κελύφους, ή η εξωτερική  
επένδυσις πλήρους περιβλήματος, θα βάφονται λευκά και το χρώμα  
θα καθαρίζεται πριν <sup>η</sup>κάθε ταξείδι μεταφοράς και ανανεού-  
ται σε περίπτωση κίτρινισμού ή φθοράς. Η θερμομόνωσις  
θα είναι απηλλαγμένη από καύσιμο (εύφλεκτον) ύλην.

2II.536-

2II.539

Άρθρο 4Έγκρισις Τύπου

(Ουδεμία ειδική διάταξις)

2II.540-

2II.549

Άρθρο 5Δοκιμασί (Έλεγχοι)

Κελύφη προοριζόμενα για τη μεταφορά υπεροξει- 2II.550

δίου του υδρογόνου ή υδατινών διαλυμάτων υπεροξειδίου του υδρογόνου της I<sup>ο</sup>, ή συμπυκνωμένων και θερμών διαλυμάτων νιτρικού αμμωνίου της 6<sup>ο</sup>(α), του περιθώριου 250I, ή υγρών οργανικών υπεροξειδίων του περιθώριου 255I, I<sup>ο</sup>, I0<sup>ο</sup>, I4<sup>ο</sup>, I5<sup>ο</sup> και I8<sup>ο</sup>, θα δοκιμάζονται (ελέγχονται) σε πίεση 4 KG/CM<sup>2</sup> (πίεση θλιβομέτρου).

2II.550

(Συνεχίζεται)

2II.55I-

2II.559

Άρθρο 6Μαρμάρισμα (Σήμανσις)

(Ουδεμία ειδική διάταξις)

2II.560-

2II.569

Άρθρο 7Λειτουργία

Το εσωτερικό του κελύφους, και όλα τα μέρη που είναι δυνατόν να έλθουν σε επαφή με ύλες αναφερόμενες στο περιθώριο 5I.I2I θα διατηρούνται καθαρά. Κανένα λιπαντικό ικανό να συνδυασθεί επικίνδυνα με μεταφερομένη ύλη θα χρησιμοποιείται για αντλίες, βαλβίδες ή άλλους μηχανισμούς.

2II.570

Κελύφη προοριζόμενα για τη μεταφορά υγρών του περιθώριου 250I, I<sup>ο</sup> έως 3<sup>ο</sup>, θα πληρούνται (γεμίζονται) όχι άνω του 95 ~~έως~~ εκατό της χωρητικότητάς των σε θερμοκρασία συσχετισμού (REFERENCE TEMPERATURE) 15<sup>ο</sup>C.

2II.57I

Κελύφη προοριζόμενα για τη μεταφορά θερμών υδατινών διαλυμάτων νιτρικού αμμωνίου του περιθώριου 250I, 6<sup>ο</sup> (α), θα πληρούνται (γεμίζονται) όχι άνω του 97 ~~έως~~ εκατό της

χωρητικότητα των, και η ανωτάτη θερμοκρασία μετά το γεμισμα δεν θα υπερβαίνει τους  $140^{\circ}\text{C}$ . 2II.571  
(Δυνεχίζεται)

Δεξαμενές (βυρλα) χρησιμοποιούμενες για τη μεταφορά υδάτινων διαλυμάτων νιτρικού αμμωνίου του περιθώριου 250I, 6<sup>ο</sup>(α), δεν θα χρησιμοποιούνται για τη μεταφορά άλλων υλών χωρίς να έχουν πρώτα προσεκτικά καθαρισθεί από οποιαδήποτε κατάλοιπα (υπολείμματα, κατακρήθια). 2II.572

2II.573-  
2II.599

Κλάσις 6.Ι

Τοξικές Ύλες

Άρθρο Ι

Γενικά αντικείμενο ορισμοί

2II.600-  
2II.619

Άρθρο 2

Κατασκευή

Κελύφη προοριζόμενα για τη μεταφορά διαλυμάτων υδροκυανίου της 1<sup>ο</sup>(β), ή υδάτινων διαλυμάτων αιθυλενιμίνης (ETHYLENEIMINE) και προπυλενιμίνης (PROPYLENEIMINE) της 3<sup>ο</sup>, ή ανθρακίλου νικελίου της 5<sup>ο</sup>(α) θα σχεδιάζονται για πίεση τουλάχιστο  $16 \text{ KG/CM}^2$  (πίεση θλιβομέτρου). 2II.620

Κελύφη προοριζόμενα για τη μεταφορά άλλων υλών αναφερομένων στο περιθώριο 6I.12I<sup>1</sup>(I), (α) και (β), θα σχεδιάζονται για πίεση τουλάχιστο  $10 \text{ KG/CM}^2$  (πίεση θλιβομέτρου). 2II.621

Κελύφη προοριζόμενα για τη μεταφορά υλών αναφε- 2II.622

ρομένων στο περιθώριο 6I.12I (I), (γ), θα σχεδιάζονται 2II.622  
για πίεση τουλάχιστο 4 KG/CM<sup>2</sup> (πίεση θλιβομέτρου). (Συνεχίζε-  
ται)

Κελύφη προοριζόμενα για τη μεταφορά υλών υπό 2II.623  
μορφήν κόνους (σκόνης) ή κόκκων θα σχεδιάζονται συμφώνως  
προς τις διατάξεις του γενικού άρθρου (τμήματος) της πα-  
ρούσης Προσθήκης.

2II.624-

2II.629

### Άρθρο 3

#### Είδη Εξοπλισμού

Όλα τα ανοίγματα κελυφών προοριζομένων για 2II.630  
τη μεταφορά υλών αναφερομένων στο περιθώριο 6I.12I (I)  
(α) και (β), θα είναι πάνω από το επίπεδο επιφανείας του  
υγρού. Καμμία σωλήνωσις ή ενώσεις (συνδέσεις) σωλήνων θα  
διέρχονται από τα τοιχώματα του κελύφους κάτω του επιπέ-  
δου επιφανείας του υγρού. Τα ανοίγματα θα μπορούν να κλεί-  
νουν ερμητικά, και το κλείσιμο θα είναι σε θέση να προστα-  
τεύεται από (με) πάμα που να μπορεί να κλειδώνει. Επιπρο-  
σθέτως, οποῖ καθαρισματος (οποῖ σχήματος γροθιάς) ως ανα-  
φέρονται στο περιθώριο 2II.132 δεν θα επιτρέπονται για κε-  
λύφη προοριζόμενα για τη μεταφορά υδάτινων διαλυμάτων υδρο-  
κυανίου (I<sup>ο</sup> (β)).

(I) Κελύφη προοριζόμενα για τη μεταφορά υλών 2II.630  
αναφερομένων στο περιθώριο 6I.12I (I), (γ) και (δ), μπο-  
ρούν να είναι τύπου εκκενώσεως εκ του πυθμένου (BOTTOM-  
DISCHARGE TYPE).

(2) Τα εξαρτήματα εκκενώσεως ~~απὸ τοῦ~~ πυθμένου



κελυφών προοριζομένων για τη μεταφορά των υλών των αναφε- 2II.631  
 ρομένων στο περιθώριο 6I.12I (I), (γ), θα είναι σύμφωνα (Συνεχί-  
 ζεται)  
 προς τις διατάξεις του περιθωρίου 2II.13I, και επιπροσθέ-  
 τως οι σωλήνες εκκένωσης των κελυφών θα μπορούν να κλειών-  
 ται με τυφλή φλάτζα, πώμα, ή κάποιον άλλον εξίσου αποτελεσμα-  
 τικόν μηχανισμόν.

(3) Όλα τα ανοίγματα των κελυφών των αναφερομέ-  
 νων στη παράγραφο (I) θα μπορούν να κλείνουν ερμητικά.

Εάν τα κελύφη είναι εφοδιασμένα με βαλβίδες ασφα- 2II.632  
 λειας (ασφαλιστικά επιστόμια), των τελευταίων θα προηγείται  
 εύθραυστος δίσκος. Η διάταξις του εύθραυστου δίσκου και  
 της βαλβίδος ασφαλείας (ασφαλιστικού επιστομίου) θα πρέπει  
 να ικανοποιεί την αρμόδια αρχή.

Δεξαμενές (βυτία) εφοδιασμένες με βαλβίδες ασφα-  
 λειας (ασφαλιστικά επιστόμια) και εύθραυστους δίσκους και  
 προοριζόμενες για μεταφορά δια θαλάσσης θα είναι σύμφωνα  
 προς τις διατάξεις που διέπουν τον εν λόγω τρόπον μεταφοράς.

#### Προστασία του εξοπλισμού

2II.633

(I) Εξαρτήματα και παρελκόμενα συναρμολογούμενα στο  
άνω μέρος του κελύφους

Τέτοια εξαρτήματα και παρελκόμενα θα έχουν είτε

τοποθετηθεί σε περίβλημα φέρον υποδοχήν

(RECESSED HOUSING), είτε

θα είναι εφοδιασμένα με εσωτερική βαλβίδα

ασφαλείας (ασφαλιστικόν επιστόμιον), είτε

θα προστατεύονται με κάλυμμα, ή με εγκαρσούς

ή και επιμήκεις δοκούς, ή με άλλους εξίσου

αποτελεσματικούς μηχανισμούς, εις τρόπον 2ΠΙ.633  
 ώστε στη περίπτωση αναποδογυρίσματος τα (Συνεχίζεται)  
 εξαρτήματα και παρελκόμενα να μη καταστρα-  
 φούν

(2) Εξαρτήματα και παρελκόμενα συναρμολογούμενα  
 στο κάτω μέρος του κελύφους

Σωλήνες με στορέα, πλευρικός μηχανισμός διακο-  
 πής, και όλοι οι μηχανισμοί εκκενώσεως θα είναι εντός υπο-  
 δοχής τουλάχιστον 200 MM από το εξωτερικό άκρο του κελύ-  
 φους ή θα προστατεύονται από κιγκλιόμα έχον συντελεστήν  
 αδρανείας όχι μικρότερον των 20 CM<sup>3</sup> εγκάρσιως προς την  
 κατεύθυνσιν του ταξειδίου· το εκ του εδάφους διάκενον  
 αυτών δεν θα είναι μικρότερο των 300 MM με το κέλυφος πλή-  
 ρες.

(3) Εξαρτήματα και παρελκόμενα συναρμολογούμενα  
 στη πίσω δψη του κελύφους

Όλα τα εξαρτήματα και παρελκόμενα τα συναρμολο-  
 γούμενα στη πίσω δψη θα προστατεύονται από τον προφυλακτή-  
 ρα προσκρούσεως τον περιγραφόμενον στο περιθώριο ΙΟ.2Ι6.  
 Το ύψος των πάνω από το έδαφος θα είναι τέτοιο ώστε να προ-  
 στατεύονται καταλλήλως και επαρκώς από τον προφυλακτήρα  
 προσκρούσεως.

2ΠΙ.634-  
 2ΠΙ.639

#### Άρθρο 4

#### Έγκριση Τύπου

Δεξαμενές (βυτία) εγκριθείσαι για τη μεταφορά 2ΠΙ.640

τροφιμικών υλών δεν θα εγκρίνονται για τη μεταφορά τροφίμων, 2II.640  
 ειδών καταναλώσεως ή ζωοτροφών. (Συνεχίζεται)  
 2II.64I-  
 2II.649

Άρθρο 5

Δοκιμασί (Έλεγχος)

Κελύφη προοριζόμενα για τη μεταφορά των υλών των 2II.650  
 αναφερομένων στο περιθώριο 6I.12I (I), (α) έως (γ), θα ε-  
 λέγχονται αρχικώς και περιοδικώς σε πίεση 4 KG/CM<sup>2</sup> (πίεση  
 θλιβομέτρου).

Οι περιοδικοί έλεγχοι θα διεξάγονται σε χρονικά δια-  
 στήματα όχι μεγαλύτερα των τριών ετών στη περίπτωση κελύ-  
 φων προοριζομένων για τη μεταφορά υλών της I4<sup>ο</sup>.

2II.65I-  
 2II.659

Άρθρο 6

Μαρμάρισμα (Σήμανσις)

(Ουδεμία ειδική διάταξις)

2II.660-  
 2II.669

Άρθρο 7

Λειτουργία

Ο βαθμός της πληρώσεως (γεμίσματος) των κελυφών 2II.670  
 των προοριζομένων για τη μεταφορά των υλών των αναφερομέ-  
 νων στο περιθώριο 6I.12I (I), (α) έως (δ), θα είναι σύμ-  
 φωνος προς το περιθώριο 2II.172 (I) (δ).

Κελύφη προοριζόμενα για τη μεταφορά υλών της 5<sup>ο</sup> (α) 2II.67I  
 και 5<sup>ο</sup> (β) θα πληροούνται (γεμίζονται) μόνον μέχρι I KG  
 υγρού ανά λίτρον χωρητικότητας.

Τα ανοίγματα των κελυφών θα είναι ερμητικά κλεισμένα διαρκούς της μεταφοράς. 2II.672

Δεξαμενές (βυτία) χρησιμοποιούμενες για τη μεταφορά τοξικών υλών δεν θα χρησιμοποιούνται για τη μεταφορά ζωοτροφών, ειδών καταναλώσεως και τροφίμων. 2II.673

2II.674-

2II.699

### Κλάσις 7

### Ραδιενεργές Ύλες

#### Άρθρο 1

#### Γενικά· αντικείμενο· ορισμοί

2II.700-

2II.719

#### Άρθρο 2

#### Κατασκευή

Κελύφη προοριζόμενα για τη μεταφορά των υλών των αναφερομένων στο περιθώριο 2703, Παράρτημα 5, παράγραφος II, θα σχεδιάζονται για πίεση τουλάχιστον  $4 \text{ KG/CM}^2$  (πίεση θλιβομέτρου). 2II.720

Όσakis οι ραδιενεργές ύλες είναι σε διάλυμα ή αιώρημα σε ύλες άλλων κλάσεων και οι πιέσεις υπολογισμού οι προβλεπόμενες για τα κελύφη των δεξαμενών (βυτίων) των προοριζομένων για τη μεταφορά των τελευταίων υλών είναι μεγαλύτερες, θα ισχύουν οι πιέσεις των τελευταίων. 2II.721

2II.722-

2II.729

Άρθρο 3Είδη Εξοπλισμού

Κελύφη προοριζόμενα για τη μεταφορά υγρών ραδιενεργών υλών<sup>8/</sup> θα έχουν τα ανοίγματά τους πάνω από το επίπεδο της επιφανείας του υγρού. Καμμία σωλήνωση ή σύνδεση σωλήνος θα διέρχεται από τα τοιχώματα του κελύφους κάτω από το επίπεδο επιφανείας του υγρού.

2II.73I-

2II.739

Άρθρο 4Έγκριση Τύπου

Δεξαμενές εγκριθείσες για τη μεταφορά ραδιενεργών υλών δεν θα εγκρίνονται για τη μεταφορά τροφίμων, ειδών καταναλώσεως, ζωοτροφών, καλλυντικών ή φαρμάκων, ή υλών χρησιμοποιούμενων δια την κατασκευή των προϊόντων αυτών.

2II.74I-

2II.749

Άρθρο 5Δοκιμές (Έλεγχοι)

Κελύφη προοριζόμενα για τη μεταφορά των υλών των αναφερομένων στο περιθώριο 2703, Παράρτημα 5, παράγραφος II, θα ελέγχονται αρχικώς και περιοδικώς σε πίεση  $4 \text{ KG/CM}^2$  (πίεση θλιβομέτρου).

2II.750

Με ανακλήση των διατάξεων του περιθωρίου 2II.15I, η περιοδική εσωτερική επιθεώρηση μπορεί να αντικατασταθεί με έλεγχο του πάχους του τοιχώματος με υπερηχητικά (κύματα), ενεργουμένου κάθε τρία έτη.

2II.75I

2II.752-

2II.759

Άρθρο 6Μαρμάρισμα (Σήμανση)

(Ουδεμία ειδική διάταξη)

2II.760-

2II.769

Άρθρο 7Λειτουργία

Ο βαθμός πληρώσεως (γεμίσματος) της θερμοκρασίας 2II.770 συσχετισμού (REFERENCE TEMPERATURE) της 15<sup>0</sup>C δεν θα υπερβαίνει το 93 ~~επί~~ εκατό της ολικής χωρητικότητας του κελύφους.

Δεξαμενές (βυτία) που χρησιμοποιήθηκαν για τη 2II.771 μεταφορά ραδιενεργών υλών δεν θα χρησιμοποιούνται για τη μεταφορά τροφίμων, ειδών καταναλώσεως, ζωοτροφών, καλλυντικών ή φαρμάκων, ή υλών χρησιμοποιουμένων για τη κατασκευή των προϊόντων αυτών.

2II.772-

2II.799

Κλάσις 8Διαβρωτικές ΎλεςΆρθρο 1Γενικά· αντικείμενο· ορισμοί

2II.800-

2II.819

Άρθρο 2Κατασκευή

Κελύφη προοριζόμενα για τη μεταφορά υδροφθορίου 2II.820  
(άνυδρου υδροφθορικού οξέος) ( $6^{\circ}$  (α)), υδατίνων διαλυ- (8.2.I)  
μάτων υδροφθορικού οξέος ( $6^{\circ}$  (β)), ή βρωμίου ( $14^{\circ}$ ) θα  
σχεδιάζονται για πίεση τουλάχιστο  $21 \text{ KG/CM}^2$  (πίεση θλι-  
βομέτρου). Κελύφη προοριζόμενα για τη μεταφορά βρωμίου  
θα είναι εφοδιασμένα με επένδυση από μολύβδο πάχους όχι  
μικρότερου των 5 MM, ή με ισοδύναμον επένδυση.

Κελύφη προοριζόμενα για τη μεταφορά υλών των 2II.82I  
 $1^{\circ}$  (α),  $2^{\circ}$  (α),  $6^{\circ}$  (γ),  $7^{\circ}$  έως  $9^{\circ}$ ,  $21^{\circ}$  (α) και  $23^{\circ}$  θα σχεδιά-  
ζονται για πίεση τουλάχιστο  $10 \text{ KG/CM}^2$  (πίεση θλιβομέτρου).

Οσάκις η χρήση αλουμινίου είναι απαραίτητη για κε-  
λύφη προοριζόμενα για τη μεταφορά υλών της  $2^{\circ}$  (α), τέτοια  
κελύφη θα κατασκευάζονται από αλουμίνιο όχι κάτω του 99.5  
εκατό καθαρό, οπότε, με ανάληψη της ανωτέρω παραγρά-  
φου, το πάχος του τοιχώματος δεν χρειάζεται να υπερβεί τα  
15 MM.

Κελύφη προοριζόμενα για τη μεταφορά μονοχλωροακετι-  
κού οξέος ( $21^{\circ}$  (α)) θα είναι εξοπλισμένα με σμάλτο ή ισο-  
δύναμον επένδυση εάν το υλικό του κελύφους προσβάλλεται

από το οξύ αυτό.

2ΠΙ.821

Κελύφη προοριζόμενα για τη μεταφορά υλών αναφερο- 2ΠΙ.822  
μένων εις το περιθώριο 8Ι.Ι2Ι πλην των απαριθμουμένων στα  
περιθώρια 2ΠΙ.820 και 2ΠΙ.82Ι θα σχεδιάζονται για πίεση όχι  
μικροτέρα των  $4 \text{ KG/CM}^2$  (πίεση θλιβομέτρου).

Κελύφη προοριζόμενα για τη μεταφορά υδάτινων δια- 2ΠΙ.823  
λυμάτων υπεροξειδίου του υδρογόνου ( $4\text{I}^{\circ}$ ) θα πληρούν τις  
διατάξεις του περιθωρίου 2ΠΙ.520.

2ΠΙ.824-

2ΠΙ.829

### Άρθρο 3

#### Είδη Εξοπλισμού

Όλα τα ανοίγματα κελυφών προοριζομένων για τη 2ΠΙ.830  
μεταφορά υλών της  $6^{\circ}$  και βρωμίου ( $14^{\circ}$ ) θα είναι πάνω από  
το επίπεδο της επιφάνειας του υγρού· καμμία σωλήνωσις ή  
συνδέσεις σωλήνων θα διέρχεται από τα τοιχώματα του κελύ-  
φους κάτω από το επίπεδο επιφάνειας του υγρού. Επιπροσθε-  
τως, οπές καθαρισμού (σχήματος γροθιάς) ως αναφέρονται στο  
περιθώριο 2ΠΙ.132 δεν θα επιτρέπονται. Τα ~~απαιτήματα~~ κλεισί-  
ματα θα πρέπει να είναι ικανά  
θα μπορούν/να προστατεύονται αποτελεσματικά με μεταλλι-  
κό κάλυμμα.

Οι πάρα κάτω δροι θα ισχύουν για αποσυναρμολο- 2ΠΙ.831  
γούμενες δεξαμενές (βυτία) προοριζόμενες για τη μεταφορά  
υδροφθορίου (άνυδρου υδροφθορικού οξέος) ( $6^{\circ}$  (α)) και υδάτινων  
διαλυμάτων υδροφθορικού οξέος ( $6^{\circ}$  (β)):-

- 1.- δεν θα αλληλοσυνδέονται με σωλήνωσιν· και
- 2.- εάν οι αποσυναρμολογούμενες δεξαμενές (βυτία)



μπορούν να ρολλάρουν, οι βαλβίδες θα είναι 2II.831  
εφοδιασμένες με προστατευτικά καλύμματα. (Συνεχίζεται)  
2II.832

Κελύφη προοριζόμενα για τη μεταφορά σταθεροποιη- 2II.832  
μένου τριοξειδίου του θείου ( $9^{\circ}$ ) θα είναι θερμικώς μονωμέ-  
να και θα είναι εφοδιασμένα με συσκευή θερμάνσεως εις το  
εξωτερικόν των μέρος. Τα κελύφη μπορεί να είναι τύπου εκ-  
κενώσεως εκ του πυθμένος. Στη περίπτωση αυτή το σύστημα εκ-  
κενώσεως του κελύφους θα είναι εξοπλισμένον με δύο αμοιβαίως  
ανεξάρτητους μηχανισμούς διακοπής συναρμολογημένους εν σειρά,  
του πρώτου λαμβάνοντος την μορφήν ταχέως-κλειομένης εσωτερι-  
κής βαλβίδος διακοπής (ατμοφράκτου) εγκεκριμένου τύπου και  
του δευτέρου την μορφήν βαλβίδας εκροής (υδατοφράκτου) εις  
το άκρον του σωλήνα-εκκενώσεως-με-στορέα (PIPE SOCKET). Μία  
τυφλή φλάντζα ή κάποιος άλλος εξ ίσου αξιόπιστος μηχανισμός  
θα τοποθετείται επίσης στην έξοδο εκάστης εξωτερικής βαλβίδας  
εκροής (υδατοφράκτου).

Κελύφη και ο εξοπλισμός σέρβις αυτών προοριζό- 2II.833  
μενα για τη μεταφορά υποχλωριωδών διαλυμάτων ( $37^{\circ}$ ) και υδά-  
τινων διαλυμάτων υπεροξειδίου του υδρογόνου ( $41^{\circ}$ ) θα είναι  
έτσι σχεδιασμένα ώστε να εμποδίζεται η είσοδος ξένης ύλης,  
η διαρροή του υγρού, και οιαδήποτε δημιουργουμένη επικίνδυνος  
υπερβολική πρессиς στο εσωτερικό του κελύφους.

#### Άρθρο 4

#### Έγκριση Τύπου

(Ουδέμια ειδική διάταξη)

2II.840-

2II.849

Άρθρο 5Δοκιμές (Έλεγχοι)

Κελύφη προοριζόμενα για τη μεταφορά υδροφθορίου 2II.850  
(άνυδρου υδροφθορικού οξέος) ( $6^{\circ}$  (α)) και υδατινών διαλυμά-  
των υδροφθορικού οξέος ( $6^{\circ}$  (β)) θα υποβάλλονται στη δοκιμή  
της αρχικής πίεσεως και εις τους περιοδικούς ελέγχους σε  
πίεση  $10 \text{ KG/CM}^2$  (πίεση θλιβομέτρου), και τα προοριζόμενα  
για τη μεταφορά των λοιπών υλών των αναφερομένων στο περι-  
θώριο 8I.12I, εάν οι ύλες αυτές μεταφέρονται εις την υγράν  
φάσιν, σε πίεση  $4 \text{ KG/CM}^2$  (πίεση θλιβομέτρου).

Ο έλεγχος της πίεσεως των κελυφών των προοριζομέ- 2II.85I  
νων για τη μεταφορά υδροφθορίου (άνυδρου υδροφθορικού οξέος  
( $6^{\circ}$  (α)) και υδατινών διαλυμάτων υδροφθορικού οξέος ( $6^{\circ}$  (β))  
θα επαναλαμβάνεται κάθε έξι έτη και θα συνοδεύεται από εσω-  
τερικήν επιθεώρησιν των κελυφών και έλεγχον των ειδών εξο-  
πλισμού αυτών. Επιπροσθέτως, κάθε δύο έτη, η αντίσταση των  
κελυφών στη διάβρωση θα ελέγχεται μέσω καταλλήλων οργάνων  
(π.χ. δι' υπερηχητικών) και θα επαληθεύεται η κατάσταση του  
εξοπλισμού.

Ο έλεγχος της πίεσεως των κελυφών των προοριζομένων 2II.852  
για τη μεταφορά σταθεροποιημένου τριοξειδίου του θείου ( $9^{\circ}$ )  
θα επαναλαμβάνεται κάθε τρία έτη.

Η κατάσταση της επενδύσεως των κελυφών των προορι- 2II.853  
ζομένων για τη μεταφορά βρωμίου ( $14^{\circ}$ ) θα ελέγχεται κάθε έτος  
από ανεγνωρισμένον ειδικόν (ειδήμονα), ο οποίος θα επιθεωρεί  
το εσωτερικόν του κελύφους.

2II.854-

2II.859

Άρθρο 6Μαρκάρισμα (Σήμανσις)

Κελύφη προοριζόμενα για τη μεταφορά υδροφθορικού 2II.860 (άνυδρου υδροφθορικού οξέος) ( $6^{\circ}$  (α)), υδάτινων διαλυμάτων υδροφθορικού οξέος ( $6^{\circ}$  (β)), ή βρωμίου ( $14^{\circ}$ ), θα φέρουν, επιπροσθέτως των λεπτομερειών των ήδη περιγραφόμενων στα περιθώρια 2II.160 και 2II.161, ένδειξη του επιτρεπτού ανωτάτου καθαρού φορτίου σε χιλιόγραμμα και την ημερομηνία (μήνα, έτος) την πλέον πρόσφατου εσωτερικής επιθεώρησης του κελύφους.

2II.86I-

2II.869

Άρθρο 7Λειτουργία

Κελύφη προοριζόμενα για τη μεταφορά θειϊκού οξέος ( $1^{\circ}$  (γ)) θα πληρούνται (γεμίζονται) όχι άνω του 95 ~~στα~~ εκατό της χωρητικότητάς των, τα προοριζόμενα για τη μεταφορά σταθεροποιημένου τριοξειδίου του θείου ( $9^{\circ}$ ) όχι άνω του 88 ~~στα~~ εκατό, και τα προοριζόμενα για τη μεταφορά βρωμίου ( $14^{\circ}$ ) όχι κάτω του 88 ~~στα~~ εκατό και όχι άνω του 92 ~~στα~~ εκατό ή μέχρι 2.86 KG ανά λίτρον χωρητικότητας. Κελύφη προοριζόμενα για τη μεταφορά υδροφθορικού (άνυδρου υδροφθορικού οξέος) ( $6^{\circ}$  (α)) ή υδάτινων διαλυμάτων υδροφθορικού οξέος ( $6^{\circ}$  (β)) δεν θα πληρούνται (γεμίζονται) άνω των 0.84 KG ανά λίτρον χωρητικότητας.

2II.87I-

2I2.099

Προσθήκη Β.ΙβΔΙΑΤΑΞΕΙΣ ΑΦΟΡΩΣ ~~ΕΞ~~ ΔΕΞΑΜΕΝΟ-CONTAINERS

(ΣΧΕΔΙΟΝ ΚΑΙ ΔΟΚΙΜΗ)

## ΣΗΜΕΙΩΣΙΣ:-

Το Κεφάλαιον Ι περιγράφει τις διατάξεις τις ισχύουσες για δεξαμενο-CONTAINERS προοριζόμενες για τη μεταφορά υλών όλων των κλάσεων.

Το Κεφάλαιον ΙΙ περιέχει ειδικές διατάξεις οι οποίες συμπληρούν ή τροποποιούν τις διατάξεις του Κεφαλαίου Ι.

Κεφάλαιο Ι

## ΔΙΑΤΑΞΕΙΣ ΙΣΧΥΟΥΣΕΣ ΓΙΑ ΟΛΕΣ ΤΙΣ ΚΛΑΣΕΙΣ

Άρθρο ΙΓενικά· αντικείμενο· ορισμοί

Οι διατάξεις αυτές θα ισχύουν για δεξαμενο-CONTAINERS χωρητικότητας άνω των 0.45 κυβ. μέτρων που χρησιμοποιούνται για τη μεταφορά υγρών, αεριωδών, ~~αερίων~~ ή κοκκωδών υλών, και εις τα εξαρτήματα και παρελκόμενα αυτών. 2Ι2.Ι00

Ένα δεξαμενο-CONTAINER θα περιλαμβάνει κέλυφος και 2Ι2.Ι0Ι εφόδη εξοπλισμού, συμπεριλαμβανομένου εξοπλισμού διευκολύνοντος την μετακίνησιν άνευ αλλαγής της στάσεως.

Στις παρακάτω διατάξεις:- 2Ι2.Ι02

(Ι) (α) Δια του όρου "Κέλυφος" νοείται η κανονική δεξαμενή (βυτίο) (συμπεριλαμβανομένων των ανοιγμάτων και κλεισιμάτων αυτής)·

(β) Δια του όρου "εξοπλισμός σέρβις" του κελύ-

φους νοούνται μηχανισμοί πληρώσεως και 212.102  
εκκενώσεως, εξαερισμού, ασφαλείας και (Συνεχίζεται)  
θερμομονώσεως, και όργανα μετρήσεως και

(γ) Δια του όρου "Κατασκευαστικός εξοπλισμός"  
νοούνται ενισχυτικές, προστατευτικές ή  
σταθεροποιητικές δοκοί εξωτερικώς του  
κελύφους.

(2) (α) Δια του όρου "υπολογισθείσα πρέσις" νοείται  
θεωρητική πρέσις τουλάχιστον ίση με τη πρέ-  
ση δοκιμής η οποία σύμφωνα με τον βαθμόν  
του κινδύνου που παρουσιάζει η μεταφερομένη  
ύλη μπορεί να υπερβεί κατά το μάλλον ή ήττον  
ουσιαστικώς την πρέση λειτουργίας. Χρησιμο-  
ποιείται απλώς δια τον καθορισμόν του πάχους  
των τοιχωμάτων του κελύφους, αποκλειομένου  
οιουδήποτε εξωτερικού ή εσωτερικού ενισχυτι-  
κού μηχανισμού.

(β) Δια του όρου "Ανωτάτη πρέση λειτουργίας" νο-  
είται η υψηλότερα των παρακάτω τριών πιέσεων:-  
1.- Της ανωτάτης δραστηκής πίεσεως της επιτρε-  
πομένης στο κέλυφος διαρκούσης της πληρώ-  
σεως ("επιτρεπομένη ανωτάτη πρέση πληρώ-  
σεως").  
2.- Της ανωτάτης δραστηκής πίεσεως της επιτρε-  
πομένης στο κέλυφος διαρκούσης της εκκε-  
νώσεως ("επιτρεπομένη ανωτάτη πρέση εκκε-  
νώσεως"). και

3.- Της δραστηκής πίεσεως εις την οποίαν υποβάλλεται το κέλυφος εκ του περιεχομένου του (συμπεριλαμβανομένων ποσών ξένων αερίων τα οποία ενδέχεται να περιέχει) όταν η θερμοκρασία φθάνει τους 50° C ("ολική πρέση").

- (γ) Δια του όρου "πρέση δοκιμής" νοείται η ανωτάτη δραστηκή πρέση που εγείρεται στο κέλυφος διαρροής της δοκιμής πίεσεως.
- (δ) Δια του όρου "πρέση πληρώσεως" νοείται η ανωτάτη πρέση η όντως δημιουργουμένη στο κέλυφος όταν τούτο πληρούται δια πίεσεως.
- (ε) Δια του όρου "πρέση εκκενώσεως" νοείται η ανωτάτη πρέση η όντως δημιουργουμένη στο κέλυφος όταν τούτο εκκενούται δια πίεσεως.
- (3) Δια του όρου "δοκιμή διαρροής" νοείται η δοκιμή η οποία περιλαμβάνει την υποβολήν του κελύφους σε δραστηκήν εσωτερικήν πρέσιν προς την ανωτάτην πρέσιν λειτουργίας, αλλά όχι μικροτέραν των 0.2 KG/CM<sup>2</sup> (πρέση θλιβομέτρου), δια μεθόδου εγκριθείσης υπό της αρμοδίας αρχής.

2I2.I03-

2I2.II9

Άρθρο 2

Κατασκευή

Τα κελύφη θα είναι κατασκευασμένα από ελατό μεταλλικό υλικό. Δια συγκολλημένα κελύφη μόνον υλικόν του οποίου

2I2.I20

η ικανότης συγκολλησεως έχει πλήρως καταδειχθεί θα χρη- 2Ι2.Ι20  
 σιμοποιείται. Οι συγκολλήσεις θα γίνονται επιδεξίως (Συνεχίζε-  
 και θα παρέχουν πλήρη ασφάλεια. Τα υλικά των κελύφων ται)  
 και των προστατευτικών των επενδύσεων που έρχονται σε  
 επαφή με το μεταφερόμενο περιεχόμενο δεν θα περιέχουν ύ-  
 λες δυνάμενες να αντιδράσουν επικινδύνως με το τελευταίο  
 και σχηματίσουν ενώσεις, ή εξασθενήσουν ουσιαστικώς το  
 υλικόν.

Κελύφη, τα προσαρτήματά των και ο κατασκευα- 2Ι2.Ι2Ι  
 στικός των εξοπλισμός και εξοπλισμός σέρβις θα σχεδιά-  
 ζονται κατά τρόπον ώστε να αντέχουν τουλάχιστον εις τις  
 στατικές και δυναμικές τάσεις εν κανονική μεταφορά άνευ  
 απώλειας του περιεχομένου.  $\frac{I}{--}$

Η πίεσις επί της οποίας βασίζονται αι διαστά- 2Ι2.Ι22  
 σεις του κελύφους του δεξαμενο-CONTAINER δεν θα είναι μι-  
 κροτέρα της υπολογισθείσης πιέσεως, αλλά αι τάσεις αι ανα-  
 φερόμεναι στο περιθώριο 2Ι2.Ι2Ι θα λαμβάνωνται επίσης  
 υπόψη.

Εκτός οσάνεις ειδικού όροι για τις διάφορες 2Ι2.Ι23  
 κλάσεις προβλέπουν άλλως, οι παρακάτω κατώτατοι όροι θα  
 λαμβάνωνται υπόψη κατά την σχεδίαση των κελύφων:-

(I) Το κέλυφος δεξαμενο-CONTAINER εκκενουμένου  
 δια βαρύτητας προοριζομένου για τη μεταφορά υλών εχουσών  
εις 50°C ολικήν πίεσιν (π.έ. πίεσιν ατμού πλέον, τυχόν,  
 -I/ Εάν υπάρχουν απαερωτικὰ όπεί, τούτο δεν θα ισχύει  
 για ποσότητες αερίου που διαφεύγουν μέσω αυτών.

μερικής πίεσεως αδρανών αερίων) όχι άνω των  $1.1 \text{ KG/CM}^2$  (απόλυτον) θα σχεδιάζεται για πίεση δοκιμής δύο φορές τη στατική πίεση του υπό μεταφοράν υγρού, αλλά όχι κάτω του διπλασίου της στατικής πίεσεως του ύδατος.

(2) Το κέλυφος δεξαμενο-COONTAINER, πληρώσεως και εκκενώσεως δια πίεσεως, προοριζομένου για τη μεταφορά υλών έχουσών εις  $50^{\circ}\text{C}$  ολικήν πίεσιν (τ.έ. πίεσιν ατμού πλέον, τυχόν, μερικής πίεσεως αδρανών αερίων) όχι άνω των  $1.1 \text{ KG/CM}^2$  (απόλυτον) θα σχεδιάζεται για πίεση δοκιμής ίσην προς 1.3 φορές την πίεση πληρώσεως ή εκκενώσεως.

(3) Το κέλυφος δεξαμενο-COONTAINER -οιουδήποτε συστήματος πληρώσεως ή εκκενώσεως- προοριζομένου για τη μεταφορά υλών έχουσών εις  $50^{\circ}\text{C}$  ολικήν πίεσιν (τ.έ. πίεσιν ατμού πλέον, τυχόν, μερικής πίεσεως αδρανών αερίων) όχι κάτω των  $1.1$  και όχι άνω των  $1.75 \text{ KG/CM}^2$  (απόλυτον) θα σχεδιάζεται για πίεση δοκιμής τουλάχιστον  $1.5 \text{ KG/CM}^2$  (πίεσιν θλιβομέτρου), ή 1.3 φορές την πίεσιν πληρώσεως ή εκκενώσεως εάν η πίεσις πληρώσεως ή εκκενώσεως είναι υψηλότερη.

(4) Το κέλυφος δεξαμενο-COONTAINER -οιουδήποτε συστήματος πληρώσεως ή εκκενώσεως- προοριζομένου για τη μεταφορά υλών έχουσών εις  $50^{\circ}\text{C}$  ολικήν πίεσιν (τ.έ. πίεσιν ατμού πλέον, τυχόν, μερικής πίεσεως αδρανών αερίων) άνω των  $1.75 \text{ KG/CM}^2$  (απόλυτον) θα σχεδιάζεται για πίεση δοκιμής ίσην προς την υψηλότεραν των παρακάτω δύο πιέσεων: 1.5 φορές την ολικήν πίεσιν εις  $50^{\circ}\text{C}$ , μέσον  $1 \text{ KG/CM}^2$ , επιφυλασσομένης κατωτάτης πίεσεως  $4 \text{ KG/CM}^2$  (πίεση θλιβομέτρου).



και Γ.3 φορές την πρέσιν πληρώσεως ή εκκενώσεως.

Δεξαμενο-CONTAINERS προοριζόμενα να περιέχουν 2I2.I24  
 ωρισμένες επικίνδυνες ύλες θα είναι εφοδιασμένα με πρόσθετη προστασία, η οποία μπορεί να πάρει την μορφή προσθέτου πάχους του κελύφους (του τοιούτου προσθέτου πάχους καθοριζόμενου υπό το φώς των εγγενών κινδύνων των περιών πρόκειται υλών· βλέπε τις σχετικές κλάσεις) ή ενός προστατευτικού μηχανισμού.

Εις την υπολογισθείσαν πρέσιν ή την πρέσιν δο- 2I2.I25  
 κιμής, οιαδήποτε τούτων είναι υψηλότερα, η τάσις  $\sigma$  (σίγμα) εις το σημειον της μεγαλύτερας τάσεως του κελύφους θα συμφωνεί με τα εκ του υλικού εξαρτώμενα όρια τα προβλεπόμενα κατωτέρω. Επιπροσθέτως, κατά την επιλογήν του υλικού και τον καθορισμόν του πάχους του τοιχώματος, θα λαμβάνονται υπόψη αι ανώτατες και κατώτατες θερμοκρασίαι λειτουργίας, με ειδική αναφορά εις τον κίνδυνον θραύσεως.

(I) Για μέταλλα και κράματα παρουσιάζοντα σαφώς-οριζόμενον σημειον αντοχής ή χαρακτηριζόμενα δι' εγγυημένου συμβατικού κρίσιμου σημείου ελαστικότητας  $R_e$  (γενικώς 0.2 ~~σδ~~ εκατό της υπολειμματικής επιμηκύνσεως):

(α) Οσάντις ο λόγος  $R_e/R_m$  δεν είναι μεγαλύτερος του 0.66 ( $R_e$  = εμφανές κρίσιμον σημειον ελαστικότητας ή 0.2 ~~σδ~~ εκατό τάσις δοκιμής·  $R_m$  = εγγυημένη κατωτάτη αντοχή εις εφελκυσμόν)

$$\sigma \leq 0.75 R_e$$

(β) Οσάντις ο λόγος  $R_e/R_m$  υπερβαίνει το **D.66**

2I2.I25

$$\sigma \leq 0.5 R_m$$

(Συνεχίζε-  
ται)

(2) Για μέταλλα και κράματα μη παρουσιάζοντα εμφανές κρίσιμον σημείον ελαστικότητας και χαρακτηριζόμενα από εγγυημένην καταπάτην αντοχήν εις εφελκυσμόν  $R_m$ :

$$\sigma \leq 0.43 R_m$$

(3) Η επιμηκύνσις εις ρήγμα (θραύσιν), 2/ *εδα* εκατό δεν θα είναι μικροτέρα των I,000, αλλά δεν θα είναι μικροτέρα του 20 *εδα* εκατό στη περίπτωση χάλυβος και όχι μικροτέρα του 12 *εδα* εκατό στη περίπτωση κραμάτων αλουμινίου.

Δεξαμενο-CONTAINERS προοριζόμενα για τη μετα- 2I2.I26  
φορά <sup>υγρών</sup> ευφλέκτων/υλών με σημείον αναφλέξεως όχι μεγαλύτερο των 55°C και για τη μεταφορά ευφλέκτων αερίων θα είναι ικανά γειωθούν ηλεκτρικώς.

Δεξαμενο-CONTAINERS θα είναι ικανά να απορρο- 2I2.I27  
φούν τις δυνάμεις τις οριζόμενες στη παράγραφο (I) και το πάχος του τοιχώματος των κελυφών θα είναι ως προβλέπεται στις παραγράφους (2) - (4) κατωτέρω.

2/ Τα δείγματα τα χρησιμοποιούμενα για τον καθορισμόν της επιμηκύνσεως θραύσεως θα λαμβάνωνται εγκάρσιως της κατεύθυνσεως του ρολλαρισματος και θα ασφαρίζωνται κατά τρόπον ώστε:

$$L_0 = 5 \delta$$

όπου  $L_0$  = μήκος του δείγματος προ της δοκιμής και

$\delta$  = διάμετρος

(1) Δεξαμενο-CONTAINERS και αθ προσδέσεις τους 242.127 θα είναι ικανά υπό το ανώτατο επιτρεπτό φορτίο να απορροφούν τις παρακάτω δυνάμεις:

- προς την κατεύθυνση του ταξιδιού: το διπλάσιο του ολικού βάρους\*
- οριζοντίως σε ορθές γωνίες προς τη κατεύθυνση του ταξιδιού: το ολικό βάρος\* (οσάκις η κατεύθυνση του ταξιδιού δεν καθορίζεται σαφώς, το ανώτατο επιτρεπτό φορτίο θα είναι δύο φορές το ολικό βάρος)\*
- κατακορύφως προς τα άνω: το ολικόν βάρος\* και
- κατακορύφως προς τα κάτω: δύο φορές το ολικό βάρος.

Υπό εκάστην των ανωτέρω δυνάμεων οι τηρηθησόμενοι συντελεστές ασφαλείας θα είναι οι παρακάτω:

- για μέταλλα έχοντα σαφώς-ορισμένον σημείον υποχωρήσεως: συντελεστήν ασφαλείας 1.5 εν σχέσει με το εμφανές κρίσιμον σημείον ελαστικότητας\* ή για μέταλλα έχοντα μη-σαφώς-ορισμένον σημείον υποχωρήσεως: συντελεστήν ασφαλείας 1.5 ~~σε~~ σχέση με την εγγυημένην 0.2-~~τα~~ εκατό \* τάσιν δοκιμής.

(2) Το κατώτατον πάχος του τοιχώματος του βυτλού (βαρελίου) του κελύφους θα υπολογίζεται με τον παρακάτω τύπον:-

$$\epsilon = \frac{P \times D}{200 \text{ χσ μμ (χιλ.)}}$$

\* όπου P = υπολογισθείσα πίεσις ή πίεση δοκιμής, οποιαδήποτε τούτων είναι η υψηλότερα σε KG/CM<sup>2</sup>.

D = εσωτερική διάμετρος του κελύφους σε MM (μμ)\* και

$\sigma$  = επιτρεπτή τάσις ως ορίζεται στο περιθώριο 2Ι2.205, παράγρ. Ι(α), Ι(β) και 2, σε  $\text{KG/MM}^2$ .

2Ι2.Ι27  
(Συνεχίζεται)

Το πάχος εν ουδεμιᾷ περιπτώσει θα είναι μικρότερο του περιγραφομένου στις παραγράφους (3) και (4) κατωτέρω.

(3) Τα βυτία (βαρέλια) και άκρα κελύφων διαμέτρου όχι άνω των 1.80μ δεν θα έχουν πάχος μικρότερον των 5 MM (χιλ.) εάν από μαλακό χάλυβα  $\underline{3/}$  (ως ορίζεται στο περιθώριο 2Ι2.Ι25) ή ισοδύναμον πάχος εάν από άλλο μέταλλο.

Όπου η διάμετρος υπερβαίνει τα 1.80μ το πάχος αυτό θα αυξάνεται μέχρι 6 MM (χιλ.) εάν η δεξαμενή είναι από μαλακό χάλυβα  $\underline{3/}$  (ως ορίζεται στο περιθώριο 2Ι2.205) ή μέχρι ισοδύναμου πάχους εάν η δεξαμενή είναι από άλλο μέταλλο. Οποιοδήποτε κι' αν χρησιμοποιηθῆ μέταλλο, το πάχος του τοιχώματος του κελύφους εν ουδεμιᾷ περιπτώσει θα είναι μικρότερο των 3 MM (χιλ.).

(4) Οσάν τις πρόσθετη προστασία του κελύφους κατά ζημιών παρέχεται, η αρμόδια αρχή μπορεί να επιτρέψει τα προλεχθέντα πάχη να μειωθούν κατά την αναλογίαν (ανάλογα) της παρεχομένης προστασίας· εν τούτοις, τα λεχθέντα πάχη δεν θα είναι μικρότερα των 3 MM (χιλ.) στη περίπτωση μαλακού χάλυβα  $\underline{3/}$ , ή του ισοδύναμου πάχους στη περίπτωση άλλων μετάλλων, για κελύφη διαμέτρου όχι μεγαλύτερας των

$\underline{3/}$  Δια του δρου "μαλακός χάλυβας" νοείται ο χάλυβας ο οποίος έχει αντοχήν θραύσεως μεταξύ 37 και 44  $\text{KG/MM}^2$ .

Ι.80 μ. Για κελύφη με διάμετρο υπερβαίνουσα τα Ι.80 μ. 2Ι2.Ι27  
τα πρόλεχθέν κατώτατον πάχος θα αυξάνεται εις 4 MM (Συνεχίζε-  
(χιλ.) προκειμένου περί μαλακού χάλυβα 3/ και σε ισο-  
δύναμο πάχος προκειμένου περί άλλου μετάλλου.)  
ται)

Δεξαμενο-CONTAINERS θα μεταφέρονται μόνον 2Ι2.Ι28  
επί οχημάτων των οποίων οι προσδέσεις είναι ικανές, υπό  
το ανώτατον επιτρεπτόν φορτίον επί των δεξαμενο-CONTAIN-  
ERS, να απορροφήσουν τις δυνάμεις τις οριζόμενες στο  
παραπάνω περιθώριο 2Ι2.Ι27 (Ι).

2Ι2.Ι29

### Άρθρο 3

#### Είδη Εξοπλισμού

Τα είδη εξοπλισμού θα είναι έτσι τακτοποιη- 2Ι2.Ι30  
μένα ώστε να προστατεύονται κατά του κινδύνου να υποστούν  
ζημίας διαρκούσης της μεταφοράς και του χειρισμού. Εάν  
η σύνδεση μεταξύ του πλαισίου και του κελύφους επιτρέπει  
σχετικήν μετακλήσιν μεταξύ των δύο αυτών υπο-συγκροτημά-  
των, τα είδη εξοπλισμού θα είναι έτσι προσδεδεμένα ώστε να  
επιτρέπεται τέτοια μετακλήσις χωρίς τον κίνδυνο να υποστούν  
ζημίαν τα λειτουργούντα εξαρτήματα.

Τα είδη εξοπλισμού θα παρουσιάζουν κατάλληλον  
βαθμόν ασφαλείας συγκρινόμενον με εκείνον του κελύφους.

Επιπροσθέτως, ειδικοί όροι ισχύοντες για δεξα-  
μενο-CONTAINERS εκκενώσεως εκ του πυθμένος προβλέπονται  
στο παρακάτω περιθώριο 2Ι2.Ι3Ι.

Κάθε δεξαμενο-CONTAINER εκκενώσεως εκ του πυθμέ- 2Ι2.Ι3Ι  
νος, και στη περίπτωση διαμερισμάτων του δεξαμενο-CONTAINER

κάθε διαμέρισμα, θα είναι εξοπλισμένο με δύο αμοιβαία 2Ι2.Ι3Ι ανεξάρτητους μηχανισμούς κλεισίματος, του πρώτου δόντος (Συνεχίζεται) ενός εσωτερικού ατμοφράκτου 4/ τοποθετημένου απ' ευθείας στο κέλυφος και του δευτέρου δόντος ενός υδαροφράκτου ή ετέρου ισοδύναμου μηχανισμού 5/ συναρμολογημένους 6Ε σειρά, ένας 6Ε ανάθε άκρον του σωλήνα εκκένωσης. Ο εσωτερικός ατμοφράκτης θα τίθεται σε λειτουργία από πάνω ή από κάτω. Εάν είναι δυνατόν, - η ρύθμιση -ανοικτός ή κλειστός- του εσωτερικού ατμοφράκτου θα είναι ικανή να επαληθεύεται από το έδαφος σε αμφότερες τις περιπτώσεις. Οι μηχανισμοί ελέγχου του εσωτερικού ατμοφράκτου θα είναι έτσι σχεδιασμένοι ώστε να αποφεύγεται οποιοδήποτε ακούσιο άνοιγμα από πρόσκρουση ή απρόσεκτη ενέργεια.

Ο εσωτερικός μηχανισμός κλεισίματος θα εξακολουθούσε να λειτουργεί σε περίπτωση ζημίας του εξωτερικού μηχανισμού ελέγχου. Για να αποφευχθεί οποιαδήποτε απώλεια του περιεχομένου στη περίπτωση ζημίας των εξωτερικών εξαρτημάτων εκκένωσης (σωλήνες, πλευρικοί μηχανισμοί κλεισίματος), ο εσωτερικός ατμοφράκτης και η έδρα του θα προστατεύονται κατά του κινδύνου να στρεβλωθούν υπό εξωτερικών

4/ Εκτός όπως ενδέχεται να προβλέπεται άλλως στη περίπτωση κελυφών προοριζομένων για τη μεταφορά ωρισμένων δυναμένων να κρυσταλλοποιηθούν ή υψηλά γλοιωδών υλών.

5/ Προκειμένου περί δεξαμενο-CONTAINERS χωρητικότητας μικρότερης των  $1 \mu^3$ , ο υδατοφράκτης ή άλλος ισοδύναμος μηχανισμός μπορεί να αντικατασταθεί από μία τυφλή φλάντζα.

τάσεων ή θα είναι έτσι σχεδιασμένα ώστε να ανθίστανται. 2Ι2.Ι3Ι  
 Οι μηχανισμοί πληρώσεως και εκκενώσεως (συμπεριλαμβανο- (Συνεχίζε-  
 μενων των φλαντζών ή ελικοτετηνηένων πωμάτων) και/ (τυχόν) <sup>τά</sup> ται)  
 προστατευτικά καλύμματα θα είναι σε θέση να ασφαρίζονται  
 κατά οποιουδήποτε ακούσιου ανοίγματος.

Το δεξαμενο-CONTAINER ή έναστο των διαμερισμά- 2Ι2.Ι32  
 των, εκτός οσάνις προορίζεται για τη μεταφορά βαθέως  
 κατεφυγμένων αερίων, θα είναι εφοδιασμένο με άνοιγμα  
 αρκετά μεγάλο ώστε να μπορεί το δεξαμενο-CONTAINER ή δια-  
 μέρισμα να επιθεωρηθεί.

Δεξαμενο-CONTAINER προοριζόμενο για τη μετα- 2Ι2.Ι33  
 φορά υγρών εχόντων πρέσιν ατμού όχι μεγαλύτεραν των  
 $1.1 \text{ KG/CM}^2$  (απόλυτον) εις  $50^{\circ}\text{C}$  θα έχει σύστημα εξαερι-  
 σμού και μηχανισμό ασφαλείας που να εμποδίζουν να χυθεί  
 έξω από το κέλυφος το περιεχόμενο εάν το δεξαμενο-  
 CONTAINER αναποδογυρσει, ή θα είναι σύμφωνον προς τις  
 παρακάτω διατάξεις του περιθωρίου 2Ι2.Ι34 ή 2Ι2.Ι35.

Δεξαμενο-CONTAINER προοριζόμενο για τη μετα- 2Ι2.Ι34  
 φορά υγρών εχόντων πρέσιν ατμού όχι μικροτέραν των 1.1  
 και όχι μεγαλυτέραν των  $1.75 \text{ KG/CM}^2$  (απόλυτον) εις  
 $50^{\circ}\text{C}$  θα έχει την βαλβίδα ασφαλείας (ασφαλιστικόν επι-  
 στόμιον) ρυθμισμένην όχι κάτω των  $1.5 \text{ KG/CM}^2$  (πρέσιν  
 θλιβομέτρου), και κατά τρόπον ώστε να είναι πλήρως ανοι-  
 κτή σε πίεση μη υπερβαίνουσα τη πίεση δοκιμής· ή θα συμ-  
 μορφούται προς τις διατάξεις του περιθωρίου 2Ι2.Ι35.

Δεξαμενο-CONTAINER προοριζόμενο για τη μετα- 2Ι2.Ι35  
 φορά υγρών εχόντων πρέσιν ατμού όχι μικροτέραν των 1.75

και όχι μεγαλύτεραν των  $3 \text{ KG/CM}^2$  (απόλυτον) εις  $50^\circ\text{C}$  θα 2I2.I35  
 είναι εξοπλισμένον με/ασφάλειας ρυθμισμένην σε πίεση θλι- (Συνεχι-  
 βόμετρου όχι μικροτέραν των  $3 \text{ KG/CM}^2$  και κατά τρόπο ώστε ζεται)  
 να είναι πλήρως ανοικτή σε πίεση μη υπερβαίνουσα τη πίεση  
 δοκιμής· ή θα έχει ερμητικά στεγανοποιηθεί.

Κινοούμενα εξαρτήματα όπως καλύμματα, κλεισί- 2I2.I36  
 ματα, κλπ., τα οποία ενδέχεται να τριβούν ή έλθουν σε επι-  
 κρουστικήν επαφήν με δεξαμενο-CONTAINERS εξ αλουμινίου  
 προοριζόμενα για τη μεταφορά ευφλέκτων υλών εχουσών ση-  
 μέλον αναφλέξεως όχι άνω των  $55^\circ\text{C}$  ή για τη μεταφορά ευφλέ-  
 κτων αερίων δεν θα κατασκευάζονται από απροστάτευτον δυ-  
 νάμενον να διαβρωθεί χάλυβα.

2I2.I37-

2I2.I39

#### Άρθρο 4

#### Έγκριση Τύπου

Η αρμόδια αρχή ή υπηρεσία εντεταλμένη υπό της 2I2.I40  
 εν λόγω αρχής θα εκδώσει έξ σχέσής με κάθε νέον τύπον  
 δεξαμενο-CONTAINER πιστοποιητικόν βεβαιούν ότι το πρωτό-  
 τυπον δεξαμενο-CONTAINER, συμπεριλαμβανομένων των προσδέ-  
 σεων, που επιθεώρησε είναι κατάλληλον για τον σκοπόν για  
 τον οποίον προορίζεται και πληροί τις διατάξεις κατασκευής  
 του άρθρου 2 και τις περί εξοπλισμού διατάξεις του άρθρου 3.  
 Εάν τα δεξαμενο-CONTAINERS κατασκευάζωνται εις συνεχείας  
 χωρίς τροποποιήσεις, η έγκρισίς αυτή θα ισχύει για όλες  
 τις συνέ-χειες. Τα αποτελέσματα του ελέγχου, οι ύλες για  
 τη μεταφορά των οποίων εγκρίνεται το δεξαμενο-CONTAINER,



και ο αριθμός της εγκρίσεως θα καθορίζονται στην έκθεση 2Ι2.Ι40 του ελέγχου. Ο αριθμός της εγκρίσεως θα αποτελείται (Συνεχίζεται) από το διακριτικόν χαρακτηριστικόν (ένδειξιν) 6/ του Κράτους στην επικράτεια του οποίου εδόθη η έγκριση, και από αριθμόν μητρώου.

2Ι2.Ι4Ι-  
2Ι2.Ι49

#### Άρθρο 5

#### Δοκιμές. (Έλεγχοι)

Τα κελύφη και τα είδη εξοπλισμού των ελτεο- 2Ι2.Ι50  
μού ελτεο χωριστά θα υποβάλλονται σε αρχική επιθεώρηση προτού τεθούν σε υπηρεσία και επι συνέχεια θα υποβάλλονται σε περιοδικές επιθεωρήσεις. Η αρχική επιθεώρηση θα περιλαμβάνει έλεγχο των χαρακτηριστικών του σχεδίου, εσωτερικήν και εξωτερικήν εξέταση και δοκιμήν (έλεγχον) υδραυλικής πίεσεως. Εάν τα κελύφη και τα είδη εξοπλισμού των ελεγχθούν χωριστά μετά την συναρμολόγησίν των θα υποβάλλονται από κοινού σε δοκιμήν διαρροής. Οι περιοδικές επιθεωρήσεις θα περιλαμβάνουν εξωτερικήν και εσωτερικήν εξέτασιν και, ως γενικόν κανόνα, έλεγχον υδραυλικής πίεσεως. Η επικάλυψη για θερμομόνωση και τα παρόμοια θα αφαιρούνται μόνον καθ' ό μέτρον απαιτείται για αξιόπιστη εκτίμηση των χαρακτηριστικών του δεξαμενο-CONTAINER. Οι αρχικοί και περιοδικοί έλεγχοι πίεσεως θα διεξάγονται, από ειδικόν εγκριθέντα από την αρμόδια αρχή, στη πίεση δοκιμής

6/ Το διακριτικόν χαρακτηριστικόν (ένδειξιν) προς χρῆσιν σε διεθνή κυκλοφορία το προβλεπόμενον υπό της Συμβάσεως Οδικῆς Κυκλοφορίας (Βιέννη, 1968).

την σημειουμένην στη πλάκα των στοιχείων του δεξαμενο- 2Ι2.Ι50  
CONTAINER, εκτός σε περιπτώσεις στις οποίες χαμηλές πιέ- (Συνεχίζε-  
σεις δοκιμής εξουσιοδοτούνται για τους περιοδικούς ελέγ-  
τους. Σε ειδικές περιπτώσεις, και από συμφώνου μετά της  
αρμόδιας αρχής, ο έλεγχος της υδραυλικής πίεσεως μπορεί  
να αντικατασταθεί με έλεγχο πίεσεως χρησιμοποιούντα άλλο  
υγρό ή αέριο.

Τα δεξαμενο-CONTAINERS, προτού τεθούν σε υπη- 2Ι2.Ι5Ι  
ρεσία και μεταταύτα σε χρονικά διαστήματα μη υπερβαίνον-  
τα τα πέντε έτη, θα ελέγχονται συμφώνως προς τις διατάξεις  
του ανωτέρω περιθωρίου 2Ι2.Ι50. Προτού τα δεξαμενο-CONTAIN-  
ERS τεθούν σε υπηρεσία, και μεταταύτα σε χρονικά διαστήμα-  
τα μη υπερβαίνοντα τα δύομισυ έτη, όλος ο εξοπλισμός θα ε-  
λέγχεται για στεγανότητα και ικανοποιητική λειτουργία.

Πιστοποιητικά εικονίζοντα τα αποτελέσματα των 2Ι2.Ι52  
ελέγχων αυτών θα εκδίδονται από ειδικόν εγκριθέντα από την  
αρμόδια αρχή.

2Ι2.Ι53-

2Ι2.Ι59

#### Άρθρο 6

#### Μαρμάρισμα (Σήμανσις)

Κάθε δεξαμενο-CONTAINER θα είναι εφοδιασμένο 2Ι2.Ι60  
με ανθεκτική στη διάβρωση μεταλλική πλάκα μονίμως τοπο-  
θετημένη στο κέλυφος σε μέρος ευχερώς προσιτό για επιθεώ-  
ρηση. Τα παρακάτω στοιχεία τουλάχιστων θα μαρμάρωνται  
στη πλάκα δια σφραγίσεως ή οιασδήποτε άλλης όμοιας μεθό-  
δου. Τα στοιχεία μπορούν να χαραχθούν απ' ευθείας πάνω στα

τοιχώματα αυτού τούτου του κελύφους εάν τα τοιχώματα ελ- 2Ι2.Ι60  
 ναι έτσι ενισχυμένα ώστε να μην εξασθενείται η αντοχή του (Συνεχίζε-  
 κελύφους. ται)

- Αριθμός Εγκρίσεως\*
- Όνομα ή σήμα Κατασκευαστού\*
- Αύξων αριθμός Κατασκευαστού\*
- Έτος κατασκευής\*
- Πίεση δοκιμής σε  $\text{KG}/\text{CM}^2$  (πίεση θλιβομέτρου)\*
- Ζ Χωρητικότητα σε λίτρες\* στη περίπτωση δεξαμενο-  
 CONTAINERS πολλαπλών-στοιχείων: η χωρητικότητα  
 κάθε στοιχείου\*
- Θερμοκρασία σχεδίου (μόνον εάν άνω των  $50^{\circ}\text{C}$  ή  
 κάτω των  $20^{\circ}\text{C}$ )\*
- Μήνας και έτος αρχικού ελέγχου και πλέον προσφάτου  
 περιοδικού ελέγχου\* και
- Σφραγίδα του ειδικού που έκανε τους ελέγχους.

Αναφορικώς με δεξαμενο-CONTAINERS πληρώσεως ή εκκε-  
 νώσεως δια πίεσεως η επιτρεπομένη ανωτάτη πίεση λειτουργίας  
 θα καταχωρείται επιπροθέτως.

Τα παρακάτω στοιχεία θα είναι γραμμένα είτε πάνω  
 σ' αυτό τούτο το δεξαμενο-CONTAINER ή σε πινακίδα:-

- ≡ Τα ονόματα του ιδιοκτήτου ή και του χειριστού\*
- Η χωρητικότητα του κελύφους\*
- Το βάρος άνευ φορτίου (ντάρα)\*
- Το ανώτατο επιτρεπτό βάρος εμφόρτου δεξαμενο-  
 CONTAINER\* και
- Η ονομασία της μεταφερομένης ύλης. 7/

Επιπροσθέτως, τα δεξαμενο-CONTAINERS θα φέρουν τις προβλεπόμενες ετικέτες κινδύνου.

212.162-

212.169

### Άρθρο 7

#### Λειτουργία

Διαρκούσης της μεταφοράς, τα δεξαμενο-CONTAINERS 212.170 θα είναι στερεωμένα πάνω στο μεταφέρον αυτό όχημα κατά τέτοιο τρόπο ώστε να προστατεύονται καταλλήλως από τα εξαρτήματα του μεταφέροντος οχήματος ή αυτού τούτου του δεξαμενο-CONTAINER κατά πλευρικής και μετωπικής κρούσεως και κατά ανατροπής (αναποδογυρισματος). 8/ Εάν τα κελύφη και ο εξοπλισμός σέρβις είναι έτσι κατασκευασμένα ώστε να ανθίστανται στη πρόσκρουση ή ανατροπή δεν χρειάζεται να προστατευθούν κατά τον τρόπον αυτόν.

7/ Συλλογική περιγραφή ή χαρακτηριστικός αριθμός μπορεί να δοθεί αντι της ονομασίας της ύλης.

8/ Παραδείγματα προστασίας των κελυφών:

1.- Προστασία κατά της πλευρικής πρόσκρούσεως μπορεί π.χ. να συνίσταται σε επιμήκεις ράβδους προστασίας του κελύφους και στις δύο πλευρές εις το ύψος της μεσαίας γραμμής.

2.- Προστασία κατά της ανατροπής μπορεί π.χ. να συνίσταται σε ενισχυτικούς δακτυλίους ή ράβδους στερεωμένες εγκαρσίως εν σχέσει με το πλαίσιο.

3.- Προστασία κατά της οπισθίας πρόσκρούσεως μπορεί π.χ. να συνίσταται από προφυλακτήρα ή πλαίσιο.

Τα δεξαμενο-CONTAINERS δεν θα φορτώνονται με επι- 212.171 κινδύνους ύλες πλην εκείνων για τις οποίες ενεκρίθη η μεταφορά.

Οι παρακάτω βαθμοί πληρώσεως δεν θα υπερβαίνουν 212.172 σε δεξαμενο-CONTAINERS προοριζόμενα για τη μεταφορά υγρών σε θερμοκρασίες περιβάλλοντος:-

(I) (α) Εύφλεκτες ύλες που δεν παρουσιάζουν προσθέτους κινδύνους (π.χ. που δεν είναι τοξικές ή διαβρωτικές) σε δεξαμενο-CONTAINERS με σύστημα εξαερισμού και με ή χωρίς βαλβίδες ασφαλείας (ασφαλιστικά επιστόμια):

$$\text{βαθμός πληρώσεως } \frac{100}{1 + \alpha(50 - T_F)} \quad \text{ή} \quad \frac{100}{1 + 35\alpha} \quad \text{°/ο χωρητικότητας}$$

(β) Τοξικές ή διαβρωτικές ύλες, είτε παρουσιάζουν είτε δεν παρουσιάζουν κίνδυνο ανάφλεξης, σε δεξαμενο-CONTAINERS με σύστημα εξαερισμού και με ή χωρίς βαλβίδες ασφαλείας (ασφαλιστικά επιστόμια):

$$\text{βαθμός πληρώσεως } \frac{98}{1 + \alpha(50 - T_F)} \quad \text{ή} \quad \frac{98}{1 + 35\alpha} \quad \text{°/ο χωρητικότητας}$$

(γ) Εύφλεκτες ύλες χαμηλής-συμπυκνώσεως και χαμηλής συμπυκνώσεως οξέα και αλκαλικά διαλύματα σε κλειστά δεξαμενο-CONTAINERS:

$$\text{βαθμός πληρώσεως } \frac{97}{1 + \alpha(50 - T_F)} \quad \text{ή} \quad \frac{97}{1 + 35\alpha} \quad \text{°/ο χωρητικότητας}$$

(δ) Τοξικές ύλες υψηλής-συμπυκνώσεως και υψηλής συμπυκνώσεως οξέα και αλκαλικά διαλύματα σε κλειστά δεξαμενο-CONTAINERS:

$$\text{βαθμός πληρώσεως } \frac{95}{1 + \alpha(50 - T_F)} \quad \text{ή} \quad \frac{95}{1 + 35\alpha} \quad \text{°/ο χωρητικότητας}$$

(2) Στους τύπους αυτούς το  $\alpha$  είναι ο μέσος συντελεστής κυβικής διαστολής του υγρού μεταξύ  $15^{\circ}$  και  $50^{\circ}\text{C}$ , τ.έ. δι' ανωτάτην μεταβολήν της θερμοκρασίας των  $35^{\circ}\text{C}$ . 2I2.I72

$$\text{Το } \alpha \text{ υπολογίζεται με τον τύπον: } \frac{\delta_{15} - \delta_{50}}{35 \times \delta_{50}}$$

όπου  $\delta_{15}$  και  $\delta_{50}$  είναι η πυκνότης του υγρού στους  $15^{\circ}\text{C}$  και  $50^{\circ}\text{C}$  αντιστοίχως. Το  $T_F$  είναι η μέση θερμοκρασία του υγρού διαρκούσης της πληρώσεως.

(3) Οι διατάξεις του ανωτέρω περιθωρίου 2I2.I72 (I) δεν θα ισχύουν για δεξαμενο-CONTAINERS το περιεχόμενον των οποίων συντηρείται μέσω συσκευής θερμάνσεως σε θερμοκρασία άνω των  $50^{\circ}\text{C}$  διαρκούσης της μεταφοράς. Σε τέτοια περίπτωση ο βαθμός πληρώσεως στο ξεκίνημα θα είναι τέτοιος και η θερμοκρασία θα έχει έτσι ρυθμισθεί ώστε το δεξαμενο-CONTAINER να μην είναι γεμάτο πάνω από το 95  $\delta\tau\alpha$  εκατό της χωρητικότητός του οποτεδήποτε διαρκούσης της μεταφοράς.

Εάν τα κελύφη δεξαμενο-CONTAINERS προοριζομέ- 2I2.I73  
νων για τη μεταφορά υγρών  $\varrho/$  δεν χωρίζονται με χωρίσματα ή πλάκες για απότομο τήναγμα σε τμήματα χωρητικότητας άνω των 5.000 λιτρών, τα λεχθέντα κελύφη θα πληρούνται μέχρι όχι κάτω του 80  $\delta\tau\alpha$  εκατό της χωρητικότητάς των εκτός εάν είναι πρακτικώς άδεια.

Τα δεξαμενο-CONTAINERS θα κλείουν κατά τρόπον 2I2.I74  
ώστε το περιεχόμενον να μη μπορεί να τρέξει προς τα έξω ανεξέλεγκτο.

Όσκις πολλά συστήματα κλεισίματος υπάρχουν 2I2.I75  
σε σειρά, το πλησιέστερο προς την μεταφερομένη ύλη θα

κλείεται πρώτο.

Κανένα υπόλειμμα της μεταφερομένης επικινδύνου ύλης θα κολλάει στο εξωτερικό του δεξαμενο-CONTAINER διαρκούσης της μεταφοράς. 2Ι2.Ι76

Για να γίνουν δεκτά για μεταφορά, άδεια δεξαμενο-CONTAINERS θα κλείνονται κατά τον αυτόν τρόπον και θα είναι του αυτού βαθμού στεγανά σαν να ήσαν πλήρη. 2Ι2.Ι77

2Ι2.Ι78-  
2Ι2.Ι79

### Άρθρο 8

#### Μεταβατικά Μέτρα

(1) Δεξαμενο-CONTAINERS χωρητικότητας κάτω των 2Ι2.Ι80 Ι.000 λιτρών κατασκευασμένα προτού τεθούν σε ισχύ οι παρούσες διατάξεις και μη συμμορφούμενα προς αυτές μπορούν, εάν κατασκευάσθησαν σύμφωνα με τις διατάξεις της ADR και RID τις διέπουσες τα δοχεία (RECEPTABLES), να χρησιμοποιηθούν δια χρονικήν περίοδον τριών ετών αμέσως μετά την θέσιν σε ισχύ των διατάξεων αυτών για τη μεταφορά υγρών, αερίων, εις κόνιν ή κόκκους υλών.

(2) Δεξαμενο-CONTAINERS χωρητικότητας όχι μικρότερας των Ι.000 λιτρών μπορούν, με την έγκριση της αρμόδιας αρχής των χωρών εις τις οποίες πρόκειται να μεταφερθούν, να χρησιμοποιηθούν για χρονικήν περίοδον πέντε ετών αμέσως μετά την θέσιν σε ισχύ των διατάξεων αυτών για τη μεταφορά υγρών, αερίων, εις κόνιν ή κόκκους υλών.

2Ι2.Ι8Ι

2Ι2.Ι99

Κεφάλαιο ΙΙ

ΕΙΔΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΣΥΜΠΛΗΡΟΥΣΑΙ Η ΤΡΟΠΟΠΟΙΟΥΣΑΙ

ΤΙΣ ΔΙΑΤΑΞΕΙΣ ΤΟΥ ΚΕΦΑΛΑΙΟΥ Ι

ΚΛΑΣΙΣ 2

Αέρια: πεπιεσμένα, υγροποιημένα ή διαλυόμενα υπό πίεσηΆρθρο ΙΓενικά· αντικείμενο· ορισμός

2Ι2.200-

2Ι2.2Ι9

Άρθρο 2Κατασκευή

Τα κελύφη δεξαμενο-CONTAINERS προοριζομένων για 2Ι2.220 τη μεταφορά υλών των Ι<sup>ο</sup> έως 6<sup>ο</sup> και 9<sup>ο</sup> δεν θα κατασκευάζονται από αλουμίνιο ή κράμα αλουμινίου.

Οι διατάξεις των περιθωρίων 2Ι4.250 έως 2Ι2.22Ι 2Ι4.285, της Προσθήκης Β.Ιδ, θα ισχύουν για τα υλικά και τη κατασκευή των κελυφών των δεξαμενο-CONTAINERS των προοριζομένων για τη μεταφορά αερίων της 7<sup>ο</sup> και 8<sup>ο</sup>.

2Ι2.222-

2Ι2.229

9/ Υλεις των οποίων ο χρόνος εκροής στους 20<sup>ο</sup> C από πώμα DIN με οπήν 4 MM(χιλ.) είναι μικρότερος των Ι0 λεπτών (αντιστοιχών σε χρόνο εκροής κάτω των 96 δευτ. στους 20<sup>ο</sup> C από πώμα FORD No.4, ή κάτω των 2.680 CENTISTOKES) θα θεωρούνται ότι είναι υγρά για την εφαρμογή της παρούσας διατάξεως.



## Άρθρο 3

Είδη Εξοπλισμού

Επιπροσθέτως του ότι θα εξοπλισθούν με τους μηχανο- 2Ι2.230  
νισμούς τους προβλεπόμενους στο περιθώριο 2Ι3.Ι3Ι, οι σωλή-  
νες εκκενώσεως των κελυφών του δεξαμενο-CONTAINER θα είναι  
ικανοί να κλείνουν με τυφλές φλάντζες ή με κάποιο άλλο εξ-  
έσου αξιόπιστο μηχανισμό.

Τα κελύφη των δεξαμενο-CONTAINERS των προοριζομέ- 2Ι2.23Ι  
νων για τη μεταφορά υγροποιημένων αερίων μπορούν να εξοπλι-  
σθούν, επιπροσθέτως των οπών πληρώσεως, εκκενώσεως και εξι-  
ώσεως της πίεσεως του αερίου, με ανοίγματα εις τα οποία  
να μπορούν να τοποθετηθούν δείκτες (θλιβόμετρα), θερμόμετρα  
και μανόμετρα.

Οι βαλβίδες ασφαλείας (ασφαλιστικά επιστόμια) θα 2Ι2.232  
πληρούν τους όρους τους προβλεπόμενους στις παρακάτω παρα-  
γράφους (Ι), (2) και (3).

(Ι) Τα κελύφη των δεξαμενο-CONTAINERS των προορι-  
ζομένων για τη μεταφορά των αερίων των Ι<sup>ο</sup> έως 6<sup>ο</sup> και 9<sup>ο</sup>  
μπορούν να εφοδιασθούν με όχι περισσότερας των δύο βαλβί-  
δων ασφαλείας (αφαιριστικών επιστομίων). Οι βαλβίδες ασφα-  
λείας θα είναι ικανές να ανοίγουν αυτομάτως υπό πρέσιν από  
0.9 έως Ι.0 φορές τη πρέση δοκιμής του κελύφους εις το οποί-  
ον έχουν τοποθετηθεί. Θα είναι επιπροσθέτως κατασκευασμένες  
κατά τέτοιο τρόπο ώστε σε περίπτωση ολικής υπό του πυρός  
καταβροχθίσεως (FIRE ENGULFMENT) η πρέση στο εσωτερικό  
του κελύφους να μην υπερβαίνει τη πρέση δοκιμής. Θα είναι  
τέτοιου τύπου ώστε να ανθίστανται στις δυναμικές τάσεις,

συμπεριλαμβανομένης της αποτόμου ροής του υγρού. Η χρήση 212.232 στις ασφαλιστικών βαλβίδων απλής βαρύτητας (DEADWEIGHT (Συνεχίζε- VALVES) ή αντιβάρου (COUNTERWEIGHT VALVES) απαγορεύεται. ται)

Τα κελύφη δεξαμενο-CONTAINERS προοριζομένων για τη μεταφορά αερίων των 1<sup>ο</sup> έως 9<sup>ο</sup> επιβλαβών για τα αναπνευστικά όργανα ή συνεπαγομένων κίνδυνον δηλητηρίασεως 10/ δεν θα έχουν βαλβίδες ασφαλείας (ασφαλιστικά επιστόμια) εκτός εάν των βαλβίδων ασφαλείας προηγείται δίσκος εκρήξεως (BURSTING DISC). Στη δεύτερη περίπτωση η διευθέτησις του δίσκου εκρήξεως και της βαλβίδος ασφαλείας θα γίνεται κατά τρόπον ικανοποιούντά την αρμόδια αρχή.

(2) Τα κελύφη των δεξαμενο-CONTAINERS των προοριζομένων για τη μεταφορά αερίων των 7<sup>ο</sup> (α) και 8<sup>ο</sup> (α) τα οποία δεν είναι σε συνεχή επικοινωνία με τον έξω αέρα, και των προοριζομένων για τη μεταφορά των αερίων των 7<sup>ο</sup> (β) και 8<sup>ο</sup> (β) θα είναι εφοδιασμένα με δύο ανεξάρτητες βαλβίδες ασφαλείας (ασφαλιστικά επιστόμια) η κάθε μία των οποίων θα είναι έτσι σχεδιασμένη ώστε να επιτρέπεται η εκκένωση των αερίων από το κέλυφος κατά τέτοιο τρόπο που η πίεση ουδέποτε να υπερβάλει τη πίεση λειτουργίας την σημειωμένην στο δεξαμενο-CONTAINER περισσότερο από 10 ~~π~~ εκατό .

Επιπροσθέτως, τα κελύφη των τοιούτων δεξαμενο-CONTAINERS μπορούν να εφοδιασθούν με δίσκους εκρήξεως ~~σε~~ σειρά μαζί με και προηγούμενοι των βαλβίδων ασφαλείας. Στη περίπτωση αυτή η διευθέτησις του δίσκου εκρήξεως και της βαλβίδος ασφαλείας θα γίνει κατά τρόπον ικανοποιούνσα την αρμόδια αρχή.

(3) Οι βαλβίδες ασφαλείας (ασφαλιστικά επροσδμία) 2Ι2.232 των κελυφών των δεξαμενο-CONTAINERS των προοριζομένων (Συνεχίζεται) για τη μεταφορά των αερίων των 7<sup>ο</sup> και 8<sup>ο</sup> θα είναι ικανά να ανοίγουν στη πίεση λειτουργίας την σημειουμένην στο δεξαμενο-CONTAINER. Θα είναι έτσι σχεδιασμένες ώστε να λειτουργούν αλάνθαστα ακόμη και στη χαμηλότερη θερμοκρασία λειτουργίας. Το αξιόπιστον της λειτουργίας των στη θερμοκρασία αυτή θα διαπιστούται και ελέγχεται είτε διά δοκιμής εκάστης βαλβίδος είτε δια δοκιμής δείγματος βαλβίδας εκάστου τύπου.

Μία εσωτερική περιορίζουσα τη ροή βαλβίδα ή 2Ι2.233 ισοδύναμος μηχανισμός θα εφαρμόζεται σε κάθε οπή διαμέτρου άνω των 1.5 MM (χιλ.) που θα φέρει το κέλυφος για τη διέλευση των αερίων ή υγρών, πλην των οπών των φερουσών τις βαλβίδες ασφαλείας.

Θερμομόνωσις. 2Ι2.234

(I) Εάν τα κελύφη των δεξαμενο-CONTAINERS των προοριζομένων για τη μεταφορά των υγροποιημένων αερίων των 3<sup>ο</sup> έως 4<sup>ο</sup> είναι εξοπλισμένα με θερμομόνωση, η μόνωση αυτή θα υπόκειται στις ειδικές διατάξεις υπό στοιχείον (2) κατωτέρω

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ΙΟ/ Αέρια χαρακτηριζόμενα δια του γράμματος "I" εις την Κατάστασιν των υλών θεωρούνται αέρια επιβλαβή για τα αναπνευστικά όργανα ή συνεπαγόμενα κίνδυνον δηλητηρίασεως.

είτε αυτή:

212.234

αποτελείται από προστατευτικό κατά του ηλίου κάλυμμα όχι λιγότερο του άνω τρίτου αλλά όχι περισσότερο του άνω ημίσεος της επιφανείας του δεξαμενο-CONTAINER και χωρισμένο από το κέλυφος με διάστημα αέρος περίπου 4 CM διαγωνίως· είτε αποτελείται από πλήρη επένδυση (CLADDING), καταλλήλου πάχους, μονωτικών υλικών.

Η θερμομόνωση θα είναι έτσι σχεδιασμένη ώστε να μη εμποδίζεται η είσοδος στους μηχανισμούς πληρώσεως και εκκενώσεως.

(2) Τα κελύφη των δεξαμενο-CONTAINERS των προοριζομένων για τη μεταφορά I, 3-βουταδιένης ( $3^{\circ}(\gamma)$ ), ή μεθυλοβινυλιοαιθέρα, τριφθοροχλωροαιθυλένιο ή βρωμιούχο βινύλιο ( $3^{\circ}(\text{C T})$ ), θα προστατεύονται από προστατευτικό κατά του ηλίου κάλυμμα ως ορίζεται ανωτέρω.

(3) Τα κελύφη των δεξαμενο-CONTAINERS των προοριζομένων για τη μεταφορά αερίων των  $7^{\circ}$  και  $8^{\circ}$  θα είναι θερμομονωμένα. Η θερμομόνωση θα προστατεύεται κατά της προσκρούσεως δια συνεχούς μεταλλικής επενδύσεως. Εάν το διάστημα μεταξύ του κελύφους και της μεταλλικής επενδύσεως είναι υπό κενόν (μόνωση κενού), η προστατευτική επένδυσις θα είναι έτσι σχεδιασμένη ώστε να ανθίσταται άνευ παραρροφώσεως/εξωτερική πίεση τουλάχιστον  $1 \text{ KG/CM}^2$  (πίεση θλιβομέτρου). Εάν η επένδυση είναι έτσι κλεισμένη ώστε να είναι αεριοστεγανή, θα προμηθευθεί μηχανισμός εμποδίζων οποιαδήποτε επικίνδυνον πίεσιν να αναπτυχθεί στο στρώμα της μονώσεως ~~σε~~ περιπτώσει μη επαρκούς αεριοστεγανότητας του κελύφους ή των ειδών εξο-

πλισμού αυτού. Ο μηχανισμός θα εμποδίζει την εισχώρηση υγρασίας στη θερμομονωτική επένδυση. 2Ι2.234  
(Συνεχίζεται)

(4) Τα κελύφη των δεξαμενο-CONTAINERS των προοριζομένων για τη μεταφορά οξυγόνου (7<sup>ο</sup> (α)), ή αέρος ή μιγμάτων οξυγόνου με άζωτον (8<sup>ο</sup> (α)), δεν θα περιλαμβάνουν οιοδήποτε καύσιμον υλικόν είτε στη θερμομόνωση είτε στα μέσα προσκολλησεως (συνδέσεως) στο πλαίσιο.

Στη περίπτωση δεξαμενο-CONTAINERS πολλαπλών στοιχείων, θα πληρούνται οι κάτωθι όροι. 2Ι2.235

(I) Εάν ένα από τα στοιχεία του δεξαμενο-CONTAINER πολλαπλών στοιχείων είναι συναρμολογημένο με βαλβίδα ασφαλείας (ασφαλιστικό επιστόμιο) και παρέχονται μηχανισμοί κλεισίματος μεταξύ των στοιχείων, κάθε στοιχείο θα είναι έτσι συναρμολογημένο.

(2) Οι μηχανισμοί πληρώσεως και εκκενώσεως μπορούν να συναρμολογηθούν σε σωλήνωση.

(3) Κάθε στοιχείο δεξαμενο-CONTAINER πολλαπλών στοιχείων προοριζομένου για τη μεταφορά πεπιεσμένων αερίων των 1<sup>ο</sup> και 2<sup>ο</sup> επιβλαβών για τα αναπνευστικά όργανα ή συνεπαγομένων κίνδυνον δηλητηριάσεως ΙΟ/ θα πρέπει να είναι ικανό

ΙΟ/ Τα παρακάτω θεωρούνται ότι είναι υγροποιημένα αέρια επιβλαβή για τα αναπνευστικά όργανα και συνεπαγόμενα κίνδυνον δηλητηριάσεως: υδροβρώμιο (άνυδρο υδροβρωμικό οξύ), υδροφθόριο (άνυδρο υδροφθορικό οξύ), υδροθείο (θειωμένο υδρογόνο), αμμωνία, χλώριο, διοξείδιο του θείου (άνυδρο θειώδες οξύ), διοξείδιο του αζώτου (υπεροξείδιο του αζώτου· τετροξείδιο του αζώτου), αέριο T, μεθυλοβινυλιοαιθέρας,

να μονωθεί με βαλβίδα.

212.235

(4) Τα στοιχεία δεξαμενο-CONTAINER πολλαπλών στοιχείων προοριζομένου για τη μεταφορά υγροποιημένων αερίων των 3<sup>ο</sup> έως 5<sup>ο</sup> επιβλαβών για τα αναπνευστικά όργανα ή συνεπαγομένων κίνδυνον δηλητηρίασεως I0/ θα είναι έτσι σχεδιασμένα ώστε να μπορούν να πληθούνται χωριστά και να τηρούνται μονωμένα δια βαλβίδος ικανής να στεγανοποιηθεί.

212.236-

212.239

#### Άρθρο 4

#### Έγκριση Τύπου

(Ουδεμία ειδική διάταξις)

212.240-

212.249

#### Άρθρο 5

#### Δοκιμαί (Έλεγχοι)

Τα υλικά των κελύφων δεξαμενο-CONTAINERS των προοριζομένων για τη μεταφορά αερίων των 7<sup>ο</sup> και 8<sup>ο</sup> θα ελέγχονται δια της μεθόδου της περιγραφομένης στη Προσθήκη Β.Ιδ, περιθώρια 214.250 έως 214.285.

212.250

Η δοκιμή πίεσεως θα έχει ως κάτωθι:-

212.251

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 χλωρομεθάνιο (χλωριούχο μεθύλιο), βρωμομεθάνιο (βρωμιούχο μεθύλιο), φωσγένιο (χλωριούχο καρβ/ονόλιο), βρωμιούχο βινύλιο, μεθυλαμίνη (μονομεθυλαμίνη), διμεθυλαμίνη, τριμεθυλαμίνη, αιθυλαμίνη (μονοαιθυλαμίνη), οξείδιο αιθυλενίου, μεθανεθιδόλη (μεθυλομερκαπτάνη), μίγματα διοξειδίου του άνθρακος με αιθυλενοξείδιο και υγροποιημένο υδροχλώριο (άνυδρο υδροχλωρικό οξύ).

(1) Δεξαμενο-CONTAINERS προοριζόμενα για τη μεταφορά αερίων των 1<sup>ο</sup> έως 2<sup>ο</sup>, συμφώνως προς το περιθώριο 2219 (1)•

(2) Δεξαμενο-CONTAINERS προοριζόμενα για τη μεταφορά αερίων των 3<sup>ο</sup> και 4<sup>ο</sup>, συμφώνως προς το περιθώριο 2220 (2) εάν τα κελύφη δεν είναι διαμέτρου μεγαλύτερου των 1.5 μ., και συμφώνως προς το περιθώριο 211.251 (2) (β) εάν τα κελύφη είναι διαμέτρου μεγαλύτερας των 1.5 μ.

(3) Δεξαμενο-CONTAINERS προοριζόμενα για τη μεταφορά των αερίων των 5<sup>ο</sup> και 6<sup>ο</sup>, συμφώνως προς περιθώριον 2220 (3) και (4), και συμφώνως προς περιθώριο 211.251 (3) (β) στη περίπτωση δεξαμενο-CONTAINERS πολλαπλών στοιχείων τα στοιχεία των οποίων αλληλοσυνδέονται και σχηματίζουν συστοιχίαν, δεν είναι μονωμένα αλλήλων, και είναι εγκιβωτισμένα σε θερμομόνωση.

(4) Δεξαμενο-CONTAINERS προοριζόμενα για τη μεταφορά αμμωνίας διαλυομένης υπό πίεσιν (9<sup>ο</sup> (α T)), συμφώνως προς το περιθώριον 211.251 (4)•

(5) (α) Δεξαμενο-CONTAINERS συναρμολογημένα με βαλβίδες ασφαλείας (ασφαλιστικά επιστόμια) και προοριζόμενα για τη μεταφορά αερίων των 7<sup>ο</sup> και 8<sup>ο</sup>. 1.5 φορές την πρέση λειτουργίας την σημειουμένην στα κελύφη, αλλά όχι μικροτέρα των 3 KG/CM<sup>2</sup> (πρέση θλιβομέτρου)• για δεξαμενο-CONTAINERS με μόνωσιν κενού η πρέση δοκιμής θα είναι 1.5 φορές την πρέση λειτουργίας ηυξημένην κατά 1 KG/CM<sup>2</sup>.

(β), Προκειμένου περί δεξαμενο-CONTAINERS 2Ι2.25Ι  
 άνευ βαλβίδων ασφαλείας (ασφαλιστικών (Συνεχίζεται)  
 επιστομών) προοριζομένων για τη μεταφορά  
 των αερίων των 7<sup>ο</sup> (α) και 8<sup>ο</sup> (α), η πρώτη  
 δοκιμή θα εκτελεστεί σε 2 KG/CM<sup>2</sup> (πίεση  
 θλιβομέτρου) και οι περιοδικοί έλεγχοι  
 σε 1 KG/CM<sup>2</sup> (πίεση θλιβομέτρου).

Η πρώτη δοκιμή (έλεγχος) υδραυλικής πίεσεως θα εκτε2Ι2.252  
 λείται προ της εφαρμογής της θερμομονώσεως.

Η χωρητικότης του κελύφους εκάστου δεξαμενο- 2Ι2.253  
 CONTAINER προοριζομένου για τη μεταφορά αερίων των 3<sup>ο</sup>, 4<sup>ο</sup>  
 και 9<sup>ο</sup> θα καθορίζεται, υπό την επίβλεψιν ειδικού εγκριθέν-  
 τος από την αρμόδια αρχή, δια ζυγίσεως ή ογκομετρικής  
 μετρήσεως της ποσότητος του ύδατος της απαιτουμένης για  
 να γεμίσει το κέλυφος. Η μέτρηση της χωρητικότητος του  
 κελύφους θα είναι ακριβείας μέχρι 1 ~~σάκ~~ εκατό. Ο καθο-  
 ρισμός της χωρητικότητος βάσει των διαστάσεων του κελύ-  
 φους δεν επιτρέπεται. Τα ανώτατα επιτρεπτά βάρη πληρώσεως  
 συμφώνως προς τα περιθώρια 2220 (4) και 2ΙΙ.25Ι (3) θα προ-  
 βλέπωνται (καθορίζονται) από εγκριθέντα ειδικόν.

Όλα αι συγκολλήσεις του κελύφους θα ελέγχωνται 2Ι2.254  
 ραδιογραφικώς ή υπερηχητικώς χωρίς να προκαλούνται εις  
 αυτές καταστροφές.

Κατά παρέκβαση των διατάξεων των περιθωρίων 2Ι2.255  
 2Ι2.Ι50 και 2Ι2.Ι5Ι, οι περιοδικοί έλεγχοι θα λαμβάνουν  
 χώρα:-

(Ι) Κάθε δύομιση έτη προκειμένου περι δεξαμενο-  
 CONTAINERS προοριζομένων για τη μεταφορά τριφθοριούχου



βορλου (I<sup>ο</sup> (α Τ)), δημοτικού αερίου (2<sup>ο</sup> (β Τ)), χλωρ- 2Ι2.255  
 ου, υδροβρωμίου, διοξειδίου του αζώτου, φωσγενίου ή (Συνεχίζεται)  
 διοξειδίου του θείου (3<sup>ο</sup> (α Τ)), υδροθείου (3<sup>ο</sup> (β Τ)) ή  
 υδροχλωρίου (5<sup>ο</sup> (α Τ)).

(2) Μετά από υπηρεσίαν έξη ετών, προκειμένου περί δεξαμενο-CONTAINERS, άνευ βαλβίδων ασφαλείας, προοριζομένων για τη μεταφορά αερίων των 7<sup>ο</sup> (α) και 8<sup>ο</sup> (α).

(3) Μετά από υπηρεσίαν οκτώ ετών, και μετάπειτα κάθε Ι2 έτη προκειμένου περί δεξαμενο-CONTAINERS άνευ βαλβίδων ασφαλείας και προοριζομένων για τη μεταφορά αερίων των 7<sup>ο</sup> (α) και 7<sup>ο</sup> (β) και δεξαμενο-CONTAINERS προοριζομένων για τη μεταφορά αερίων των 7<sup>ο</sup> (β) και 8<sup>ο</sup> (β). Έλεγχος στεγανότητας μπορεί να γίνει, κατόπιν αιτήσεως της αρμόδιας αρχής μεταξύ δύο διαδοχικών ελέγχων.

Κατά τους περιοδικούς ελέγχους δεξαμενο-CONTAINERS 2Ι2.256  
 ΕRS εξοπλισμένων με μόνωση κενού, και προοριζομένων για τη μεταφορά αερίων των 7<sup>ο</sup> και 8<sup>ο</sup>, η υδραυλική δοκιμή μπορεί να αντικατασταθεί από δοκιμή διαρροής εκτελουμένην είτε με τα αέρια τα οποία τα δεξαμενο-CONTAINERS προορίζονται να περιέχουν είτε με αδρανές αέριο.

Εάν, κατά τας περιοδικάς επιθεωρήσεις, κατα- 2Ι2.257  
 σκευάζονται ανθρωποθυρίδες σε δεξαμενο-CONTAINERS προοριζόμενα για τη μεταφορά αερίων των ΙΠ<sup>ο</sup> έως Ι3<sup>ο</sup>, η μέθοδος με την οποία θα κλειθούν ερμητικά προτού τα δεξαμενο-CONTAINERS επανέλθουν σε υπηρεσία θα είναι εκείνη που θα εγκρίνει ο εγκριθείς ειδικός και θα εξασφαλίζει την ακεραιότητα του κελύφους.

2Ι2.258-

2Ι2.259

Άρθρο 6Μαρνάρισμα

Επιπρόσθετα, τα παρακάτω στοιχεία θα μαρνάρων- 2Ι2.260  
ται δια σφραγίσεως ή δι' οιασδήποτε άλλης ισοδυνάμου με-  
θόδου πάνω στη πλάκα που περιγράφεται στο περιθώριον  
2Ι2.Ι60 ή απ' ευθείας πάνω στα τοιχώματα αυτού τούτου του  
κελύφους (μπόμπας, SHELL) εάν τα τοιχώματα είναι έτσι ενι-  
του κελύφους  
σχυμένα ώστε η αντοχή/ να μην εξασθενείται.

(Ι) Επί δεξαμενο-CONTAINERS προοριζομένων για τη  
μεταφορά μίας μόνον ύλης:

Το όνομα του αερίου πλήρως.

Τούτο θα συνοδεύεται, προκειμένου περί δεξαμε-  
νο-CONTAINERS προοριζομένων για τη μεταφορά πεπιεσμένων αε-  
ρίων της 1<sup>ο</sup> και 2<sup>ο</sup> από την ανωτάτη επιτρεπομένη πίεση φορτί-  
σεως και, προκειμένου περί δεξαμενο-CONTAINERS προοριζομέ-  
νων για τη μεταφορά υγροποιημένων αερίων των 3<sup>ο</sup> έως 8<sup>ο</sup> και  
διαλυμένης αμμωνίας υπό πίεση της 9<sup>ο</sup> (A T), από το επιτρε-  
πόμενο ανώτατο φορτίο σε κιλά (KG).

(2) Επί δεξαμενο-CONTAINERS πολλαπλών σκοπών:

Τα ονόματα πλήρως, των αερίων για τα οποία η μετα-  
φορά του δεξαμενο-CONTAINER έχει εγκριθεί, ακολου-  
θούμενα από τα στοιχεία του επιτρεπομένου ανωτάτου  
φορτίου, σε κιλά (KG), για έναστο από αυτά.

(3) Επί δεξαμενο-CONTAINERS εφοδιασμένων με βαλβί-  
δες ασφαλείας και προοριζομένων για τη μεταφορά αερίων της  
7<sup>ο</sup> (α) και 8<sup>ο</sup> (α), και επί δεξαμενο-CONTAINERS προοριζομένων  
για τη μεταφορά αερίων της 7<sup>ο</sup> (β) και 8<sup>ο</sup> (β):

Η πύεση λειτουργίας.

2Ι2.260

(4) Επί δεξαμενο-CONTAINERS εφοδιασμένων με θερμικήν μόνωσιν η διατύπωση "θερμικώς μονωμένα" θα εγγράφεται σε μία από τις επίσημες γλώσσες της ADR. (Συνεχίζεται)

Το πλαίσιο ενός πολλαπλών στοιχείων δεξαμενο-CONTAINER θα είναι εφοδιασμένο πλησίον του σημείου πληρώσεως με μία πλάκα στην οποία θα ορίζεται:- 2Ι2.26Ι

Η πύεση δοκιμής των στοιχείων.

Η πύεση λειτουργίας των στοιχείων των προοριζομένων για πεπιεσμένα αέρια.

Ο αριθμός των στοιχείων.

Η ολική χωρητικότητα των στοιχείων, σε λίτρες.

Το όνομα του αερίου πλήρως,

και, προκειμένου περί υγροποιημένων αερίων:

Το ανώτατο επιτρεπόμενο φορτίο ανά στοιχείον σε κιλά (KG).

2Ι2.262-

2Ι2.269

### Άρθρο 7

#### Λειτουργία

Δεξαμενο-CONTAINER προοριζόμενον εις διαφόρους χρόνους για τη μεταφορά διαφόρων υγροποιημένων αερίων των 3<sup>ο</sup> έως 8<sup>ο</sup> (δεξαμενο-CONTAINERS πολλαπλών σκοπών) δεν μπορεί να μεταφέρει ύλες άλλες από τις απαριθμούμενες σε μία, και μόνο μία, από τις παρακάτω ομάδες:- 2Ι2.270

Ομάς Ι: αλογονοποιημένοι υδρογονάνθρακες της 3<sup>ο</sup>(α) και 4<sup>ο</sup>(α),

Ομάς 2: υδρογονάνθρακες της 3<sup>ο</sup>(β) και 4<sup>ο</sup>(β),

- Ομάς 3: αμμωνία (3<sup>ο</sup> (α Τ)), διμεθυλικός αέρας, διμεθυ- 2Ι2.270  
λαμίνη, αιθυλαμίνη, μεθυλαμίνη και τριμεθυλα- (Συνεχίζεται)  
μίνη (3<sup>ο</sup> (β Τ)), και βινυλχλωρίδιο (3<sup>ο</sup> (γ)),
- Ομάς 4: μεθυλοβρωμίδιο (3<sup>ο</sup> (α Τ)), αιθυλοχλωρίδιο και  
μεθυλοχλωρίδιο (3<sup>ο</sup> (β Τ)),
- Ομάς 5: μίγματα αιθυλενοξειδίου με διοξείδιο του άνθρακος  
αιθυλενοξειδίου με άζωτον (4<sup>ο</sup> (γ Τ)),
- Ομάς 6: αέρια της 7<sup>ο</sup> (α) και μίγματα αερίων της 8<sup>ο</sup> (α),
- Ομάς 7: αιθάνιο, αιθυλένιο και μεθάνιο (7<sup>ο</sup> (β)), και μίγμα-  
τα αιθανίου με μεθάνιο, επίσης όταν περιέχουν προ-  
πάνιο ή βουτάνιο (8<sup>ο</sup> (β)).

Δεξαμενο-CONTAINERS τα οποία έχουν πληρωθεί με όλη 2Ι2.27Ι  
της ομάδος Ι ή ομάδος 2 θα αδειάζονται από υγροποιημένο  
αέριο προτού φορτωθούν με άλλη ύλη ανήκουσαν εις την ο-  
μιά ομάδα. Δεξαμενο-CONTAINERS τα οποία έχουν πληρωθεί με  
ύλην μιάς των ομάδων 3 έως 5 θα αδειάζονται πλήρως από  
υγροποιημένο αέριο και θα φυσούνται προτού φορτωθούν με  
άλλη ύλη ανήκουσαν εις την ίδια ομάδα.

Η πολλαπλή χρήση δεξαμενο-CONTAINERS για τη μεταφορά 2Ι2.272  
υγροποιημένων αερίων της ίδιας ομάδος θα επιτρέπεται εάν  
τηρηθούν άπαντες οι όροι οι προβλεπόμενοι για τα αέρια που  
θα μεταφερθούν σε ένα και το αυτό δεξαμενο-CONTAINER. Μία  
τέτοια πολλαπλή χρήση θα υπόκειται στην έγκριση εγκεκρι-  
μένου εμπειρογνώμονα.

Η πολλαπλή χρήση δεξαμενο-CONTAINERS για τη μετα-2Ι2.273  
φορά αερίων διαφόρων ομάδων θα εγκρίνεται εάν επιτρέπε-  
ται υπό των εγκεκριμένων εμπειρογνώμωνων.

Όσους φορτωμένα δεξαμενο-CONTAINERS ή κενά 2Ι2.274  
αλλά αναθάριστα δεξαμενο-CONTAINERS παραδίδονται για μετα-  
φορά, μόνον τα στοιχεία του περιθωρίου 2ΙΙ.Ι6Ι τα ισχύοντα  
για τα φορτωθέν αέριον ή το μόλις εκκενωθέν θα είναι ο-  
ρατά. <sup>Α</sup>τα στοιχεία τα αφορώντα άλλα αέρια θα καλύ-  
πτονται (κρύπτονται).

Όλα τα στοιχεία ενός πολλαπλών στοιχείων δε- 2Ι2.275  
ξαμενο-CONTAINER θα περιέχουν μόνον ένα και το αυτό αέριο.  
Στη περίπτωση δεξαμενο-CONTAINER πολλαπλών στοιχείων προ-  
οριζομένου για τη μεταφορά υγροποιημένων αερίων επίβλαβών  
εις τα αναπνευστικά όργανα ή συνεπαγομένων κίνδυνον δηλη-  
τηριάσεως Ι0%, τα στοιχεία θα πληρούνται χωριστά και θα  
τηρούνται απομονωμένα (θα απομονώνονται) με στεγανή βαλβί-  
δα (επιστόμιο).

Οι ανώτατοι επιτρεπτοί βαθμοί πληρώσεως σε κι- 2Ι2.276  
λά/λίτρα οι προβλεπόμενοι στα περιθώρια 22Ι9(2), 2220(2),  
(3) και (4) και 2ΙΙ.25Ι(2), (3) και (4) θα τηρούνται.

Ο βαθμός πληρώσεως των κελυφών (βομβών, SHELLS) 2Ι2.277  
δεξαμενο-CONTAINERS των εφοδιασμένων με βαλβίδες ασφαλεί-  
ας και προοριζομένων για τη μεταφορά αερίων των ΙΙ<sup>0</sup>- Ι3<sup>0</sup>  
θα είναι τέτοιος <sup>εις</sup> ώστε την θερμοκρασία "εγρηφόρσεως, συναγερ-  
μού" εις την οποίαν η πίεση ατμού ισούται με τη πίεση ανοίγ-  
ματος της βαλβίδος, ο όγκος του υγρού δεν υπερβαίνει τον  
επιτρεπόμενον βαθμόν πληρώσεως του κελύφους (βόμβας, SHELL)  
εις την θερμοκρασίαν αυτήν, τ.έ. 95 <sup>ε</sup>εκατό στη περι-  
πτωση ευφλέκτων αερίων και 98 <sup>ε</sup>εκατό στη περίπτωση άλ-  
λων αερίων.

Πάνω στα κελύφη (μπόμπες, SHELLS) των δεξαμε- 2Ι2.278  
νο-CONTAINERS των προοριζομένων για τη μεταφορά οξυγόνου  
(7° (α)), ή αέρος ή μιγμάτων οξυγόνου με άζωτον (8° (α)),  
ύλες περιέχουσες λίπος ή έλαιον (πετρέλαιον) δεν θα χρησι-  
μοποιούνται για να εξασφαλίζεται η στεγανότητα των ενώσεων  
ή για τη συντήρηση των κλεισιμάτων.

2Ι2.279

Άρθρο 8Μεταβατικά μέτρα

2Ι2.280-

2Ι2.299

ΚΛΑΣΙΣ 3Εύφλεκτα ΥγράΆρθρο ΙΓενικά, αντικείμενον, ορισμοί

2Ι2.300-

2Ι2.3Ι9

Άρθρο 2Κατασκευή

Τα κελύφη (μπόμπες, SHELLS) των δεξαμενο- 2Ι2.320  
CONTAINERS των προοριζομένων για τη μεταφορά διθειάν-  
θρακος (I° (α)) θα σχεδιάζονται για υπολογισθείσα πίεση  
10 KG/CM<sup>2</sup> (πίεση θλιβομέτρου).

2Ι2.32Ι-

2Ι2.329

Άρθρο 3Είδη εξοπλισμού

Δεξαμενο-CONTAINERS τα οποία είναι εφοδιασμένα 2Ι2.330

με σύστημα αερισμού άνευ μηχανισμού διακοπής (κλεισί- 2Ι2.330  
ματος), και τα οποία προορίζονται για τη μεταφορά ευ-  
φλέκτων υγρών τα οποία έχουν σημείον αναφλέξεως μη υπερ-  
βαίνον τους 55<sup>0</sup>C, και δεξαμενο-CONTAINERS εφοδιασμένα  
με βαλβίδα ασφαλείας θα έχουν φλογοπαγίδα στο σύστημα  
αερισμού.

Όλα τα ανοίγματα (οπέξ) στα κελύφη των δεξα- 2Ι2.33Ι  
μενο-CONTAINERS των προοριζομένων για τη μεταφορά ακρυ-  
λαλδεΰδης (ακρολείνης), χλωροπρενίου (χλωρο-βουταδιε-  
νίου) και διθειάνθρακος (I<sup>0</sup> (α)) θα είναι πάνω από το  
επίπεδο επιφανείας του υγρού. Ουδεμία σωλήνωσις ή ενώσεις  
σωλήνων θα διέρχωνται από τα τοιχώματα του κελύφους κάτω  
από το επίπεδο επιφανείας του υγρού. Τα ανοίγματα (οπέξ)  
θα είναι ικανά να κλείουν ερμητικά και το κλείσιμο θάναί  
ικανό (θα μπορεί) να προστατεύεται με ασφαλιστικό πώμα.

2Ι2.332-

2Ι2.339

Άρθρο 4Έγκρισις Τύπου

(Ουδεμία ειδική διάταξις)

2Ι2.340-

2Ι2.349

Άρθρο 5Δοκιμαί (Έλεγχοι)

(Ουδεμία ειδική διάταξις)

2Ι2.350-

2Ι2.359

Άρθρο 6Μαρκάρισμα

(Ουδεμία ειδική διάταξις)

2Ι2.360-

2Ι2.369

Άρθρο 7Λειτουργία

Στη περίπτωση υγρών που έχουν πίεση ατμού άνω 212.370 των  $1.75 \text{ KG/CM}^2$  (απόλυτον) στους  $50^\circ\text{C}$ , οι παρακάτω βαθμοί πληρώσεως ερμητικώς κλεισμένων κελυφών (μπομπών, (SHELLS)) δεν θα πρέπει να υπερβαίνονται: για μυρμηκικό μεθυλεστέρα ( $\text{I}^\circ$  (α)) και άλλα υγρά έχοντα συντελεστήν διαστολής άνω των  $150 \times 10^{-5}$  αλλά όχι άνω των  $180 \times 10^{-5}$  ..... 91 ~~τάτα~~ εκατό της χωρητικότητος· για ακεταλδεΰδη ( $5^\circ$ ) και λοιπά υγρά έχοντα συντελεστήν κυβικής διαστολής άνω των  $180 \times 10^{-5}$  αλλά όχι άνω των  $230 \times 10^{-5}$  ..... 90 ~~τάτα~~ εκατό της χωρητικότητος.

Κέλυφος (μπόμπα, SHELL) από αλουμίνιο δεν θα 212.371 χρησιμοποιείται για τη μεταφορά ακεταλδεΰδης ( $5^\circ$ ) εκτός εάν το κέλυφος φυλάσσεται αποκλειστικώς για τέτοια μεταφορά και η ακεταλδεΰδη είναι απηλλαγμένη από οξύ.

Την ψυχρά εποχήν (Οκτώβριος - Μάρτιος), ελαφρά 212.372 αποστάγματα για διάσπαση και λοιποί υγροί υδρογονάνθρακες έχοντες πίεση ατμού μη υπερβαίνουσα τα  $1.5 \text{ KG/CM}^2$  (απόλυτον) στους  $50^\circ\text{C}$  μπορούν να μεταφέρονται σε κελύφη (μπόμπες) του τύπου του προβλεπομένου στο περιθώριο 212.133.

Διθειάνθρακας ( $\text{I}^\circ$  (α)) δεν θα μεταφέρεται 212.373 εκτός εντός ερμητικώς κλεισμένων κελυφών ή σε κελύφη εφοδιασμένα με βαλβίδες ρυθμισμένες όχι κάτω των  $3 \text{ KG/CM}^2$  (πίεσιν θλιβομέτρου).

212.374-

212.379



Άρθρο 8Μεταβατικά Μέτρα

2Ι2.380-

2Ι2.399

## ΚΛΑΣΙΣ 4.1

Εύφλεκτα στερεά

## ΚΛΑΣΙΣ 4.2

Υλεις υποκείμενες σε αυτανάφλαφλεξιν

## ΚΛΑΣΙΣ 4.3

Υλεις που αναδύουν εύφλεκτα αέρια σε επαφή με τα νερόΆρθρο ΙΓενικά, αντικείμενον, ορισμοί

2Ι2.400-

2Ι2.4Ι9

Άρθρο 2Κατασκευή.-

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS προ-  
οριζομένων για τη μεταφορά λευκού ή κιτρινού φωσφόρου  
του περιθωρίου 243Ι, Ι<sup>ο</sup>, και τριχλωροσιλανίου (πυριτο-  
χλωροφορβου) του περιθωρίου 247Ι. 4<sup>ο</sup>, θα σχεδιάζονται  
(κατασκευάζονται) για υπολογισθείσα πίεση 10 ΚG/CM<sup>2</sup>  
(πίεσιν θλιβομέτρου).

2Ι2.420

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS προ-  
οριζομένων για τη μεταφορά αλκυλίων αλουμινίου, και  
αλογονιδίων και υδριδίων αλκυλίων αλουμινίου, περιθωρίου  
243Ι, 3<sup>ο</sup>, θα σχεδιάζονται (κατασκευάζονται) γθα πίεση  
δχι μικροτέρα των 2Ι ΚG/CM<sup>2</sup> (πίεση θλιβομέτρου).

2Ι2.42Ι

2Ι2.422-

2Ι2.429

Άρθρο 3Είδη εξοπλισμού

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS προοριζο-2Ι2.430  
μένων για τη μεταφορά θείου του περιθωρίου 240Ι, 2<sup>ο</sup> (β),  
και ναφθαλίνης του περιθωρίου 240Ι, ΙΙ<sup>ο</sup> (γ), θα είναι  
εφοδιασμένα με θερμική μόνωση γενομένην από υλικά τα  
οποία δεν είναι ευχερώς εύφλεκτα ώστε η θερμοκρασία εις  
την εξωτερικήν επιφάνειαν να μη μπορεί να ανεβεί πάνω από  
50<sup>ο</sup> C διαρκούσης της μεταφοράς. Μπορούν να είναι εφοδια-  
σμένα με βαλβίδες που να ανοίγουν αυτομάτως προς τα μέσα  
ή προς τα έξω υπό την επίδραση διαφοράς πίεσεως από 0.2  
έως 0.3 KG/CM<sup>2</sup>. Οι μηχανισμοί εκκενώσεως θα είναι ικανοί  
να προστατεύονται με ασφαλιστικό μεταλλικό πώμα.

Τα κελύφη δεξαμενο-CONTAINERS προοριζομένων 2Ι2.43Ι  
για τη μεταφορά λευκού ή κιτρίνου φωσφόρου του περιθωρί-  
ου 243Ι, Ι<sup>ο</sup> θα πληρούν τους κάτωθι όρους:

(1) Ο μηχανισμός θερμάνσεως δεν θα εισχωρεί εις  
το σώμα του κελύφους αλλά θα εφαρμόζεται από έξω από αυτό.  
Άλλη σωλήνωσις θα εισέρχεται στο κέλυφος στο άνω μέρος  
του· τα ανοίγματα (οπάς) θα είναι πάνω από το ανώτατο επι-  
τρεπτό επίπεδο του φωσφόρου και θα είναι ικανά να κλείνουν  
πλήρως με ασφαλιστικά πώματα.

(2) Το κέλυφος θα είναι εφοδιασμένο με σύστημα  
μετρήσεως της στάθμης (επιπέδου) προς επαλήθευσιν του επι-  
πέδου του φωσφόρου και, εάν το ύδωρ χρησιμοποιείται ως προ-

σταθευτικός άγων, με σταθερόν σημείον εικονίζον το ανώ- 2Ι2.431  
τατον επιπρεπτόν επίπεδον (στάθμην) του ύδατος.

Τα ανοίγματα και οι οπές (βαλβίδες, αγωγοί, 2Ι2.432  
ανθρωποθυρίδες, κλπ.) στα κελύφη (μπόμπες) δεξαμενο-  
CONTAINERS προοριζομένων για τη μεταφορά υλών του περι-  
θωρου 247I, I<sup>ο</sup>(α), θα είναι εφοδιασμένα με στεγανά  
ασφαλιστικά πώματα, και τα τοιαύτα κελύφη θα είναι εφο-  
διασμένα με θερμικήν μόνωσιν γενομένην από υλικά τα οποί-  
α δεν είναι ευχερώς εύφλεκτα ώστε η θερμοκρασία στην  
εξωτερική επιφάνεια να μη μπορεί να ανεβεί πάνω από  
50<sup>ο</sup>C διαρκούσης της μεταφοράς.

[ Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS προ- 2Ι2.433  
οριζομένων για την μεταφορά αλκυλίων αλουμινίου, και  
αλογονιδίων και υδριδίων αλκυλίων αλουμινίου του περι-  
θωρου 243I, 3<sup>ο</sup>, δεν θα έχουν ανοίγματα ή συνδέσεις, ακό-  
μη και αν μπορούν να κλείνουν, κάτω του επιπέδου επιφα-  
νείας του υγρού. Ανοίγματα, περιλαμβανομένων των παρα-  
κολουθημάτων αυτών, στο άνω μέρος του κελύφους (μπόμπας)  
θα είναι ικανά να προστατεύωνται με προστατευτικό κάλυμ-  
μα (πώμα).

2Ι2.434-

2Ι2.439

Άρθρο 4Έγκρισις Τύπου

(Ουδεμία ειδική διάταξις)

2Ι2.440-

2Ι2.449

Άρθρο 5Δοκιμασί (Έλεγχος)

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS προορι- 2Ι2.450  
ζομένων για τη μεταφορά θείου του περιθωρίου 240Ι, 2<sup>ο</sup>  
(η θερμοκρασία πληρώσεως πρέπει εποπροσθέτως να λαμβάνε-  
ται υπόψη στη περίπτωση κελύφων κατασκευασμένων από αλου-  
μίνιο), ναφθαλίνης του περιθωρίου 240Ι, ΙΙ<sup>ο</sup>, λευκού ή κι-  
τρίνου φωσφόρου του περιθωρίου 243Ι, Ι<sup>ο</sup>, και τριχλωροσιλα-  
νίου (πυριτοχλωροφορμίου) του περιθωρίου 247Ι, 4<sup>ο</sup>, θα ελέγ-  
χονται σε πίεση 4 KG/CM<sup>2</sup> (πίεση θλιβομέτρου).

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS προορι- 2Ι2.45Ι  
ζομένων για τη μεταφορά αλκυλίων αλουμινίου, και αλογο-  
νιδίων και υδριδίων αλκυλίων αλουμινίου, του περιθωρίου  
243Ι, 3<sup>ο</sup>, θα υποβάλλονται σε αρχικόν έλεγχο πίεσεως, και  
σε περιοδικούς ελέγχους κάθε πέντε χρόνια, εκτελουμένους  
σε πίεση Ι0 KG/CM<sup>2</sup> (πίεση θλιβομέτρου) με υγρό το οποίο  
δεν αντιφρά με την υπό μεταφοράν ύλην.

2Ι2.452-

2Ι2.459

Άρθρο 6Μαρκάρισμα

(Ουδεμία ειδική διάταξις)

2Ι2.460-

2Ι2.469

Άρθρο 7Λειτουργία

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS προορι- 2Ι2.470  
ζομένων για τη μεταφορά θείου του περιθωρίου 240Ι, 2<sup>ο</sup>,  
θα πληροούνται όχι άνω του 98 ~~ετα~~ εκατέ της χωρητι-

αότητάς των.

Λευκός ή κίτρινος φωσφόρος του περιθωρίου 2I2.471  
243I, I<sup>o</sup>, εάν το ύδωρ χρησιμοποιείται ως προστατευτικός  
άγων θα καλύπτεται με βάθος όχι μικρότερον των 12 CM ύδα-  
τος κατά τον χρόνον της πληρώσεως· ο βαθμός πληρώσεως εις  
θερμοκρασίαν 60<sup>o</sup>C δεν θα υπερβαίνει το 98 ~~ετα~~ εκατό . Εάν  
άζωτον χρησιμοποιηθελ ως προστατευτικός άγων, ο βαθμός πλη-  
ρώσεως εις θερμοκρασίαν 60<sup>o</sup>C δεν θα υπερβαίνει το 96 ~~ετα~~  
εκατό . Ο απομένων χώρος θα πληρωθελ με άζωτον κατά τοιούτον  
τρόπον ώστε, ακόμη και μετά την φύξιν, η πίεσις εις ουδένα  
χρόνον (ουδέποτε) να πέπτει κάτω της ατμοσφαιρικής πιέσεως.  
Το κέλυφος (μπόμπα) θα είναι ερμητικώς κλεισμένη εις τρόπον  
ώστε να μη προκύψει διαρροή αερίου.

Για τη μεταφορά υλών του περιθωρίου 247I, I<sup>o</sup> 2I2.472  
(α), τα πάματα θα κλείνωνται συμφώνως προς το περιθώριο  
2I2.432 και η θερμοκρασία της εξωτερικής επιφανείας του κε-  
λύφους (μπόμπας) δεν θα υπερβαίνει τους 50<sup>o</sup>C.

Στη περίπτωση του τριχλωροσιλανίου (πυριτοχλω- 2I2.473  
ροφορμίου) του περιθωρίου 247I, 4<sup>o</sup>, ο βαθμός πληρώσεως  
δεν θα υπερβαίνει τα 1.14 KG ανά λίτρον χωρητικότητος εάν  
η πλήρωσις γίνεται κατά βάρος, ή 85 ~~ετα~~ εκατό εάν η πλήρω-  
σις γίνεται κατ' όγκον.

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS τα 2I2.474  
οποία περιείχαν φωσφόρον του περιθωρίου 243I, I<sup>o</sup>, όταν πα-  
ραδοθούν για μεταφορά είτε:-

- θα πληρούνται με άζωτον· ο αποστολεύς πρέπει  
να βεβαιολ εις το έγγραφο μεταφοράς ότι η δεξα-

·μενή μετά το κλείσιμο είναι αεροστεγανή· είτε  
 - θα πληρούνται με ύδωρ όχι λιγώτερο του 96 ~~εβα~~  
 εκατό και όχι περισσότερο του 98 ~~εβα~~ εκατό  
 της χωρητικότητος των \* μεταξύ της 1ης Οκτω-  
 βρίου και της 31ης Μαρτίου το ύδωρ τούτο θα πε-  
 ριέχει έναν ή περισσότερους αντιψυκτικούς άγον-  
 τας απηλλαγμένους από διαβρωτικήν ενέργειαν, μη  
 δυναμένους να αντιδράσουν με φωσφόρον, και επαρ-  
 κώς συμπεπυκνωμένους ώστε να αποφεύγεται η ψύξη  
 του ύδατος διαρκούσης της μεταφοράς.

2Ι2.475-

2Ι2.479

Άρθρο 8Μεταβατικά μέτρα

2Ι2.480-

2Ι2.499

## ΚΛΑΣΙΣ 5.1

Οξειδωτικές Ύλεις

## ΚΛΑΣΙΣ 5.2

Οργανικά ΥπεροξειδίαΆρθρο ΙΓενικά, αντικείμενο, ορισμοί

2Ι2.500-

2Ι2.519

Άρθρο 2Κατασκευή.-

Τα κελύφη (μπόμπες) δεξαμενο-COMTAINERS, και 2Ι2.520  
 τα είδη του εξοπλισμού των, προοριζόμενα για τη μεταφορά

υπεροξειδίου του υδρογόνου ή υδατίνων διαλυμάτων 2I2.520  
 υπεροξειδίου του υδρογόνου του περιθωρίου 250I, I<sup>ο</sup>, (Συνεχίζεται)  
 ή για τη μεταφορά υγρών οργανικών υπεροξειδίων του  
 περιθωρίου 255I, I<sup>ο</sup>, I<sup>4</sup> και I<sup>5</sup> θα είναι κατασκευασ-  
 μένα από αλουμίνιο όχι λιγότερο του 99.5 ~~έβα~~ εκατό  
 καθαρού ή καταλλήλου κράματος χάλυβος μη δυναμένου να  
 προκαλέσει την αποσύνθεσιν του υπεροξειδίου του υδρογόνου  
 ή των οργανικών υπεροξειδίων.

2I2.52I-  
 2I2.529

### Άρθρο 3

#### Είδη εξοπλισμού

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS προ- 2I2.530  
 οριζομένων για τη μεταφορά υδατίνων διαλυμάτων υπεροξει-  
 δίου του υδρογόνου περιέχοντος άνω του 70 ~~έβα~~ εκατό  
 υπεροξειδίου του υδρογόνου του περιθωρίου 250I, I<sup>ο</sup>, θα  
 έχουν τα ανοίγματα (οπάς) των άνωθεν του επιπέδου επιφανεί-  
 ας του υγρού. Στη περίπτωση διαλυμάτων που περιέχουν άνω  
 του 60 τοις εκατόν αλλά όχι άνω του 70 ~~έβα~~ εκατό υπερο-  
 ξείδιον του υδρογόνου, θα επιτρέπονται ανοίγματα (οπαί)  
 κάτωθεν του επιπέδου επιφανείας του υγρού. Στη περίπτωση  
 αυτή το σύστημα εκκενώσεως του κελύφους (μπόμπας) θα περι-  
 λαμβάνει δύο αμοιβαίως ανεξαρτήτους μηχανισμούς κλεισίμα-  
 τος, του πρώτου όντος ταχέως κλείνοντος εσωτερικού ατμο-  
 φράκτου εγκεκρομένου τύπου και του δευτέρου όντος υδατο-  
 φράκτου (βαλβίδος εκροής), συναρμολογήσεως ~~έβ~~ σειρά, εις  
 τούτων ~~έβ~~ <sup>κάθε</sup> άκρο του σωλήνα εκροής. Τυφλή φλάντζα

ή κάποιος άλλος εξ ίσου αξιόπιστος μηχανισμός θα εφαρμ- 2Ι2.530  
 ζεται επίσης εις την έξοδον εκάστου εξωτερικού υδατοφρά- (Συνεχί-  
 κτου. Ο εσωτερικός ατμοφράκτης θα είναι τέτοιος ώστε να ζεται)  
 παραμένει ακάμπτως ασφαλισμένος εις το κέλυφος και εις  
 την κλειστήν θέσιν εάν ο σωλήν αποσπασθεί.

Η σύνδεσις με τα εξωτερικά στόμια των σωλή- 2Ι2.531  
 νων των δεξαμενο-CONTAINERS θα επενδύεται με κατάλληλη  
 πλαστική ύλη.

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS προ- 2Ι2.532  
 οριζομένων για τη μεταφορά υγρών οργανικών υπεροξειδίων  
 του περιθωρίου 255I, I0<sup>0</sup>, I4<sup>0</sup> και I5<sup>0</sup>, θα είναι εφοδια-  
 σμένα με μηχανισμόν αερισμού συνδεδεμένον με φλογοπαγίδα  
 και θα ακολουθούνται ~~εθ~~ σειρά από ασφαλιστική  
 βαλβίδα <sup>που να</sup> ανοίγει ~~αυτόματα~~ σε πίεση I.8 έως 2.2 KG/CM<sup>2</sup>  
 (πίεση θλιβομέτρου). Τα υλικά, από τα οποία τα κλεισίματα  
 τα οποία μπορούν να έλθουν σε επαφή με το υγρό ή τον ατμό  
 του κατασκευάζονται, δεν θα έχουν καταλυτικήν επίδρασιν  
 (ελατηριοειδής ασφαλιστική βαλβίς κατασκευασμένη από κρά-  
 μα αλουμινίου-πυριτίου (SILUMIN) ή από ανοξείδωτο χάλυβα  
 V2A ή από υλικό ισοδυνάμου ποιότητας).

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS προ- 2Ι2.533  
 οριζομένων για τη μεταφορά οργανικών υπεροξειδίων του  
 περιθωρίου 255I, I0<sup>0</sup>, I4<sup>0</sup> και I5<sup>0</sup>, θα είναι εφοδιασμένα  
 με θερμικήν μόνωσιν συμφώνως προς τους όρους του περιθω-  
 ρίου 2Ι2.234 (I). Το κάλυμμα και το ακάλυπτον μέρος του  
 κελύφους (μπόμπας) θα είναι βαμμένα λευκά.

2Ι2.534

2Ι2.539



Άρθρο 4Έγκρισις Τύπου

(Ουδεμία ειδική διάταξις)

2Ι2.540-

2Ι2.549

Άρθρο 5Δοκιμασί (Έλεγχοι)

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS <sup>που</sup> προ-  
 ορίζονται για τη μεταφορά υπεροξειδίου του υδρογόνου  
 ή υδατίνων διαλυμάτων υπεροξειδίου του υδρογόνου, του  
 περιθωρίου 250I, I<sup>0</sup> ή υγρού οργανικού υπεροξειδίου του  
 περιθωρίου 255I, IO<sup>0</sup>, I4<sup>0</sup> και I5<sup>0</sup>, θα ελέγχωνται με  
 πίεση 4 KG/CM<sup>2</sup> (πίεση θλιβομέτρου).

2Ι2.550

2Ι2.55I-

2Ι2.559

Άρθρο 6Μαρκάρισμα

(Ουδεμία ειδική διάταξις)

2Ι2.560-

2Ι2.569

Άρθρο 7Λειτουργία

Το εσωτερικό του κελύφους (μπόμπας) του δεξα-  
 μενο-CONTAINER, και όλα τα μεταλλικά εξαρτήματα τα ο-  
 ποια είναι δυνατόν να έλθουν σε επαφή με το υπεροξει-  
 διο του υδρογόνου του περιθωρίου 250I, I<sup>0</sup>, θα διατηρεί-  
 ται καθαρό. Ουδέν υλικόν ικανόν να συνδυασθεί επικινδύνως  
 με την μεταφερομένην ύλην θα χρησιμοποιεῖται για αντλίες,  
 βαλβίδες ή άλλους μηχανισμούς.

2Ι2.570

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS προ- 2Ι2.57Ι  
 οριζομένων για τη μεταφορά υγρών του περιθωρίου 250Ι,  
 Ι<sup>ο</sup> έως 3<sup>ο</sup>, θα πληρούνται μέχρι όχι άνω του 95 ~~τα~~ εκα-  
 τό της χωρητικότητός των εις θερμοκρασίαν Ι5<sup>ο</sup> C. Τα κε-  
 λύφη δεξαμενο-CONTAINERS προοριζομένων για τη μεταφορά  
 υγρών οργανικών υπεροξειδίων του περιθωρίου 255Ι, Ι0<sup>ο</sup>,  
 Ι4<sup>ο</sup> και Ι5<sup>ο</sup>, θα πληρούνται μέχρι όχι περισσότερο του  
 80 ~~τα~~ εκατό της χωρητικότητός των. Τα κελύφη θα είναι  
 απηλλαγμένα από ακαθαρσίες κατά τον χρόνο της πληρώσεως.

2Ι2.572-

2Ι2.579

Άρθρο 8Μεταβατικά μέσα

2Ι2.580-

2Ι2.599

## ΚΛΑΣΙΣ 6.Ι

Τοξικές Ύλες.-Άρθρο ΙΓενικάμ ανεικείμενον, ορισμοί

2Ι2.600-

2Ι2.6Ι9

Άρθρο 2Κατασκευή.-

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS προ- 2Ι2.620  
 οριζομένων για τη μεταφορά υλών του περιθωρίου 260Ι,  
 2<sup>ο</sup> (α), 3<sup>ο</sup>, 4<sup>ο</sup> (α), ΙΙ<sup>ο</sup> (α), Ι3<sup>ο</sup> (β), Ι4<sup>ο</sup>, 23<sup>ο</sup>, 6Ι<sup>ο</sup>  
 (α), 6Ι<sup>ο</sup> (ε), 6Ι<sup>ο</sup> (στ), 8Ι<sup>ο</sup> και 82<sup>ο</sup>, θα σχεδιάζονται  
 εάν οι ύλες αυτές είναι υγρές σε 40<sup>ο</sup> C (πλήν των τε-

τραχλωριούχου άνθρακος, χλωροφορμίου και χλωριούχου με- 2Ι2.620  
θυλενίου) για υπολογισθείσα πίεσιν ΙΟ ΚG/CM<sup>2</sup> (πίεση (Συνεχίζεται)  
θλιβομέτρου).

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS προ- 2Ι2.62Ι  
οριζομένων για τη μεταφορά υλών αναφερομένων στο περιθώ-  
ριο 6Ι.Ι2Ι (3) πλην των απαριθμουμένων στο περιθώριο  
2Ι2.620 ανωτέρω θα είναι έτσι κατασκευασμένα ώστε να μπο-  
ρουν να εκκενούνται σε πίεση όχι μικρότερα των 3 ΚG/CM<sup>2</sup>  
(πίεση θλιβομέτρου).

2Ι2.622-

2Ι2.629

Άρθρο 3Είδη Εξοπλισμού

(Ι) Όλα τα ανοίγματα (οπαί) των κελυφών (μπομπών) 2Ι2.630  
δεξαμενο-CONTAINERS προοριζομένων για τη μεταφορά υλών  
αναφερομένων στο περιθώριο 6Ι.Ι2Ι (3) θα είναι πάνω από  
το επίπεδο επιφανείας του υγρού.

(2) Ουδέμια σωλήνωσις ή συνδέσεις σωλήνων θα διέρ-  
χωνται από τα τοιχώματα του κελύφους (μπόμπας) κάτωθι του  
επιπέδου επιφανείας του υγρού. Τα ανοίγματα (οπαί) θα μπο-  
ρουν να κλείνουν ερμητικά και το κλείσιμο θα μπορεί να  
προστατεύεται με ασφαλιστικό πώμα. Επιπρόσθετα, τα κελύ-  
φη (μπόμπες) των τοιούτων δεξαμενο-CONTAINERS μπορούν να  
είναι εφοδιασμένα με δίσκους εκρήξεως (BURSTING DISKS)  
συναρμολογημένους εν σειρά προ των ασφαλιστικών βαλβίδων.  
Σε τέτοια περίπτωση η διάταξη του δίσκου εκρήξεως και της  
ασφαλιστικής βαλβίδος θα είναι η διάταξη η ικανοποιούσα  
την αρμόδια αρχή.

2Ι2.63Ι-

2Ι2.639

Άρθρο 4Έγκρισις Τύπου

(Ουδεμία Ειδική Διάταξις)

2Ι2.640-

2Ι2.649

Άρθρο 5Δοκιμαί (Έλεγχοι)

Δεξαμενο-CONTAINERS (δεξαμενο-Υποδοχείς)

2Ι2.650

προοριζόμενοι για τη μεταφορά υλών του περιθωρίου

260Ι 2<sup>ο</sup> (α), 3<sup>ο</sup>, 4<sup>ο</sup> (α), ΙΙ<sup>ο</sup> (α), Ι3<sup>ο</sup> (β), Ι4<sup>ο</sup>, 23<sup>ο</sup>, 6Ι<sup>ο</sup>(α), 6Ι<sup>ο</sup> (ε), 6Ι<sup>ο</sup> (στ), 8Ι<sup>ο</sup> και 82<sup>ο</sup>, εάν οι ύλες αυτέςείναι υγρές σε  $\neq 40^{\circ}\text{C}$  θα ελέγχωνται αρχικώς και περιο-δικώς σε πύεση 4 KG/CM<sup>2</sup> (πύεση θλιβομέτρου).

2Ι2.65Ι-

2Ι2.659

Άρθρο 6Μαρμάρισμα

(Ουδεμία Ειδική Διάταξις)

2Ι2.660-

2Ι2.669

Άρθρο 7Λειτουργία

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS

2Ι2.670

(δεξαμενο-Υποδοχέων) προοριζομένων για τη μεταφορά υλών

του περιθωρίου 260Ι, 2<sup>ο</sup> (α), 2<sup>ο</sup> (β), 4<sup>ο</sup> (α), Ι2<sup>ο</sup> (α), Ι3<sup>ο</sup>(α), Ι3<sup>ο</sup> (β) και 8Ι<sup>ο</sup> έως 83<sup>ο</sup>, θα πληρούνται μέχρι όχι άνω

του 93 στα εκατό της χωρητικότητός των.

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS

2Ι2.67Ι

(δεξαμενο-υποδοχέων) προοριζομένων για τη μεταφορά υδα- 2Ι2.67Ι  
 τίνων διαλυμάτων αιθυλενεϊμίνης (ETHYLENEIMINE) (3<sup>ο</sup>) και  
 υλών του περιθωρίου 260Ι, Ι4<sup>ο</sup>, θα πληρούνται μέχρι όχι  
 περισσότερο του 95 ~~εκα~~ εκατό της χωρητικότητός των.

2Ι2.672-

2Ι2.679

Άρθρο 8Μεταβατικά μέτρα

2Ι2.680-

2Ι2.699

## ΚΛΑΣΙΣ 7

Ραδιενεργές ΎλεςΆρθρο ΙΓενικά, αντικείμενο, ορισμοί

2Ι2.700-

2Ι2.7Ι9

Άρθρο 2Κατασκευή

Δεξαμενο-CONTAINERS (δεξαμενο-υποδοχείς) προ-+ 2Ι2.720  
 οριζόμενοι για τη μεταφορά υλών αναφερομένων στο Παράρτη-  
 μα 5, με εξαίρεσιν το εξαφθοριούχο ορράνιο, θα σχεδιάζων-  
 ται (κατασκευάζονται) για υπολογισθείσα πίεση 4KG/CM<sup>2</sup> του-  
 λάχιστον. Στη περίπτωση δεξαμενο-CONTAINERS (δεξαμενο-  
 υποδοχέων) προοριζομένων για τη μεταφορά εξαφθοριούχου  
 ουρανίου, η πίεση υπολογισμού θα ορίζεται σε Ι0 KG/CM<sup>2</sup>.  
 Όταν η ραδιενεργός ύλη είναι διάλυμα ή αιώρημα σε επικίν-  
 δυνες ύλες άλλων Κλάσεων και όταν αι απαιτούμεναι πιέσεις  
 υπολογισμού για δεξαμενο-υποδοχείς προοριζομένους για τη

μεταφορά των τελευταίων υλών είναι μεγαλύτεραι, θα εφαρ- 2Ι2.720  
 μόζονται αι πιέσεις αυτές. (Συνεχίζε-  
 ται)

2Ι2.72Ι-

2Ι2.729

Άρθρο 3Εξοπλισμός

Τα ανοίγματα (οπές) δεξαμενο-CONTAINERS (δεξαμε- 2Ι2.730  
 νο-υποδοχέων) προοριζομένων για τη μεταφορά υγρών ραδιε-  
 νεργών υλών 9/ θα είναι άνω του επιπέδου του υγρού και  
 ουδεμία σωλήνωσις ή σύνδεσις σωλήνων θα διέρχεται από  
 τα τοιχώματα του κελύφους (μπόμπας) κάτω από το επίπεδον  
 επιφανείας του υγρού.

2Ι2.73Ι-

2Ι2.739

Άρθρο 4Έγκρισις Τύπου

Δεξαμενο-CONTAINERS (δεξαμενο-υποδοχείς) εγκρι- 2Ι2.740  
 θέντες για τη μεταφορά ραδιενεργών υλών δεν θα εγκρι-  
 νωνται για τη μεταφορά οινωδήποτε άλλων υλών.

2Ι2.74Ι-

2Ι2.749

Άρθρο 5Δοκιμαί (Έλεγχοι)

Οι δεξαμενο-CONTAINERS (δεξαμενο-υποδοχείς) θα 2Ι2.750  
 υποβάλλονται, τουλάχιστον μία φορά κάθε πέντε χρόνια, σε  
 δοκιμή υδραυλικής πίεσεως σε πλεση 4 KG/CM<sup>2</sup>. Κατά παρέκ-  
 βασιν του περιθωρίου 2Ι2.Ι50, η περιοδική εσωτερική επι-

θεώρησις μπορεί να αντικαθίσταται με δοκιμήν υπερηχητικών κυμάτων του πάχους του τοιχώματος διεξαγομένην κάθε δυόμισυ χρόνια.

2Ι2.75Ι-

2Ι2.759

Άρθρο 6Μαρμάρισμα

2Ι2.760-

(Ουδεμία Ειδική Διάταξις)

2Ι2.769

Άρθρο 7Λειτουργία

Ο βαθμός πληρώσεως σε θερμοκρασία 15<sup>ο</sup> C δεν θα υπερβαίνει το 93 ~~εβα~~ εκατό της ολικής χωρητικότητας του κελύφους (μπόμπας). Δεξαμενο-CONTAINERS (δεξαμενο-υποδοχείς) οι οποίοι εχρησιμοποιήθησαν για τη μεταφορά ραδιενεργών υλών δεν θα χρησιμοποιούνται για τη μεταφορά άλλων υλών.

2Ι2.770

2Ι2.77Ι-

2Ι2.779

Άρθρο 8Μεταβατικά διατάξεις

2Ι2.780-

2Ι2.799

## ΚΛΑΣΙΣ 8

Διαβρωτικές ΎλεςΆρθρο ΙΓενικά, αντικείμενο, ορισμοί

2Ι2.800-

2Ι2.8Ι9

Άρθρο 2Κατασκευή

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS (δεξα- 2Ι2.820  
μενο-υποδοχέων) προοριζομένων για τη μεταφορά υδροφθορ-  
ου (άνυδρου υδροφθορικού οξέος) (6<sup>ο</sup> (α)), υδατίνων διαλυ-  
μάτων υδροφθορικού οξέος (6<sup>ο</sup> (β)), ή βρωμίου (Ι4<sup>ο</sup>), θα  
σχεδιάζονται (κατασκευάζονται) για πίεση όχι μικρότερη  
των 2Ι KG/CM<sup>2</sup> (πίεση θλιβομέτρου).

Τα κελύφη δεξαμενο-CONTAINERS (δεξαμενο-υποδο- 2Ι2.82Ι  
χέων) προοριζομένων για τη μεταφορά υλών της Ι<sup>ο</sup>, (α) και  
(β)· 2<sup>ο</sup>, (α) και (β)· 6<sup>ο</sup> (γ)· 7<sup>ο</sup> έως 9<sup>ο</sup>· 2Ι<sup>ο</sup> (α)· και  
23<sup>ο</sup>, θα κατασκευάζονται για πίεση όχι μικρότερη των Ι0  
KG/CM<sup>2</sup> (πίεση θλιβομέτρου).

Τα κελύφη δεξαμενο-CONTAINERS (δεξαμενο-υποδο- 2Ι2.822  
χέων) προοριζομένων για τη μεταφορά των υλών των αναφερο-  
μένων στο περιθώριο 8Ι.Ι2Ι (2), πλην των απαριθμουμένων  
στο περιθώριο 2Ι8.200 και 2Ι8.20Ι, θα σχεδιάζονται (κατα-  
σκευάζονται για υπολογισθείσα πίεση 4 KG/CM<sup>2</sup> (πίεση θλιβο-  
μέτρου) και θα είναι έτσι κατασκευασμένα ώστε να μπορούν  
να εκκινούνται σε πίεση όχι μικρότερη των 3 KG/CM<sup>2</sup> (πίεση  
θλιβομέτρου).

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS (δεξαμε- 2Ι2.823  
νο-υποδοχέων) προοριζομένων για τη μεταφορά υδατίνων δια-  
λυμάτων του υπεροξειδίου του υδρογόνου (4Ι<sup>ο</sup>) θα πληρούν  
τους όρους του περιθωρίου 2Ι6.200.

2Ι2.824-

2Ι2.829



Άρθρο 3Είδη Εξοπλισμού

Όλα τα ανοίγματα (οπάδες) των κελυφών (μπομπών) δεξαμενο-CONTAINERS (δεξαμενο-υποδοχέων) προοριζομένων για τη μεταφορά υλών της 6<sup>ο</sup> ή βρωμίου (I4<sup>ο</sup>) θα είναι άνω της επιπέδου της επιφάνειας του υγρού. Ουδέμια σωλήνωσις ή συνδέσεις σωλήνων θα διέρχωνται από τα τοιχώματα του κελύφους (μπόμπας) κάτω από το επίπεδο της επιφάνειας του υγρού. Τα κλεισίματα θα μπορούν να προστατεύωνται αποτελεσματικά με μεταλλικό κάλυμμα (πάμα). 2I2.830

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS (δεξαμενο-υποδοχέων) προοριζομένων για τη μεταφορά σταθεροποιημένου τριοξειδίου του θείου (9<sup>ο</sup>) θα είναι θερμικώς μονωμένον και θα είναι εφοδιασμένον με μηχανισμόν θερμάνσεως από έξω. Τα κελύφη (μπόμπες) μπορεί να είναι του τύπου εκκενώσεως εκ του πυθμένου. Στη περίπτωση αυτή το σύστημα εκκενώσεως του κελύφους θα περιέχει δύο αμοιβαίως ανεξαρτήτους μηχανισμούς κλεισίματος (διακοπής), του πρώτου όντος ταχείος κλειόντος εσωτερικού ατμοφράκτου εγκεκριμένου τύπου και του δευτέρου όντος υδατοφράκτου, συναρμολογήσεως εν σειρά, εις τούτων εις έκαστον άκρον του σωλήνος εκκενώσεως. Τυφλή φλάντζα ή κάποιος άλλος εξ ίσου αξιόπιστος μηχανισμός θα εφαρμόζεται επίσης εις την εξαγωγή εκάστου εξωτερικού υδατοφράκτου. 2I2.831

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS (δεξαμενο-υποδοχέων) προοριζομένων για τη μεταφορά διαλυμάτων υδροχλωρίτου (37<sup>ο</sup>) και υδατίνων διαλυμάτων υπεροξειδίου 2I2.832

του υδροφθόνου (41<sup>ο</sup>) θα είναι έτσι σχεδιασμένα (κατασκευασμένα) ώστε να αποφεύγεται η είσοδος ξένης ύλης, η διαρροή του υγρού, και η ανάπτυξης οιασδήποτε επικινδύνου υπερβολικής πίεσεως στο κέλυφος (μπόμπα).

212.833-

212.839

Άρθρο 4Έγκρισις Τύπου

(Ουδεμία Ειδική Διάταξις)

212.840-

212.849

Άρθρο 5Δοκιμαί (Έλεγχοι)

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS (δεξαμενο-212.850 υποδοχέων) προοριζομένων για τη μεταφορά υδροφθορλου (άνυδρου υδροφθορικού οξέος) (6<sup>ο</sup> (α)), ή υδατίνων διαλυμάτων υδροφθορικού οξέος της 6<sup>ο</sup> (β), θα υφίστανται την αρχική δοκιμή πίεσεως και τις περιοδικές δοκιμές σε πίεση 10 KG/CM<sup>2</sup> (πίεση θλιβομέτρου), και των προοριζομένων για τη μεταφορά των λοιπών υλών των αναφερομένων στο περιθώριο 81.121 (2), σε πίεση 4 KG/CM<sup>2</sup> (πίεση θλιβομέτρου).

Η δοκιμή της πίεσεως των δεξαμενο-CONTAINERS 212.851 (δεξαμενο-υποδοχέων) των προοριζομένων για τη μεταφορά σταθεροποιημένου τριοξειδίου του θείου (9<sup>ο</sup>) θα επαναλαμβάνεται κάθε δύομισυ χρόνια.

Κ κατάσταση της μολυβδίνου επενδύσεως των κελυ- 212.852 φών (μπομπών) των δεξαμενο-CONTAINERS (δεξαμενο-υποδοχέων) των προοριζομένων για τη μεταφορά βρωμίου (14<sup>ο</sup>) θα ελέγχε-

ται κατ'έτος από εγκεκριμένο εμπειρογνώμονα, ο οποίος θα επιθεωρεί το εσωτερικό του κελύφους (μπόμπας).

Επιπρόσθετα των δοκιμών των προβλεπομένων 2Ι2.853 στο Άρθρο 5, η κατά της διαβρώσεως αντιστάσεις των δεξαμενο-CONTAINERS (δεξαμενο-υποδοχέων) των προοριζομένων για τη μεταφορά υδροφθορίου (ανύδρου υδροφθορικού οξέος) (6<sup>ο</sup> (α)), ή υδατίνων διαλυμάτων υδροφθορικού οξέος της 6<sup>ο</sup> (β), θα ελέγχεται δια καταλλήλων οργάνων (π.χ. δια μεθόδων υπερηχητικών κυμάτων) και η κατάσταση των ειδών εξοπλισμού θα επαληθεύεται, κάθε δυόμισυ χρόνια.

2Ι2.854-

2Ι2.859

#### Άρθρο 6

#### Μαρκάρισμα

Επιπρόσθετα των στοιχείων των προβλεπομέ- 2Ι2.860  
νων στα περιθώρια 2Ι2.Ι60 και 2Ι2.Ι6Ι, τα παρακάτω στοι-  
χεία θα μαρκάρωνται επί των δεξαμενο-CONTAINERS (δεξαμε-  
νο-υποδοχέων) των προοριζομένων για τη μεταφορά υδρο-  
φθορίου (ανύδρου υδροφθορικού οξέος) (6<sup>ο</sup> (α)), υδατίνων  
διαλυμάτων υδροφθορικού οξέος της 6<sup>ο</sup> (β), ή βρωμίου (Ι4<sup>ο</sup>):  
το επιτρεπτό ανώτατο καθαρό φορτίο σε κιλά (KG), και την  
ημερομηνίαν (μήνας και έτος) της πειό τελευταίας εσωτερι-  
κής επιθεωρήσεως του κελύφους.

2Ι2.86Ι-

2Ι2.869

#### Άρθρο 7

#### Λειτουργία

Τα κελύφη (μπόμπες) δεξαμενο-CONTAINERS 2Ι2.870

(δεξαμενο-υποδοχέων) προοριζομένων για τη μεταφορά 2I2.870  
θειϊκού οξέος (I<sup>α</sup> (γ)) θα πληρούνται μέχρι όχι περισσό- (Συνεχί-  
τερο του 95 ~~έβα~~ εκατό της χωρητικότητός των, των προο- ζεται)  
ριζομένων για τη μεταφορά σταθεροποιημένου τριοξειδίου  
του θείου (9<sup>ο</sup>) μέχρι όχι περισσότερο του 88 ~~έβα~~ εκατό,  
και των προοριζομένων για τη μεταφορά βρωμίου (I4<sup>ο</sup>) μέχρι  
όχι λιγώτερο του 88 τοις εκατόν και όχι περισσότερο του  
92 ~~έβα~~ εκατό ή μέχρι 2.86 KG ανά λίτρο χωρητικότητας.  
Κελύφη (μπόμπες) προοριζόμενα για τη μεταφορά υδροφθορίου  
(άνυδρου υδροφθορικού οξέος) (6<sup>ο</sup> (α)) και υδατίνων διαλυ-  
μάτων υδροφθορικού οξέος (6<sup>ο</sup> (β)) δεν θα πληρούνται πάνω  
από 0.84 KG ανά λίτρον χωρητικότητας.

2I2.87I-

2I2.879

Άρθρο 8Μεταβατικά Μέτρα

2I2.880-

2I3.099

Προσθήκη Β. Ιγ

ΔΙΑΤΑΞΕΙΣ ΠΟΥ ΑΦΟΡΟΥΝ ΣΤΑΘΕΡΕΣ ΔΕΞΑΜΕΝΕΣ (ΒΥΤΙΑ) ΚΑΙ  
ΑΥΟΜΕΝΕΣ ΔΕΞΑΜΕΝΕΣ ΣΕ ΕΝΙΣΧΥΜΕΝΑ ΠΛΑΣΤΙΚΑ

Παρατηρήσεις

- Η παρούσα Προσθήκη έχει εφαρμογήν επί σταθερών  
δεξαμενών και λυομένων δεξαμενών\* δεν έχει εφαρμογήν  
επί συστοιχιών δοχείων (BATTERIES OF RECEPTACLES), επί  
δεξαμενο-CONTAINERS (δεξαμενο-υποδοχέων), ή επί δοχείων  
(RECEPTACLES).

- Για δοχεία (RECEPTACLES), βλέπε τις αφορώσεις αυτά διατάξεις στο Παράρτημα Α (κδλα).

- Υπενθυμίζουμε ότι το περιθώριο ΙΟ.Ι2Ι (Ι) απαγορεύει τη μεταφορά επικινδύνων υλών σε δεξαμενές εκτός όταν μία τέτοια μεταφορά ρητώς εξουσιοδοτείται. Η παρούσα Προσθήκη περιορίζεται επομένως σε διατάξεις που έχουν εφαρμογή επί σταθερών δεξαμενών και λυομένων δεξαμενών σε ενισχυμένα πλαστικά (πλαστικές ύλες) που χρησιμοποιούνται σε επιχειρήσεις μεταφοράς και οποίαι έχουν ρητώς εξουσιοδοτηθεί.

#### Άρθρο Ι

#### Γενικές διατάξεις αφορώσαι την κατασκευή σταθερών δεξαμενών και λυομένων δεξαμενών

Οι δεξαμενές (βυτία) πρέπει να πληρούν τους 2Ι3.Ι00 παρακάτω όρους της Προσθήκης Β.Ια:-

(Ι) Γενικάλ διατάξεις ισχύουσας για δεξαμενές που χρησιμοποιούνται για τη μεταφορά υλών όλων των Κλάσεων:- περιθώρια 2ΙΙ.Ι20, (4), (5) και (6)· 2ΙΙ.Ι2Ι, (Ι) και (2)· 2ΙΙ.Ι22· 2ΙΙ.Ι24· 2ΙΙ.Ι26· 2ΙΙ.Ι27, (5)· 2ΙΙ.Ι28· 2ΙΙ.Ι30· 2ΙΙ.Ι32· 2ΙΙ.Ι37· 2ΙΙ.Ι40· 2ΙΙ.Ι50 έως 2ΙΙ.Ι53· 2ΙΙ.Ι60 και 2ΙΙ.Ι6Ι· 2ΙΙ.Ι7Ι· 2ΙΙ.Ι72, (Ι) και (2)· και 2ΙΙ.Ι73 έως 2ΙΙ.Ι78.

(2) Διατάξεις ισχύουσας για δεξαμενές που χρησιμοποιούνται για τη μεταφορά των υλών της Κλάσεως 3: περιθώριο 2ΙΙ.330.

Η δοκιμή στεγανότητας και η εσωτερική επιθεώρησης θα εκτελούνται κάθε τρία χρόνια.

(3) Ειδικαι διατάξεις ισχύουσαι για δεξαμενές

που χρησιμοποιούνται για τη μεταφορά των υλών της Κλάσεως 8: περιθώριο 211.833.

Τα τοιχώματα της δεξαμενής δεν πρέπει να πα- 213.101  
ρουσιάζουν ουσιαστικόν ελάττωμα προκαλούν μείωσιν της ασφαλείας.

Τα τοιχώματα της δεξαμενής πρέπει να έχουν 213.102  
διαρκή αντίστασιν κατά των μηχανικών, θερμικών και χημικών τάσεων εις τας οποίας υποβάλλονται.

213.103

### Ανοίγματα (οπές) Δεξαμενών

(1) Οσάνκις η δεξαμενή έχει ένα ή περισσότερα ανοίγματα (οπές) εκκενώσεως κάτωθι του επιπέδου του υγρού, οιοσδήποτε σωλήν ή βαλβίς τοποθετημένη στο τοιούτο άνοιγμα (οπή) ή ανοίγματα (οπές) θα προστατεύεται δια της εμπήξεως εις το κέλυφος της δεξαμενής ή δι' οιοσδήποτε άλλου μέσου εγκριμένου υπό της αρμοδίας αρχής και παρέχοντος ισοδύναμον προστασίαν.

(2) Η χρήσις κοχλιωτών πωμάτων αυστηρώς απαγορεύεται. Οι βαλβίδες θα είναι μοντέλου εγκριμένου υπό της αρμοδίας αρχής.

(3) Οι οπές πληρώσεως θα κλείωνται με ερμητικόν μηχανισμόν. Εάν ο μηχανισμός εξέχει προς τα έξω από το κέλυφος της δεξαμενής θα προστατεύεται από ένα κάλυμμα ικανόν να αντισταθεί (να ανθέξει) εις τας τάσεις στρεβλώσεως από τυχαίο αναποδογύρισμα (ανατροπή) της δεξαμενής.

213.104-

213.119

Άρθρο 2Υλεις χρησιμοποιούμενες για τα τοιχώματα της δεξαμενής

Τα τοιχώματα των δεξαμενών μπορούν να κατασκευασθούν 2Ι3.Ι20 από τα παρακάτω υλικά:-

## (Ι) Συνθετική ρητίνη

- μη-κεκορεσμένα ρητίναι πολυεστέρος
- εποξιακά ρητίναι (EPOXIDE RESINS)
- άλλαι ρητίναι με όμοια χαρακτηριστικά, υπό τον όρον ότι επιδεικνύεται η ασφάλεια του τοιχώματος.

## (2) Ενισχύσεις ινών

Ίνες υάλου (ύαλος των τύπων Ε και C) Ι/ με κατάλληλον επένδυσιν, π.χ. με βάσιν σιλανίου ή παρόμοια προϊόντα. Αι ίνες υάλου μπορούν να χρησιμοποιούνται υπό μορφήν κομμένων ή μη-κομμένων χονδρών νημάτων (ROVINGS) συμπεριλαμβανομένων ενισχυμένων δια συρμάτων χονδρών νημάτων ή νημάτων, λινατσών ή υφασμάτων.

## (3) Προσθετικά

- (α) Προσθετικά απαραίτητα δια την μεταχείρισιν των ρητινών, π.χ., καταλύται, επιταχυνται, μονομερή (MONOMERS), σκληρυνται, θιξοτροπικές ύλες, συμφώνως προς τις οδηγίες του κατασκευαστού της ρητίνης.
- (β) Χρωστικές ύλες, EXTENDERS, και άλλα προϊόντα που επιτρέπουν την λήψιν των απαιτούμενων ιδιοτήτων, π.χ. την αύξησιν των ανθεκτι-

Ι/ Η ύαλος των τύπων Ε και C ορίζεται εις τον Πίνακα Ι.

κών εις το πυρ ιδιοτήτων, υπό τον όρον ότι δεν θα προκαλέσουν μείωσιν εις την ασφάλειαν χρήσεως (αφαλή χρήσιν) των τοιχωμάτων της δεξαμενής.

213.121-

213.129

### Άρθρο 3

#### Κατασκευή των τοιχωμάτων της δεξαμενής

Το στρώμα της εξωτερικής επιφανείας των τοιχωμά-213.130 των της δεξαμενής πρέπει να αντέχει στις ατμοσφαιρικές επιδράσεις καθώς και στη βραχεία επαφή με τις υπό μεταφοράν ύλες.

Τα τοιχώματα της δεξαμενής και οι σφραγισμένες 213.131 ενώσεις πρέπει να ικανοποιούν τους όρους μηχανικής αντιστάσεως τους αναφερομένους στο άρθρο 4.

Το στρώμα της εσωτερικής επιφανείας των τοιχω- 213.132 μάτων πρέπει να αντέχει στις διαρκείς επιδράσεις της υπό μεταφοράν ύλης. Το στρώμα αυτό πρέπει να κατασκευάζεται από ενισχυμένην ρητίνην έχουσαν κατώτατον πάχος 1 MM (χιλ.). Οι χρησιμοποιούμενες ίνες δεν πρέπει να ελαττώνουν την χημικήν αντίστασιν του στρώματος. Το εσωτερικόν μέρος του στρώματος πρέπει να είναι πλούσιον εις ρητίνες και πρέπει να έχει κατώτατο πάχος 0.2 MM (χιλ.).

Οι όροι οι λεπτομερώς αναφερόμενοι στα περιθώρια 213.140 (6) και 213.142 (2) του άρθρου 4 πρέπει να τηρούνται.

Η τελική επεξεργασία των τοιχωμάτων πρέπει να 213.133 ικανοποιεί τους όρους τους λεπτομερώς αναφερομένους στο περιθώριο 213.140 (3) του άρθρου 4.



Το κατώτατον πάχος του τοιχώματος θα είναι 213.134

- 3.5 mm (χιλ.) εάν η χωρητικότητα της δεξαμενης δεν υπερβαίνει τις 3.000 λίτρες.

- 5.0 mm (χιλ.) εάν η χωρητικότητα της δεξαμενης είναι άνω των 3.000 λιτρών.

213.135

213.139

#### Άρθρο 4

#### Μέθοδοι δοκιμής και απαιτούμενες ποιότητες

Δοκιμαί και ποιότητες απαιτούμενες για υλικά της προ- 213.140

#### τοτύπου δεξαμενής.-

##### (1) Δειγματοληψία

Τα απαιτούμενα δια την δοκιμήν δείγματα πρέπει να είναι δυνατόν να λαμβάνονται από τα τοιχώματα της δεξαμενής. Προς τον σκοπόν τούτον κομμένα τμήματα από την κατασκευήν των οπών κλπ. μπορούν να χρησιμοποιούνται.

##### (2) Ποσοστόν υλών υάλου (υάλου εις λίνας).

Η δοκιμή πρέπει να διεξάγεται συμφώνως προς τας μεθόδους τας προβλεπομένας εν ISO RECOMMENDATION R1172 1970.

Το εις ύαλον περιεχόμενον του δείγματος πρέπει να είναι υψηλότερον του 25 ~~βα~~ εκατό και κατώτερον του 85 ~~βα~~ εκατό κατά βάρος.

##### (3) Βαθμός πολυμερισμού

###### (α) Τοίχωμα ρητινών πολυεστέρος

Το περιεχόμενον υπολειμματικού στυρενίου δεν πρέπει να είναι μεγαλύτερον του 2 ~~βα~~ς εκατόν, υπολογιζόμενον επί της ολικής ποσότητος των ρητινών. Ο έλεγχος (δοκιμή) θα διεξάγεται συμ-

φώνως προς κατάλληλον μέθοδον. 2/

213.140

(4) Κάμψις και αντοχή εις εφελκυσμόν

(Συνεχίζεται)

Αι μηχανικά ιδιότητες πρέπει να καθορίζονται:-

για το κέλυφος, στις αξονικές και περιφερειακές κατεύθυνσεις

- για τα άκρα και τα τοιχώματα των διαμερισμάτων, σε κάθε οποιαδήποτε κατεύθυνση.

Εάν οι κύριες κατευθύνσεις της ενισχύσεως δεν συμπίπτουν με τις αξονικές και περιφερειακές κατευθύνσεις (π.χ. στη περίπτωση της διάξονικής περιελίξεως), η αντοχή πρέπει να καθορίζεται στις κύριες κατευθύνσεις της ενισχύσεως και να υπολογίζονται για τις αξονικές και περιφερειακές κατευθύνσεις δια της εφαρμογής των κάτωθι συνθέσεων (τύπων):-

#### Εφελκυσμός

$$\sigma_{T, C} = 2 \sigma_{T, H} \eta \mu \lambda \tau \omicron \nu \nu^2 \alpha$$

T = εφελκυσμός

$$\sigma_{T, \alpha} = 2 \sigma_{T, H} \sigma \eta \mu \lambda \tau \omicron \nu \nu^2 \alpha$$

C = περιφερειακή

#### Κάμψις

$\alpha$  = αξονική

$$\sigma_{F, C} = 2 \sigma_{F, H} \eta \mu \lambda \tau \omicron \nu \nu^2 \alpha$$

H = ελικοειδής

$$\sigma_{F, \alpha} = 2 \sigma_{F, H} \sigma \eta \mu \lambda \tau \omicron \nu \nu^2 \alpha$$

F = κάμψις

$\alpha$  = προνομιούχος γωνία περιελίξεως

2/ Η μέθοδος του προτύπου (STANDARD) DIN I6945 του Ιουνίου 1969, παράγραφος 6.4.3 θεωρείται κατάλληλος.

3/ Η μέθοδος του προτύπου (STANDARD) DIN I6945 του Ιουνίου 1969, παράγραφος 6.4.2 θεωρείται κατάλληλος.

Η αντοχή εις εφελκυσμόν πρέπει να ελέγχεται σύμφωνας προς τας μεθόδους του εγγράφου ISO/TC61/WG2/TG "Δοκιμασί πλαστικών ενισχυμένων με ύαλον" No. 4 του Φεβρουαρίου 1971. 213.140 (Συνεχίζεται)

Η αντοχή εις την κάμψιν πρέπει να ελέγχεται σύμφωνας προς τας μεθόδους της RECOMMENDATION ISO/TC61 No. 1540 του Απριλίου 1970.

#### Όροι

Καθ' ουργας δεξαμενάς πρέπει να πληρούν τους παρακάτω συντελεστές ασφαλείας κατά της θραύσεως:

Συντελεστής ασφαλείας για στατική φόρτωση: 7.5

Συντελεστής ασφαλείας για δυναμική φόρτωση: 5.5

Αι τιμαί επιταχύνσεως που θα εφαρμοσθούν κατά τον υπολογισμόν του δυναμικού φορτίου έχουν ως κάτωθι:-

2 G εις την κατεύθυνσιν του ταξειδίου

1 G εις ορθές γωνίας προς την κατεύθυνσιν του ταξειδίου

1 G κατακορύφως προς τα άνω, και

2 G κατακορύφως προς τα κάτω.

Επειδή τα χαρακτηρίστικά ελασματοειδούς εξ ενισχυμένης πλαστικής ύλης μπορεί να διαφέρουν σύμφωνας προς την κατασκευήν του, κατώταται τιμαί δεν καθορίζονται για αντοχήν εις κάμψιν και εις εφελκυσμόν αλλά για φορτία:-

$A = \epsilon \sigma_T$  όπου  $\sigma_T$  είναι η αντοχή εις εφελκυσμόν κατά την θραύσιν

$B = \epsilon^2 \sigma_F$  όπου  $\sigma_F$  είναι η αντοχή εις κάμψιν κατά την θραύσιν

Αι κατώταται τιμαί για δυνάμεις Α και Β είναι: 213.140

Για κάμψιν:—

(Συνεχίζεται)

Χωρητικότης δεξαμενής  $\leq 3.000$  λίτρας

— περιφερειακή κατεύθυνσις  $B = 600 \text{ DaN}$

— αξονική κατεύθυνσις  $B = 300 \text{ DaN}$

Χωρητικότης δεξαμενής  $> 3.000$  λίτρας

— περιφερειακή κατεύθυνσις  $B = 600 \text{ DaN}$

— αξονική κατεύθυνσις  $B = 600 \text{ DaN}$

Για εφελκυσμό:

— περιφερειακή κατεύθυνσις  $A = 100 \text{ DaN/MM}$

— αξονική κατεύθυνσις  $A = 70 \text{ DaN/MM}$

Ο συντελεστής  $E$  στην κάμψιν μετράται εις  $-40^{\circ}\text{C}$  και εις  $+60^{\circ}\text{C}$ . Οι δύο τιμαί μπορεί να μη διαφέρουν περισσότερο από 30 εκατό της τιμής της λαμβανομένης εις  $20^{\circ}\text{C}$ .

Συμπεριφορά υλικού τοιχώματος διαρκούσης δοκιμής εφελκυσμού διάρκειας άνω των 1.000 ωρών.

Η τάσις δοκιμής είναι  $\frac{\sigma}{7.5}$

Διαρκούσης της δοκιμής ο συντελεστής  $K = \frac{\xi - 1000}{\xi}$  μπορεί να μην είναι υψηλότερος του 1.6

$\xi_0$  = επιμήκυνσις φορτωθέντος δείγματος κατά την έναρξιν της δοκιμής

1.000 = επιμήκυνσις φορτωθέντος δείγματος εις το τέλος της δοκιμής.

(5) Συμπεριφορά κρούσεως

(α) Φάσις της δοκιμής

Η συμπεριφορά κρούσεως καθορίζεται επί δείγματος

ελασματοειδούς αντιστοιχούντος εις το κατασκευαστικό 213.140 υλικό το χρησιμοποιηθέν για τη κατασκευή της δεξαμενής. (Συνεχίζεται)  
Η δοκιμή διεξάγεται δια ρίψεως βάρους χάλυβος 5 KG (κιλών) επί της επιφανείας ελασματοειδούς αντιστοιχούντος προς την εξωτερικήν επιφάνειαν της δεξαμενής.

(β) Συσκευή

Η συσκευή αποτελείται από βάρος χάλυβος 5 KG, μηχανισμόν καθοδήγησης (GUIDANCE DEVICE) για το βάρος αυτό, και φέρον το δείγμα σασσί. Γενικόν διάγραμμα της συσκευής δίδεται στο διάγραμμα I. Το βάρος είναι υπό μορφήν χαλυβδίνου κυλίνδρου εφοδιασμένου με δύο οδηγούς διαδρόμους, του κάτω άκρου έχοντος σφαιρικόν σχήμα, διαμέτρου 90 MM (χιλ.).

Ο μηχανισμός καθοδήγησης (GUIDANCE DEVICE) εφαρμόζεται κάθετα προς το τοίχωμα.

Ο δειγματο-φορέας αποτελείται από δύο γωνιακούς-δοκούς (μπάρες) των 100 X 100 X 25 MM και 300 MM μήκους, συγκολλημένας σε μεταλλικό στήριγμα 400 X 400 MM (χιλ.).

Το διάκενο μεταξύ των δύο δοκών είναι 175 MM (χιλ.).

Ο δειγματο-φορέας, σταθεροποιημένος στο έδαφος, είναι εφοδιασμένος με βαθύ κοίλωμα για να επιτρέπεται το λύγισμα (η κάμψις) του δείγματος.

(γ) Προετοιμασία δειγμάτων.

Εκ του δείγματος, λαμβάνονται τρία μέρη, το καθένα 200 X 200 MM (χιλ.) X το πάχος του δείγματος.

(δ) Μέθοδος λειτουργίας  
(μέρος του δείγματος)

Το δείγμα/τοποθετείται συμμετρικώς επί του δειγματο-

φορέως· εάν είναι δυνατόν κάθεται στο στήριγμα εν 213.140  
συνεχεία δύο βασικών ευθειών γραμμών της επιφάνειας,  
κατά τοιούτον τρόπον ώστε το βάρος κτυπά το κέντρον  
της όψεως του δείγματος της αντιστοιχούσης προς/την (με)  
εξωτερικήν επιφάνειαν της δεξαμενής.

Το βάρος αφήνεται να πέσει από ένα καθορισμένο ύψος,  
και λαμβάνεται μέριμνα να εξασφαλίζεται ότι δεν ανα-  
πηδά και κτυπά το δείγμα δεύτερη φορά.

Η δοκιμή πρέπει να διεξάγεται σε θερμοκρασία περιβάλ-  
λοντος.

Το ύψος εις το οποίο το βάρος υψώνεται στον μηχανισμόν  
καθοδηγήσεως σημειούται.

Τα άλλα δύο μέρη του δείγματος ελέγχονται κατά τον ίδιον  
τρόπον.

(ε) Όρος

Τό ύψος ρίψεως για βάρος 5 KG θα είναι 1 μέτρο· το δείγ-  
μα δεν πρέπει να επιτρέπει διαρροήν άνω του 1 λίτρου  
ανά 24 ώρες όταν υποβάλεται σε στήλη ύδατος 1 μ.

(6) Αντίστασις σε χημικούς άγοντας.

Επίπεδοι πλάκες ενισχυμένης πλαστικής ύλης, παρα-  
σκευασθείσαι εις το εργαστήριον υποβάλλονται στην προσβολή  
από την επικίνδυνον ύλην σε θερμοκρασία 50°C για 30 ημέρες  
συμφώνως προς την παρακάτω διαδικασίαν:-

(α) Περιγραφή της συσκευής δοκιμής (εικονίζεται και στο  
διάγραμμα 2).

Η συσκευή δοκιμής αποτελείται από κύλινδρον εξ υάλου,  
διαμέτρου 140 X 150 MM, ύψους 150 MM με δύο ακροφύσια

τοποθετημένα εις  $135^{\circ}$  το ένα εφαρμοσμένο με μίαν 2I3.I40  
ένωσιν NS 29 για να λάβει έναν ενδιάμεσο σωλήνα (Συνεχι-  
ζεται)  
για πυκνωτήν αντιθέτου ροής (REFLUX CONDENSER) (1),  
το άλλο ακροφύσιο εφαρμοσμένο με μίαν ένωσιν NS I4.5  
για να λάβει ένα θερμομετρο (2), αποτελείται επίσης  
από έναν ενδιάμεσο σωλήνα για πυκνωτήν αντιθέτου  
ροής και από έναν πυκνωτήν αντιθέτου ροής μη εικονι-  
ζόμενον εις το διάγραμμα. Το εξ υάλου τμήμα της συ-  
σκευής θα είναι από υάλον που να αντέχει στις αλλα-  
γές της θερμοκρασίας.

Τα δείγματα ληφθέντα από τις πλάκες δοκιμής σχημα-  
τίζουν την βάση και το άνω μέρος του υάλινου κυλίν-  
δρου. Έχουν ασφαλισθεί στα άκρα του κυλίνδρου με κολ-  
λάρο PTFE. Ο κύλινδρος με τα δύο δείγματα συσφίγγεται  
μεταξύ δύο πλακών πίεσεως εκ χάλυβος αντέχοντος εις  
την διάβρωσιν με έξη κολλιωτές βίδες που σφίγγονται  
με πτερυγιωτά περιδόχλια (περιδόχλια μετ'ωτίων).

Ένας παράκυκλος (ροδέλλα) από αμίαντον πρέπει να το-  
ποθετείται μεταξύ των πλακών πίεσεως και των δειγμά-  
των. Οι παράκυκλοι αυτοί δεν εικονίζονται στο διά-  
γραμμα 2. Η θέρμανσις πραγματοποιείται από έξω με  
αυτομάτως ελεγχόμενο σωληνωτό θερμαντήρα. Η θερμο-  
κρασία μετράται εις τον θάλαμον που περιέχει το υγρό.

(β) Λειτουργία της συσκευής δοκιμής

Η συσκευή δοκιμής επιτρέπει μόνον επίπεδες πλάκες  
ομοιομόρφου πάχους να ελέγχωνται. Οι πλάκες δοκιμής  
πρέπει, εάν είναι δυνατόν, να είναι πάχους 4 MM (χιλ.)

Εάν οι πλάκες αυτές καλύπτονται με επένδυσιν γέ- 213.140  
λης (πυκτής) πρέπει να ελέγχωνται αναφορικώς με (Συνεχίζε-  
ται)  
την πρακτική των χρήσιν. Έξη εξαίωνα δείγματα, 100 χιλ.  
εκάστη πλευρά, κόβονται από τη πλάκα δοκιμής.

Για κάθε δοκιμή, τρία δείγματα ετοιμάζονται ανά συ-  
σκευήν. Ένα από αυτά τα δείγματα χρησιμοποιείται  
ως αφετηρία (REFERENCE) και τα άλλα δύο χρησιμοποι-  
ούνται δια τον έλεγχο στην υγρή ζώνην, και ζώνην ατ-  
μού του μηχανισμού αντιστοίχως.

#### (γ) Διαδικασία δοκιμής

Τα υπό έλεγχο δείγματα τοποθετούνται επί της συ-  
σκευής με την επιφάνειαν η οποία μπορεί να έχει  
επενδυθεί με γέλην (πυκτή) βλέπουσαν προς τα μέσα.  
1200 ML υγρού δοκιμής χύνονται στον υάλινο κύλινδρο.  
Η συσκευή ακολουθώς θερμαίνεται στη θερμοκρασία  
δοκιμής. Μία σταθερή θερμοκρασία διατηρείται διαρ-  
κούσης της δοκιμής. Μετά την δοκιμήν η συσκευή ψύ-  
χεται στη θερμοκρασία του περιβάλλοντος και αφαι-  
ρείται το υγρό δοκιμής. Τα ελεγχθέντα δείγματα πλέ-  
νονται αμέσως με διυλισμένον ~~υδρο~~ <sup>υδρο</sup>. Υγρά τα οποία  
δεν είναι διαλυτά στο ~~υδρο~~ <sup>υδρο</sup> αφαιρούνται με διαλυτι-  
κόν το οποίο δεν προσβάλλει τα δείγματα.

Μηχανικόν καθάρισμα των πλακών δεν μπορεί να γίνει  
λόγω κινδύνου καταστροφής της επιφάνειας των δειγμά-  
των.

#### (δ) Εκτίμησις

Οπτική εξέτασις γίνεται:



- εάν η οπτική εξέταση αποκαλύψει υπερβολικήν 2Ι3.Ι40  
προσβολήν (ρήγματα, φουσαλλίδες, πόροι, ξε- (Συνεχίζεται)  
φλούδισμα, φούσκωμα, ή τραχύτης), η δοκιμή  
είναι αναμφισβήτητα αρνητική·
- εάν η οπτική δεν αποκαλύψει ανωμαλίαν, δοκιμές  
κάμψεως ενεργούνται δια των μεθόδων των οριζο-  
μένων εις περιθώριον 2Ι3.Ι40 (4) επί των δύο  
δειγμάτων των υποβληθέντων εις χημικήν προσβο-  
λήν και επί του δείγματος αφετηρίας. Στη περι-  
πτωση αυτή η αντοχή στην κάμψη δεν θα πρέπει  
να είναι άνω του 20 στα εκατό χαμηλότερα της  
τιμής της εξακριβωθείσης δια την πλάκα δοκιμής  
την μη υποβληθείσα εις οιαδήποτε τάση.

Δοκιμή και ποιότητος απαιτούμενη για τη πρωτότυπο μονάδα 2Ι3.Ι4Ι

Η πρωτότυπος δεξαμενή θα υποβάλεται σε δοκιμή  
υδραυλικής πίεσεως διεξαγομένη από εμπειρογνώμονα εγκεκρι-  
μένον υπό των αρμοδίων αρχών Συμβαλλομένου Μέρους.

Εάν η πρωτότυπος δεξαμενή διαιρεθεί σε διαμερί-  
σματα είτε με διαφράγματα είτε με κόντρα πόρτες, η δοκιμή  
θα διεξάγεται επί μονάδος/δια τον σκοπόν αυτόν με τα αυτὰ  
εξωτερικά άκρα ολοκλήρου της δεξαμενής και η οποία αντιπρο-  
σωπεύει το τμήμα της δεξαμενής το υποβαλλόμενον, υπό κανο-  
νικής συνθήκας χρήσεως, στις μεγαλύτερες τάσεις.

Η δοκιμή αυτή δεν θα πρέπει να διεξάγεται εάν  
υπάρχει ήδη επιτυχής δοκιμή επί άλλης πρωτοτύπου μονάδος  
της αυτής (διαφομής ή (δια)τομής μεγαλυτέρων διαστάσεων,  
γωνιμετρικώς ομοίας με εκείνην της περί ής πρόκειται πρωτοτύ-

που μονάδος, ακόμη και εάν η μονάς αυτή έχει διαφορετι- 2Ι3.Ι4Ι  
κόν στρώμα εσωτερικής επιφανείας. (Συνεχίζεται)

Η δοκιμή αυτή πρέπει να καταδεικνύει ότι η πρω-  
τότυπος μονάς έχει, υπό κανονικής συνθήκας χρήσεως, συν-  
τελεστήν όχι μικρότερον του 7.5 όσον αφορά την θραύσιν  
(σπάσιμο).

Πρέπει να αποδεικνύεται, π.χ. δι' υπολογισμού,  
ότι οι συντελεστές ασφαλείας κατά της θραύσεως οι διδόμε-  
νοι εις το περιθώριο 2Ι3.Ι40 (4) τηρούνται για κάθε τμήμα  
της δεξαμενής.

Θραύσις λαμβάνει χώρα όταν το υγρό της δοκιμής  
διαφεύγει από τη δεξαμενή υπό μορφήν πίδακος. Συνεπώς, προ-  
της θραύσεως αυτής, η ύπαρξις στοιβάδων (DELAMINATIONS) και  
απωλειών υγρού δια των στοιβάδων τούτων υπό μορφήν σταγονι-  
δίων επιτρέπεται. Η πρωτότυπος μονάς θα υποβάλλεται σε υδραυ-  
λική πύεση.

$$H = 7.5 \times D \times \eta$$

όπου H είναι το ύψος της στήλης του ύδατος

$\eta$  είναι το ύψος της δεξαμενής

D είναι η πυκνότης της υπό μεταφοράν ύλης.

Εάν θραύσις λάβει χώρα μέ ύψος στήλης ύδατος  $H_I$   
μικρότερον του H, πρέπει να εξακολουθεί να είναι

$$H_I \geq 7.5 \times D \times (\eta - \eta_I)$$

όπου  $\eta_I$  είναι το ύψος του ανωτάτου σημείου όπου ο πρώτος  
πίδαξ του υγρού εμφανίζεται.

Εάν η ροή του υγρού εις το σημείον  $\eta_I$  είναι πολύ  
μεγάλη, είναι ουσιώδες να γίνει προσωρινή επισκευή καθώς

προσωρινή τοπική ενίσχυσις για να μπορέσει η δοκιμή να συνεχισθεί σε ύψος Η.

Έλεγχος συμμορφώσεως επί δεξαμενών παραγομένων εν σειρά 2Ι3.Ι42

(1) Η επιθεώρηση της συμμορφώσεως για δεξαμενές που παραχθούν σε σειρά θα εκτελείται δια της διεξαγωγής ενός ή πλειόνων εκ των ελέγχων των απαριθμουμένων εις το περιθώριο 2Ι3.Ι40.

Εν τούτοις, η μέτρηση του βαθμού πολυμερισμού αντικαθίσταται με την μέτρηση σκληρότητας του BARCOL.

(2) Σκληρότης BARCOL

Ο έλεγχος πρέπει να διεξάγεται συμφώνως προς κατάλληλους μεθόδους 4/. Η σκληρότης BARCOL μετράται επί της εσωτερικής επιφανείας της υποστάσης τελικήν επεξεργασίαν δεξαμενής και δεν πρέπει να είναι μικρότερη του 75 βτσα εκατό της τιμής της ληφθείσης εις το εργαστήριο επί καθαρής εσκληρυνθείσης ρητίνης.

(3) Το ποσοστόν ινών υάλου (GLASS FIBRE) πρέπει να είναι εντός των ορίων των προβλεπομένων εις περιθώριον 2Ι3.Ι40 (2) και, επιπροσθέτως, δεν πρέπει να παρεκκλίνει κατά άνω του Ι0 βτσα εκατό του αριθμού για τη πρωτότυπο δεξαμενή.

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4/ Οι μέθοδοι αι προβλεπόμενες σε πρότυπο ASTM-D 2583-67 θεωρούνται κατάλληλοι.

Δοκιμές και ποιότητες απαιτούμενες για όλες τις δεξαμε- 2Ι3.Ι43  
νές προτού τεθούν σε υπηρεσία.

#### Δοκιμή στεγανότητας

Η δοκιμή στεγανότητας θα διεξάγεται σύμφωνα προς τις διατάξεις των περιθωρίων 2ΙΙ.Ι50 και 2ΙΙ.Ι5Ι της ΑDR και η σφραγίδα του εμπειρογνώμονος θα τίθεται στη δεξαμενή.

2Ι3.Ι44-

2Ι3.Ι49

#### Άρθρο 5

Ειδικές διατάξεις για δεξαμενές που χρησιμοποιούνται για τη μεταφορά υλών με σημείον αναφλέξεως 55°C ή χαμηλότερον

Η δεξαμενή πρέπει να κατασκευάζεται κατά τρόπον 2Ι3.Ι50 που εξασφαλίζουν την απαλοιφή (μηδενισμόν) του στατικού ηλεκτρισμού από τα διάφορα συστατικά μέρη ώστε να αποφεύγεται η συσσώρευσις επικινδύνων ηλεκτρικών φορτίων.

Όλα τα μεταλλικά μέρη της δεξαμενής και η μονάς 2Ι3.Ι5Ι μεταφοράς καθώς και τα στρώματα των τοιχωμάτων που είναι αγωγοί ηλεκτρισμού πρέπει να αλληλοσυνδέωνται.

Η αντίσταση μεταξύ εκάστου αγωγίμου τμήματος 2Ι3.Ι52 και του σασσί δεν πρέπει να είναι μεγαλύτερα των  $10^6$  OHMS.

Απαλοιφή κινδύνων οφειλομένων σε φορτία προερχόμενα από τριβήν

Η επιφανειακή αντίσταση και η αντίσταση εκ- 2Ι3.Ι53  
κενώσεως εις την γήν της ολικής επιφανείας της δεξαμενής θα συμμορφούνται προς τους όρους του περιθωρίου 2Ι3.Ι54.

Η επιφανειακή αντίσταση και η αντίσταση εκ- 2Ι3.Ι54  
κενώσεως εις το έδαφος (γή) μετρούμενες συμφώνως προς το

περιθώριο 213.155 πρέπει να ικανοποιούν τους παρακάτω όρους.

213.154  
(Συνεχίζεται)

(1) Τοιχώματα μη εφοδιασμένα με στοιχεία που είναι αγωγοί ηλεκτρισμού:

(α) Επιφάνειες επί των οποίων μπορεί κάποιος να βαδίσει:

Η αντίστασις εκκένωσης στη γή δεν πρέπει να είναι μεγαλύτερα των  $10^8$  OHMS ( $\Omega$ ).

(β) Άλλες επιφάνειαι:

Η επιφανειακή αντίστασις δεν πρέπει να είναι μεγαλύτερα των  $10^9$  OHMS ( $\Omega$ ).

(2) Τοιχώματα εφοδιασμένα με στοιχεία που είναι αγωγοί ηλεκτρισμού:

(α) Επιφάνειες επί των οποίων κάποιος μπορεί να βαδίσει:

Η αντίστασις εκκένωσης στην γη δεν πρέπει να είναι μεγαλύτερα των  $10^8$  OHMS ( $\Omega$ ).

(β) Άλλες επιφάνειες:

Η αγωγιμότης θα θεωρείται επαρκής εάν το ανώ-  
τον πάχος των μη-αγωγίμων στρωμάτων επί αγω-  
γίμων στοιχείων, π.χ. αγωγιμα φύλλα (ελάσμα-  
τα), μεταλλική δικτύωσις ή άλλο κατάλληλο υλι-  
κό, συνδεδεμένα με την προσγείωσιν, δεν υπερ-  
βαίνει τα 2 MM, και στη περίπτωση μεταλλικής  
(το εμβαδόν επιφανείας)  
δικτυώσεως, ο επιφανειακός χώρος/της οπής του  
δικτύου (MESH) δεν υπερβαίνει τα  $64 \text{ CM}^2$ .

(3) Οιαδήποτε μέτρησις επιφανειακής αντιστάσεως ή αντι-  
στάσεως εκκένωσης στη γή απαιτούμένη να διεξαχθεί επ'αυτής

ταύτης της δεξαμενής θα αντικαθίσταται σε χρονικά διαστήματα όχι μεγαλύτερα του ενός έτους για να εξασφαλιστεί ότι δεν υπερβαίνονται οι καθορισθείσαι αντιστάσεις. (Συνεχίζεται)

Μέθοδοι Δοκιμών (Ελέγχων)

213.155

1.- Επιφανειακή Αντίσταση ( $R_{100}$ ) - (μονωτική αντίσταση) σε OHMS (Ωμ), ηλεκτρόδια (ELECTRODES OF CONDUCTING PAINT) συμφώνως προς τον αριθμόν (σχήμα) 3 της RECOMMENDATION IEC I67 του 1964, μετρούμενα με το πρότυπον 23/50 ατμοσφαιρών συμφώνως προς την RECOMMENDATION ISO R291, παράγραφος 3.1 του 1963.

2.- Η αντίσταση εκκένωσης στη γή σε OHMS (Ωμ) είναι ο λόγος μεταξύ της συνεχούς τάσεως μετρουμένης μεταξύ ηλεκτροδίου περιγραφομένου κατωτέρω σε επαφή με την επιφάνεια της δεξαμενής του οχήματος και του γειωμένου σασί του οχήματος, και του ολικού ρεύματος.

Η κατάσταση (CONDITIONING) των δειγμάτων είναι η αυτή της παραγράφου 1. Το ηλεκτρόδιο είναι δίσκος με εμβαδόν επιφάνειας 20 CM<sup>2</sup> και διάμετρον 50 MM. Η στενή του επαφή με την επιφάνεια της δεξαμενής πρέπει να εξασφαλίζεται, π.χ. δια της χρήσεως υγρού χάρτου ή υγρού σπόγγου ή οιασδήποτε άλλης καταλλήλου ύλης. Το γειωμένο σασί του οχήματος χρησιμοποιείται ως το άλλο ηλεκτρόδιο. Διαρκής τάσις της κλίμακος 100 βόλτ - 500 βόλτ θα εφαρμόζεται. Η μέτρησις θα διεξάγεται μετά την επί ένα λεπτό εφαρμογήν της τάσεως δοκιμής. Το ηλεκτρόδιο μπορεί να τοποθετηθεί επί οιοδήποτε σημείου της εσωτερικής ή εξωτερικής επιφάνειας της δεξαμενής.

Εάν η μέτρηση είναι αδύνατος επί της δεξαμενής, μπορεί επίσης να διεξαχθεί, υπό τους αυτούς δρους, εις το εργαστήριο, επί δείγματος του υλικού. 213.155  
(Συνεχίζεται)

Απαλοιφή κινδύνων οφειλομένων σε φορτία προερχόμενα  
διαρροής της πληρώσεως

Μεταλλικά συστατικά μέρη συνδεδεμένα στη γη 213.156  
θα παρέχονται και διατίθενται κατά *τέτοιον* τρόπον ώστε σε οποιοδήποτε στάδιο της πληρώσεως ή της διαδικασίας εκκινώσεως να υπάρχει εμβαδόν όχι μικρότερον των 0.04 τετραγ. μέτρων γειωμένου μετάλλου ~~εξ~~ επαφή με το προϊόν ανά κυβικόν μέτρον προϊόντος περιεχομένου εις την δεξαμενήν την στιγμήν εκείνην, και κανένα τμήμα του προϊόντος να απέχει περισσότερον από 2.0 μέτρα από το πλησιέστερο γειωμένο μεταλλικό συστατικό μέρος. Τα μεταλλικά αυτά συστατικά μέρη μπορούν να είναι της μορφής:-

- (α) Μεταλλικής ποδοβαλβίδος, στομίλου σωλήνος, ή πλανκός (ελάσματος) εφ' όσον το ολικόν εμβαδόν του σε επαφή με το υγρό μετάλλου δεν είναι μικρότερον του οριζομένου, ή
- (β) Μεταλλικής σχάρας με σύρμα πάχους όχι μικροτέρας του 1 MM (χιλ.) διαμέτρου και εμβαδού οπής όχι μεγαλύτερον των 4 τετραγ. εκατοστών, εφ' όσον το ολικόν εμβαδόν της σε επαφή με το υγρό σχάρας δεν είναι μικρότερο του οριζομένου.

Το περιθώριο 213.156 δεν θα έχει εφαρμογήν σε 213.157  
δεξαμενές από ενισχυμένη πλαστική ύλη εφοδιασμένες με οποιοδήποτε άλλο σύστημα απαλοιφής του κινδύνου από φορτία προε-

χόμενα (δημιουργούμενα) διαρκούσης της πληρώσεως, 213.157  
 εφ' όσον έχει καταδειχθεί δια πρακτικής συγκριτικής (Συνεχίζεται)  
 δοκιμής συμφώνως προς το περιθώριον 213.158 ότι ο χρό-  
 νος χαλαρώσεως (μεταπτωτικός χρόνος) του φορτίου του  
 δημιουργουμένου εντός της δεξαμενής διαρκούσης της πλη-  
 ρώσεως είναι ισοδύναμος με τον χρόνο τον λαμβανόμενον  
 για μεταλλική δεξαμενή αναλόγων διαστάσεων.

Συγκριτική Δοκιμή (Έλεγχος)

213.158

(I) Συγκριτική δοκιμή του χρόνου χαλαρώσεως ηλε-  
 κτροστατικού φορτίου συμφώνως προς τους όρους δοκιμής  
 τους περιγραφόμενους στην παράγραφο (2) θα διεξαχθεί  
 επί πρωτοτύπου δεξαμενής ~~απ~~ ενισχυμένης πλαστικής ύλης  
 και δεξαμενής ~~απ~~ χάλυβος κατά τον παρακάτω τρόπον  
 (βλέπε διάγραμμα 3).

(α) Η ~~απ~~ ενισχυμένης πλαστικής ύλης δεξαμενή θα  
 μοντάρεται κατά τον αυτόν τρόπον όπως θα ήτο  
~~απ~~ χρήση, π.χ., επί χάλυβδίνου στηρίγματος  
 ομοίου με σασάλ οχήματος και θα πληρούται  
 μέχρι όχι κάτω του 75 ~~ετα~~ εκατό της χωρητι-  
 κότητας με αυτόκινούμενον (AUTOMOTIVE) καύσι-  
 μον ντήζελ, μία αναλογία του οποίου διέρχεται  
 δια καταλλήλου μικροφίλτρου κατά ~~τείσιθ~~ τρι-  
 πλ ~~ω~~ ώστε η πυκνότης του φορτίου της ολικής  
 ροής να είναι περίπου  $100 \text{ U/C/M}^3$ .

(β) Η έντασις του πεδίου εις τον χώρον ατμού της  
 δεξαμενής να μετράται δια καταλλήλου μέτρου  
 πεδίου συνεχών ενδείξεων μονταρισμένου με τον  
 άξονά του κάθετον και τοποθετημένον τουλάχιστον



20 CM από τον κάθετον σωλήνα πληρώσεως. 213.158

- (γ) Παρομοία δοκιμή θα διεξαχθεί επί δεξαμενής (Συνεχίζεται)
- εκ χάλυβος της οποίας το πλάτος, μήκος, και όγκος είναι εντός του 15 τοις εκατό εκείνων της εξ ενισχυμένης πλαστικής ύλης δεξαμενής, ή επί δεξαμενής εξ ενισχυμένης πλαστικής ύλης ομοίων διαστάσεων, επενδυμένης εσωτερικώς με μεταλλικό λεπτό φύλλο συνδεδεμένο με τη γη.

(2) Οι παρακάτω όροι της δοκιμής θα τηρούνται:-

- (α) Η δοκιμή θα διεξάγεται σε καλυμμένο χώρον υπό συνθήκας σχετικής υγρασίας κάτω του 80 τοις εκατόν.
- (β) Το αυτοκινούμενον καύσιμον ντίζελ το χρησιμοποιούμενον εις την δοκιμήν θα έχει αγωγιμότητα ανάπαυλας (REST CONDUCTIVITY) στη θερμοκρασία μετρήσεως μεταξύ 3 και 5 P<sub>S</sub>/M. Αυτή θα μετράται σε κύτταρο (στοιχείο, CELL) εις το οποίον η

$$\frac{VT}{D^2} \text{ είναι μικρότερη ή ίση με } 2.5 \times 10^6$$

δπου  $V$  = εφαρμοζόμενη τάσις  
(απόστασις)

$D$  = χώρος/μεταξύ ηλεκτροδίων σε μέτρα

$T$  = διάρκεια μετρήσεως σε δευτερόλεπτα

Η αγωγιμότης ανάπαυλας (REST CONDUCTIVITY) μετρούμενη επί δειγμάτων του προϊόντος ληφθέντων από την δεξαμενή δοκιμής μετά την πλήρωσιν δεν θα διαφέρει σε διαδοχικές δοκιμές επί πλαστικών και μεταλλικών δεξαμενών κατά περισσότερο των 0.5 P<sub>S</sub>/M.

- (γ) Η πλήρωση θα γίνεται με σταθερό ρυθμό εντός της 213.158 κλίμακος I έως 2 μ<sup>3</sup>/το λεπτόν και θα είναι ο ίδιος δια την δεξαμενήν ~~από~~ ενισχυμένης πλαστικής ύλης και για την δεξαμενήν ~~από~~ χάλυβα. Εις το τέλος της πλήρωσεως, η ροή πρέπει να διακόπτεται εις χρόνον ο οποίος είναι βραχύς συγκρινόμενος με τον χρόνον χαλαρώσεως (RELAXATION TIME) για το φορτίο εις την δεξαμενήν εκ χάλυβος.
- (δ) Η πυκνότης του φορτίου θα μετράται ~~με~~ κατάλληλον μέτρο συνεχών ενδείξεων (π.χ., τύπου FIELD MILL /μύλου/) εμβυθιζόμενου εις το προϊόν και τοποθετημένου όσον το δυνατόν πειό κοντα στον σωλήνα πλήρωσεως.
- (ε) Οι σωλήνες τροφοδοσίας και ο κάθετος σωλήν πληρώσεως θα είναι/διαμέτρου 10 CM (εκ.) και θα καταλήγουν σε έξοδον σωλήνος πληρώσεως τύπου "T".
- (στ) Κατάλληλον μικροφίλτρον  $\frac{0}{\text{μ}}$ , με ρυθμιζομένην παρακαμπτήριον καθιστούσα δυνατήν την ρύθμισιν της δια αυτής διερχομένης ροής, θα εφαρμόζεται όχι άνω των 5 μέτρων από την έξοδον του σωλήνος πληρώσεως.
- (ζ) Η στάθμη του υγρού δεν θα φθάσει τον πυθμένα (κάτω μέρος) του σωλήνος πληρώσεως ή του μέτρου/ (FIELD METER).

$\frac{0}{\text{μ}}$  / Το RELLUMIT 5 ευρέθη ότι είναι κατάλληλον.

Σύγκρισις χρόνων χαλαρώσεως (RELAXATION TIMES)

(3) Η αρχική τιμή της έντασεως πεδίου θα είναι η 2I3.158 καταγραφείσα εις το ενωρίτατον χρονικόν σημείον μετά την παύση της ροής του καυσίμου όταν μία λεία καμπύλη εξασθενήσεως (DECAY CURVE) δημιουργηθεί. Ο χρόνος χαλαρώσεως (RELAXATION TIME) ~~εξ~~ αμφοτέρων τις δοκιμές θα διατυπύται ως ο χρόνος που χρειάσθηκε η έντασις πεδίου να εξασθενήσει (φθίνει) από την αρχική τιμή εις 0.37 της αρχικής τιμής. (Συνεχίζεται)

(4) Ο χρόνος χαλαρώσεως (RELAXATION TIME) της ~~από~~ ενισχυμένης πλαστικής ύλης δεξαμενής δεν θα υπερβαίνει τον της ~~από~~ χάλυβου δεξαμενής.

2I3.159-

2I3.999

Πίναξ I

## ΣΥΝΘΕΣΙΣ ΥΑΛΟΥ

Υαλος E: Σύνθεσις κατά βάρος:-

Πυρίτης λίθος (Διοξει- διο πυριτίου)	(Si O <sub>2</sub> )	52 - 55 τοις εκατόν
Αλουμίνα	(Al <sub>2</sub> O <sub>3</sub> )	14 - 15.5 " "
Άσβεστος	(Ca O)	16.5 - 18 " "
Μαγνησία	(Mg O)	4 - 5.5 " "
Βορικόν οξείδιον	(B <sub>2</sub> O <sub>3</sub> )	6.5 - 21 " "
Φθόριο	(F)	0.2 - 0.6 " "
Οξείδιο του σιδήρου	(Fe <sub>2</sub> O <sub>3</sub> )	< 1 " "
Οξείδιο Τιτανίου	(Ti O <sub>2</sub> )	< 1 " "
Αλκαλικά οξείδια	(Na <sub>2</sub> O + K <sub>2</sub> O)	< 1 " "

Υαλος C: Σύνθεσις κατά βάρος:-

Διοξείδιο πυριτίου	(Si O <sub>2</sub> )	63.5 - 65 " "
Αλουμίνα	(Al <sub>2</sub> O <sub>3</sub> )	4 - 4.5 " "
Άσβεστος	(Ca O)	14 - 14.5 " "
Μαγνησία	(Mg O)	2.5 - 3 " "
Βορικόν οξείδιον	(B <sub>2</sub> O <sub>3</sub> )	5 - 6.5 " "
Σίδηρος	(Fe <sub>2</sub> O <sub>3</sub> )	0.3 " "
Οξείδιο του Νατρίου	(Na <sub>2</sub> O)	7 - 9 " "
Οξείδιο του Καλίου	(K <sub>2</sub> O)	0.7 - 1 " "

Διάγραμμα 1 (σελίδα 3288)

Μηχανισμός (επινοήσις) δια την μέτρησιν της αντιστάσεως κρού-  
 πτόντος  
 σεως μέσω βάρους σφαιρικού άκρου

WEIGHT GUIDANCE :- Καθοδήγησις Βάρους

SPECIMEN :- δείγμα

SECTION AA' :- (Δια)-τομή AA'

ANGLE-BAR WELDED TO CHASSIS :- Γωνιωτή δοκός συγκολλημένη στο  
 σασόλ

STEEL CHASSIS :- σασόλ από χάλυβα

CONCRETE BASE :- βάση από μπετόν

Διάγραμμα 2 (σελίδα 3289)

Μηχανισμός δια τον έλεγχον της αντιστάσεως έναντι των χημικών  
 αγόντων

TIGHTENING RING (CLAMP) :- Δακτύλιος συσφίξεως (σφιγκτήρ)

SPECIMEN-PLATE :- πλάκα (έλασμα) δείγματος

(GASEOUS PHASE) :- αερίωδης φάσις

TEFLON JOINT :- ένωσις TEFLON

CONNECTING TUBE :- συνδετικός σωλήν

GLASS CYLINDER :- υάλινος κύλινδρος

LEVEL OF LIQUID :- στάθμη (επιπέδο) υγρού

HEATING SEATH<sup>H</sup> :- θήκη θερμάνσεως

TEFLON JOINT :- ένωσις TEFLON

SPECIMEN PLATE :- πλάκα (έλασμα) δείγματος

(LIQUID PHASE) :- (υγρή φάσις)

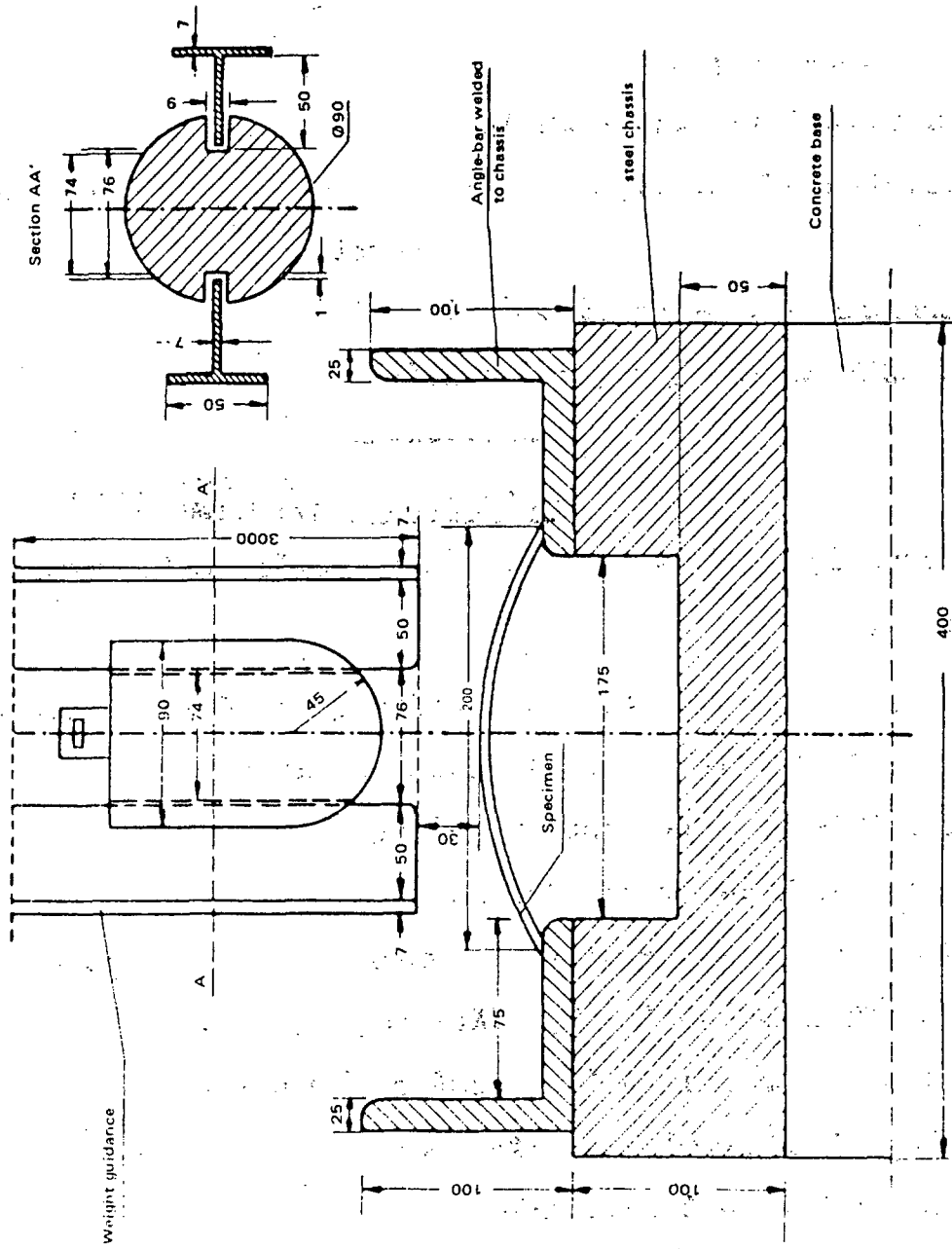
TIGHTENING RING (CLAMP) :- Δακτύλιος συσφίξεως (σφιγκτήρ)

BOLTS THREADED TO WING NUTS :- Βίδες κοχλιωμένες σε πτερυγωτά περι-  
 κόχλια

Appendix B.1c

Diagram 1

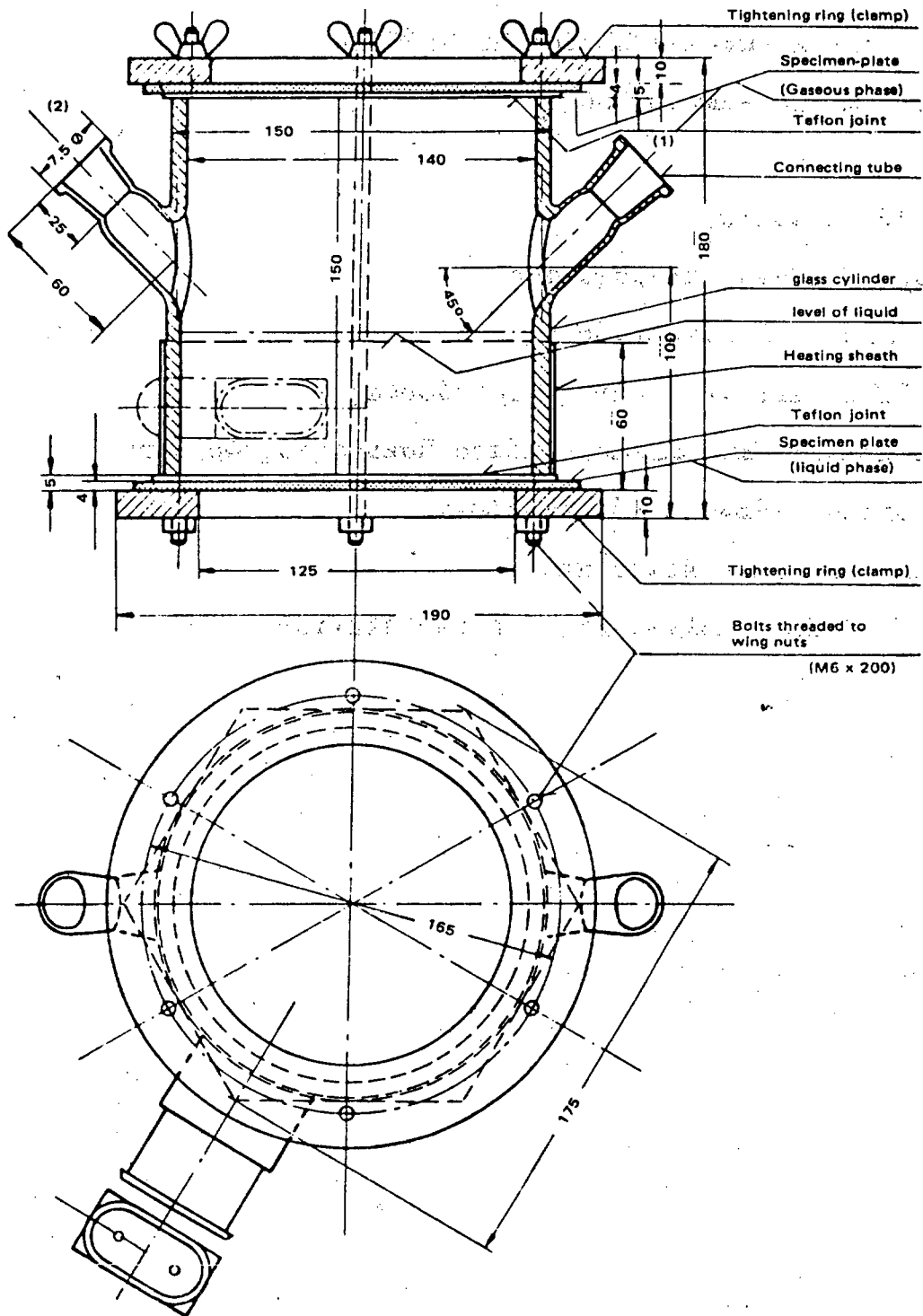
Device for measuring impact resistance by means of a spherically-ended falling weight



Appendix B.1c

Diagram 2

Device to test resistance to chemical agents



Διάγραμμα 3 (Άερα 3291)ΣΧΗΜΑΤΙΚΗ ΔΙΑΤΑΞΙΣ ΤΗΣ ΣΥΣΚΕΥΗΣ ΔΙΑ ΣΥΓΚΡΙΤΙΚΟΝ  
ΕΛΕΓΧΟΝ

STORAGE TANK:- ΔΕΞΑΜΕΝΗ ΑΠΟΘΗΚΕΥΣΕΩΣ

FLOW METER:- Μέτρο ροής

FLOW:- Ροή

PUMP:- Αντλία

MICROFILTER:- Μικροφίλτρο

BY PASS:- Παρακαμπτήριο

SUPPLY PIPES:- Σωλήνες Τροφοδοσίας

CHARGE DENSITY METER:- Μέτρο Πυκνότητας Φορτίου

FILLING PIPE:- Σωλήν. πληρώσεως

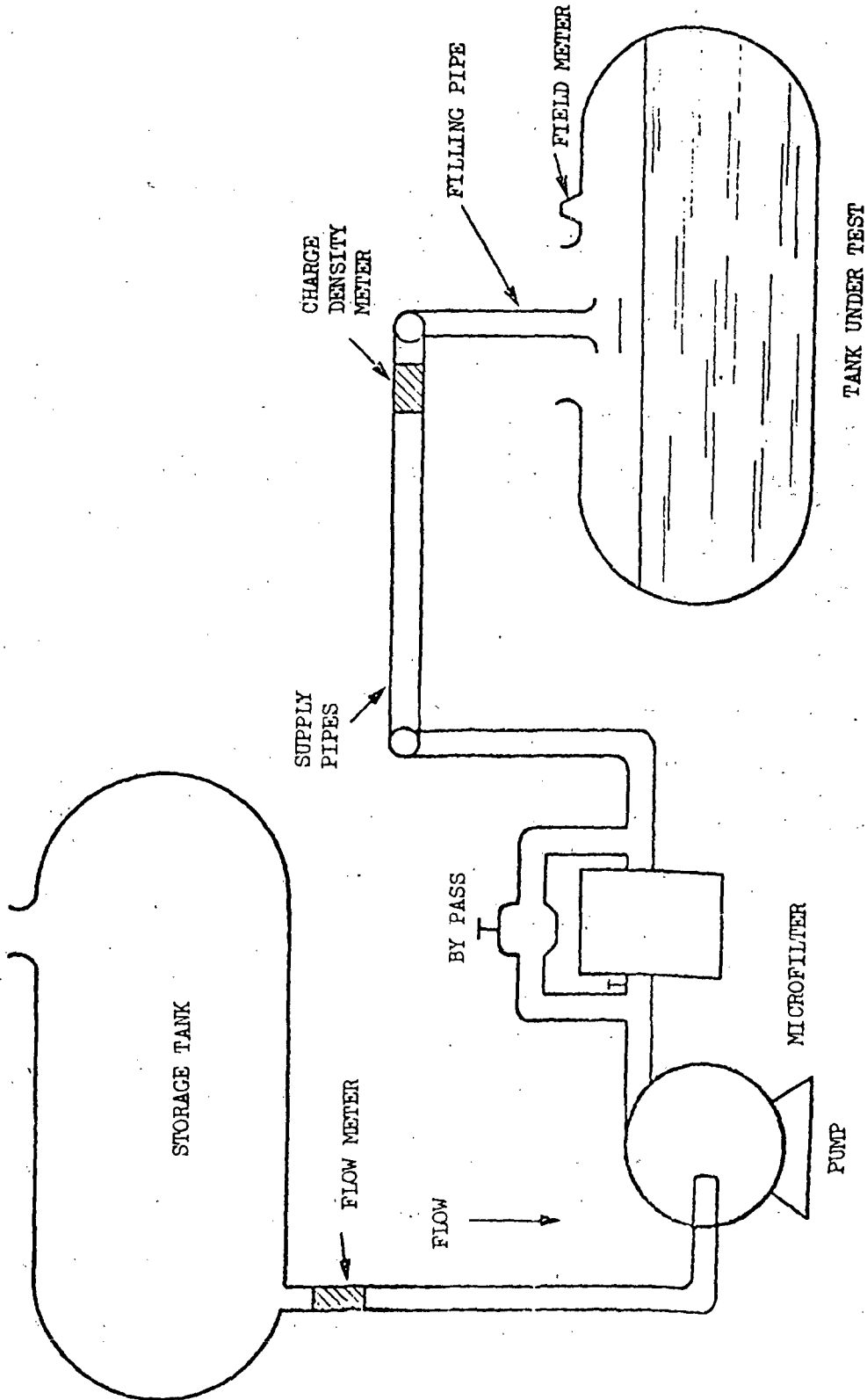
FIELD METER:- Μέτρο πεδίου

TANK UNDER TEST:- Δεξαμενή υπό έλεγχο



Diagram 3

SCHEMATIC LAYOUT OF RIC FOR COMPARATIVE TEST



Appendix B.1c

Προσθήκη Β.Ιδ.-

ΟΡΟΙ ΔΙΕΠΟΝΤΕΣ ΤΑ ΥΛΙΚΑ ΚΑΙ ΤΗΝ ΚΑΤΑΣΚΕΥΗΝ ΣΤΑΘΕΡΩΝ ΔΕΞΑΜΕΝΩΝ, ΛΥΟΜΕΝΩΝ ΔΕΞΑΜΕΝΩΝ, ΚΑΙ ΚΕΛΥΦΩΝ (ΜΠΟΜΠΩΝ) ΔΕΞΑΜΕΝΟ-CONTAINERS (ΔΕΞΑΜΕΝΟ-ΥΠΟΔΟΧΕΩΝ), ΠΡΟΟΡΙΖΟΜΕΝΩΝ ΔΙΑ ΤΗΝ ΜΕΤΑΦΟΡΑΝ ΛΙΑΝ-ΨΥΓΜΕΝΩΝ ΥΓΡΟΠΟΙΗΜΕΝΩΝ ΑΕΡΙΩΝ ΤΗΣ ΚΛΑΣΕΩΣ 2

2Ι4.000-

2Ι4.249

(Ι) Δοχεία, δεξαμενές και κελύφη (μπόμπες) θα κατασκευάζονται από χάλυβα, αλουμίνιο, κράμα αλουμινίου, χαλκό ή κράμα χαλκού, π.χ. ορείχαλκο. Εν τούτοις, δοχεία, δεξαμενές και κελύφη κατασκευασμένα από χαλκό ή κράμα χαλκού θα επιτρέπωνται μόνον για αέρια μη περιέχοντα ακετυλένιον· το αιθυλένιον μπορεί εν τούτοις να περιέχει όχι περισσότερο από 0.005 ~~στα~~ εκατό ακετυλένιον.

(2) Μόνον υλικά κατάλληλα για την χαμηλότεραν θερμοκρασίαν λειτουργίας των δοχείων, δεξαμενών και κελυφών και των εξαρτημάτων και παρακολουθημάτων αυτών μπορούν να χρησιμοποιηθούν.

Τα παρακάτω υλικά θα επιτρέπωνται για τη κατασκευή δοχείων, δεξαμενών και κελυφών:- 2Ι4.25Ι

(α) χάλυβες μη υποκειμένοι σε εύθραυστο ρήγμα στη χαμηλότερα θερμοκρασία λειτουργίας (βλέπε περίθωριο 2Ι4.265).

Τα παρακάτω μπορούν να χρησιμοποιηθούν:-

Ι.- λεπτόκοκοι αμιγείς χάλυβες, έως θερμοκρασίαν  $-60^{\circ}\text{C}$ .

2.- νικελιούχοι χάλυβες (με περιεχόμενον εις νικελ 0.5 έως 9 τοις εκατόν), έως θερμοκρασίαν  $-196^{\circ}\text{C}$ , εξαρτωμένου του εις νικελ περιεχομένου.

3.- ωστενίται χρωμιο-νικελιούχοι χάλυβες, 2Ι4.25Ι  
έως θερμοκρασίαν  $-270^{\circ}\text{C}$ . (Συνεχίζε-  
ται)

(β) αλουμίνιον καθαρότητας όχι κάτω του 99.5 ~~εκατό~~<sup>εκατό</sup>, ή κράματα αλουμινίου (βλέπε περιθώριο 2Ι4.266)·

(γ) αποξειδωμένος χαλκός (DEOXIDIZED COPPER) καθα-  
ρότητας όχι κάτω του 99.9 ~~εκατό~~<sup>εκατό</sup>, ή κρά-  
ματα χαλκού έχοντα περιεχόμενον ~~6%~~ χαλκόν  
άνω του 56 ~~εκατό~~<sup>εκατό</sup> (βλέπε περιθώριο 2Ι4.267).

(Ι) Τα δοχεία, δεξαμενές και κελύφη θα είναι 2Ι4.252  
είτε άνευ ραφής είτε συγκολλημένα.

(2) Δοχεία του περιθωρίου 2207 κατασκευασμένα από  
ωστενίτη χάλυβα, από χαλκό ή κράμα χαλκού μπορούν εναλλα-  
κτικώς να υποβληθούν σε σκληρά συγκόλλησιμ.

Τα εξαρτήματα και παρακολουθήματα μπορούν είτε 2Ι4.253  
να βιδώνονται στα δοχεία, δεξαμενές και κελύφη είτε να  
στερεώνονται ως κάτωθι:-

(α) δοχεία, δεξαμενές και κελύφη κατασκευασμένα  
από χάλυβα, αλουμίνιο και κράμα αλουμινίου:  
δια συγκολλήσεως·

(β) δοχεία, δεξαμενές και κελύφη κατασκευασμένα  
από ωστενίτη χάλυβα, χαλκό ή κράμα χαλκού/:-  
δια συγκολλήσεως ή σκληράς-συγκολλήσεως.

Η κατασκευή των δοχείων, δεξαμενών και κελυ- 2Ι4.254  
φών και η σύνδεσίς των εις το δχημα στο από κάτω πλαίσιο  
(UNDERFRAME) ή εις το πλαίσιο του CONTAINER (Υποδοχέως)  
θα είναι τέτοια ώστε να αποκλείεται μετά βεβαιότητος οια-

δὴποτε τριτάτη μείωσις τῆς θερμοκρασίας των φερδόντων 2Ι4.254  
το φορτίον συστατικῶν μερῶν ἢ ὅποια θα μπορούσε να τα (Συνεχίζε-  
καταστήσει εὐθραυστα. Τα μέσα συνδέσεως των δοχείων, δε-  
ταί)  
ξαμενῶν καὶ κελυφῶν θα εἶναι ἔτσι κατασκευασμένα ὥστε  
ἀκόμη καὶ εἰάν το δοχεῖον, ἢ δεξαμενὴ ἢ το κέλυφος εἶναι  
στὴ χαμηλωτέρα θερμοκρασία λειτουργίας εξακολουθοῦν να  
ἔχουν τὴς ἀπαραίτητες μηχανικῆς ιδιότητες.

2Ι4.255-

2Ι4.264

Ι.- Υλικά, δοχεία, δεξαμενές καὶ κελύφη

(α) Χαλύβδινα δοχεία, δεξαμενές καὶ κελύφη (μπόμπες)

Τα υλικά τα χρησιμοποιούμενα γιὰ τὴ κατασκευὴ δοχείων 2Ι4.265  
δεξαμενῶν καὶ κελυφῶν, καὶ τὰ πλαίσια συγκολλήσεως, πρέ-  
πει στὴν χαμηλωτέρα θερμοκρασία λειτουργίας τῶν να πλη-  
ροῦν τουλάχιστον τοὺς παρακάτω ὁρους ὡς πρὸς τὴν ἀντοχὴν  
κρούσεως.

Οἱ ἐλέγχοι μποροῦν να διεξάγονται με τεμάχια-δοκιμῶν  
ἔχοντα ἐγκοπὴν εἴτε σχήματος "U", εἴτε σχήματος "V".

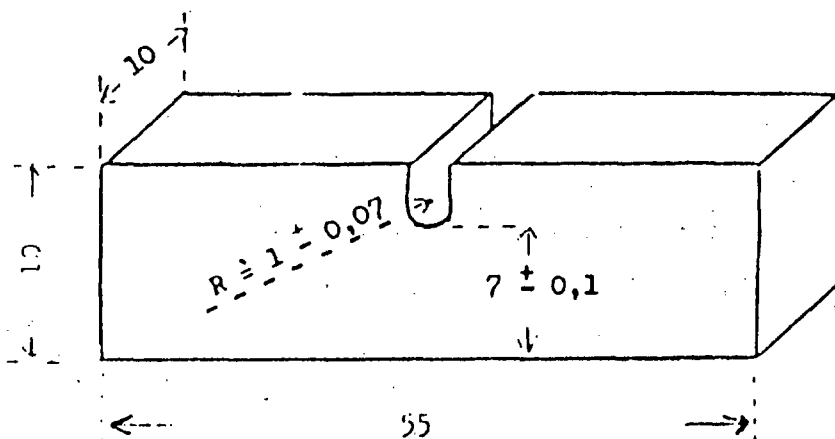
Υ λ ι κ ὸ	Αντοχὴ κρούσεως 1/ 2/ φύλλου μετάλλου καὶ πλαισίων συγκολλή- σεως στὴ χαμηλωτέρα θερμοκρασία λειτουργίας	
	KGM/CM <sup>2</sup> 3/	KGM/CM <sup>2</sup> 4/
Αμιγῆς καθησυχασμένους χάλυψ	3.5	2.8
Κράμα φερριτικού χάλυβος Ni<sup>5</sup>/ο	3.5	2.2
" " " 5°/ο Ni<sup>9</sup>/ο	4.5	3.5
Ωστενιτικός CR-Ni χάλυψ	4.0	3.2

1/ Αντοχὰς κρούσεως καθοριζόμεναι με διάφορα τεμάχια  
δοκιμῶν δεν μποροῦν ἀμοιβαίως να συγκριθοῦν.

2/ Βλέπε περιθώρια 2Ι4.275 ἕως 2Ι4.277.

- 3/ Οι τιμές αναφέρονται σε τεμάχια δοκιμών με εγχοπήν σχήματος "U" όπως εικονίζεται κατωτέρω.
- 4/ Οι τιμές αναφέρονται σε τεμάχια δοκιμών με εγχοπήν σχήματος "V" συμμορφουμένην προς την ISO R I48.

Σχήμα (βελί) 3295)



Στη περίπτωση ωστενιτικών χάλυβων, μόνο το πλαίσιο συγκολλησεως (WELD BEAD) χρειάζεται να υποβληθεί σε έλεγχο αντοχήν κρούσεως.

Για θερμοκρασίες λειτουργίας κάτω των  $-196^{\circ}\text{C}$  ο έλεγχος αντοχής κρούσεως δεν εκτελείται στη χαμηλότερα θερμοκρασία λειτουργίας, αλλά σε  $-196^{\circ}\text{C}$ .

(β) Δοχεία, δεξαμενές και κελύφη κατασκευασμένα από αλουμίνιο ή κράμα αλουμινίου

Οι ραφές των δοχείων, δεξαμενών και κελυφών πρέπει σε θερμοκρασία του περιβάλλοντος να πληρούν τους κάτωθι δρους ως προς τον συντελεστήν κάμψεως:

Πάχος φύλλου

$\epsilon$   
σε mm (χιλ.)

Συντελεστής Κάμψεως K I/  
για τη ραφή

Ρίζα σε

ζώνη συμπίεσεως

Ρίζα σε

ζώνη τάσεως

$\leq 12$   
 $\leq 12$  έως 20  
 $\leq 20$

$\geq 15$   
 $\geq 12$   
 $\geq 9$

$\geq 12$   
 $\geq 10$   
 $\geq 8$

I/ Βλέπε περιθώριο 2I4.285.

(γ) Φοχέλα, δεξαμενές και κελύφη κατασκευασμένα από χαλκό ή κράμα χαλκού

Δεν είναι απαραίτητος η διεξαγωγή δοκιμών προς καθορισμόν εάν η αντοχή κρούσεως είναι επαρκής. 214.267

214.268-

214.274

2.- Έλεγχοι (Δοκιμές)

(α) Έλεγχοι αντοχής-κρούσεως

Οι αντοχές κρούσεως οι οριζόμενες εις περιθώριο 214.275

214.265 αφορούν τεμάχια δοκιμών 10 X 10 MM (χιλ.) και με εγκοπήν σχήματος "U" ή σχήματος "V".

Παρατηρήσεις:-

1.- Αναφορικώς με το σχήμα του τεμαχίου δοκιμής, βλέπε περιθώριο 214.265 (πίναξ), σημειώσεις 3/ και 4/.

2.- Για φύλλα κάτω των 10 MM (χιλ.) αλλά όχι κάτω των 5 MM (χιλ.) πάχους, τεμάχια δοκιμών με εγκάρσια τομή 10 X ε MM, όπου "ε" παριστά το πάχος του φύλλου, θα χρησιμοποιούνται. Τέτοιοι έλεγχοι αντοχής κρούσεως γενικώς αποδίδουν υψηλότερας τιμές από ότι αποδίδουν τούτοις έλεγχοι επί βασικών (STANDARD) τεμαχίων δοκιμών.

3.- Ουδείς έλεγχος αντοχής κρούσεως θα διεξάγεται επί φύλλων πάχους κάτω των 5 MM (χιλ.) ή επί των ραφών των.

(1) Για έλεγχο των φύλλων η αντοχή κρούσεως θα καθορίζεται επί τριών τεμαχίων δοκιμών. Τεμάχια δοκιμών με εγκοπήν σχήματος "U" θα λαμβάνονται σε ορθές γωνίες προς την κατεύθυνσιν του ρολλαρίσματος/και τεμάχια δοκιμών με εγκοπήν σχήματος "V" εις την κατεύθυνσιν του ρολλαρίσματος (κυλινδροσυμπιέσεως).

(2) Για δοκιμή ραφών τα τεμάχια δοκιμών θα λαμβάνωνται ως κάτωθι:- 214.276  
(Συνεχίζεται)

$$\varepsilon \leq 10$$

τρία τεμάχια δοκιμών εκ του κέντρου της συγκολλήσεως\*  
 τρία τεμάχια δοκιμών εκ της ζώνης της παραμορφώσεως της δημιουργημένης εκ της συγκολλήσεως (η εγκοπή θα είναι ολωσδιόλου έξωθι της λιωμένης περιοχής /MELTED AREA/ αλλά όσο το δυνατόν πλησιέστερον εις αυτήν)\*.

Σχήματα (εξ. 3298)

π.χ. σύνολον έξη τεμάχια δοκιμών. Κέντρον Ζώνη  
 συγκολλήσεως Παραμορφώσεως

Τα τεμάχια δοκιμών θα έχουν έτσι κατεργασθεί μηχανικώς ώστε να έχουν το ανώτατον δυνατόν πάχος.

$$10 < \varepsilon \leq 20$$

τρία τεμάχια δοκιμών εκ του κέντρου της συγκολλήσεως\*  
 τρία τεμάχια δοκιμών εκ της ζώνης παραμορφώσεως\*

Σχήμα

Κέντρον Συγκολλήσεως

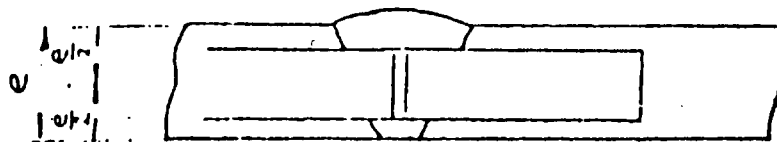
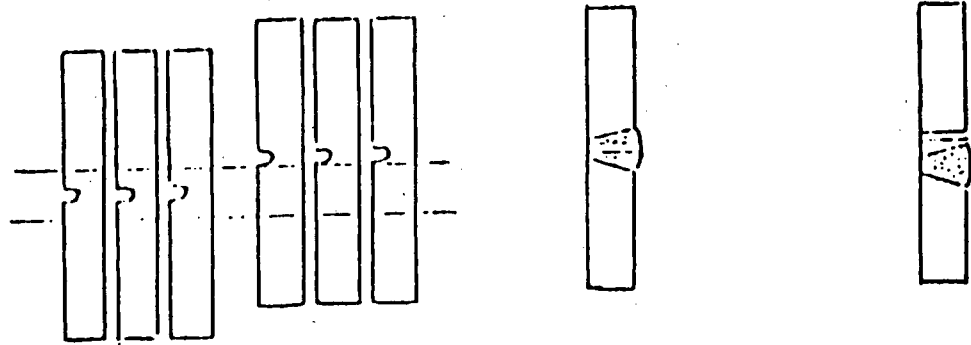
Σχήμα

Ζώνη παραμορφώσεως

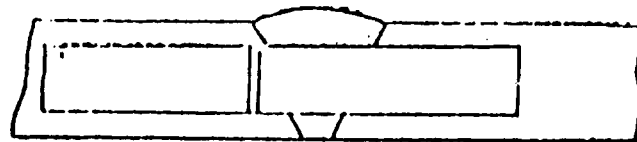
π.χ. σύνολον έξη τεμάχια δοκιμών.

$$\varepsilon > 20$$

Δύο σετ τριών τεμαχίων δοκιμών (ένα σετ στην άνω όψη, ένα σετ στη κάτω όψη) σε καθένα των κατωτέρω οριζομένων σημείων:



Centre of weld





Σχήμα

Κέντρον συγκολλήσεως

Σχήμα (6ερί 3300)

Ζώνη παραμορφώσεως

π.χ. σύνολον δώδεκα τεμάχια δοκιμών.

(1) Για φύλλα, ο μέσος όρος των τριών δοκιμών θα 2Ι4.277 πληροί τις κατώτατες τιμές τις οριζόμενες στο περιθώριο 2Ι4.265\* καμμία των τιμών δεν μπορεί να είναι περισσότερο από 30 ~~πτα~~ εκατό ~~τω~~ κάτω της εικονιζομένης ελαχίστης.

(2) Για συγκολλήσεις, οι λαμβανόμενες μέσες τιμές ~~από~~ ~~των~~ τεμαχίων δοκιμών των ληφθέντων ~~σε~~ διάφορα σημεία, κέντρον συγκολλήσεως και ζώνην παραμορφώσεως, θα αντιστοιχούν προς τας οριζόμενας ελαχίστας (κατωτάτας) τιμάς. Καμμία των τιμών δεν μπορεί να είναι περισσότερο από 30 ~~πτα~~ εκατό ~~τω~~ κάτω της οριζομένης ελαχίστης (κατωτάτης).

2Ι4.278-

2Ι4.284

(β) Καθορισμός συντελεστού κάμψεως

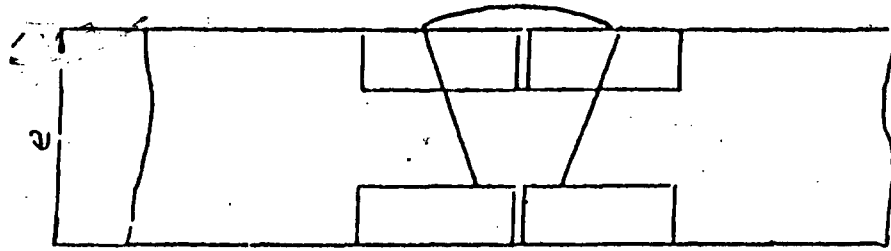
(1) Ο συντελεστής κάμψεως K ο αναφερόμενος εις περι- 2Ι4.285 θώριον 2Ι4.266 καθορίζεται ως έπεται:-

$$K = 50 \frac{\epsilon}{R},$$

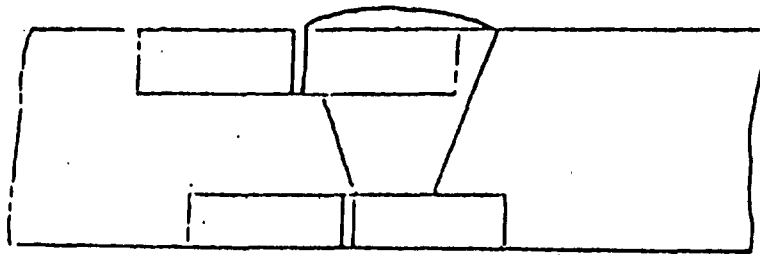
όπου  $\epsilon$  = πάχος του φύλλου σε MM (χιλ.)\* και

R = μέση ακτίς καμπυλότητος εις MM (χιλ.) του τεμαχίου δοκιμής όταν η πρώτη ρωγή εμφανίζεται εις την ζώνην τάσεως.

(2) Ο συντελεστής κάμψεως K θα καθορίζεται για τις ραφές. Το πλάτος του τεμαχίου δοκιμής θα είναι ίσον προς 3 ε.

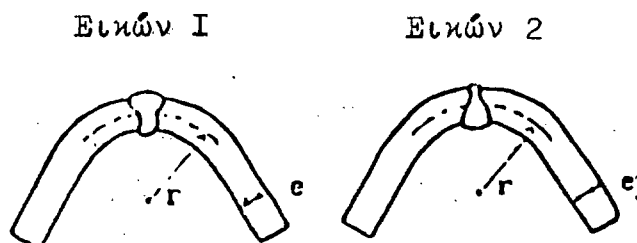


Centre of weld



Zone of deformation

(3) Τέσσερες δοκιμές θα εκτελούνται στη ραφή, δύο 2Ι4.285 με τη ρίζα στη ζώνη συμπίεσεως (εικόν Ι) και δύο με (Συνεχίζε-  
ται) τη ρίζα στη ζώνη τάσεως (εικόν 2)\* όλες οι λαμβανόμενες τιμές θα πληρούν τους όρους των κατωτέρων τιμών του περιθωρίου 2Ι4.266.



2Ι4.286-

2Ι9.999

### Πρόσθήκη Β.2

#### ΗΛΕΚΤΡΙΚΟΣ ΕΞΟΠΛΙΣΜΟΣ

(Ι) Ο δωτισμός των οχημάτων θα είναι ηλεκτρικός. 220.000

(2) Ο ηλεκτρικός εξοπλισμός των οχημάτων θα πληροί τους κάτωθι όρους:-

Όροι διέποντες τον ηλεκτρικόν εξοπλισμόν ως σύνολον

(α) Συνδεσμολογία:- Οι αγωγοί πρέπει να είναι σε μεγάλην απόστασιν προς αποφυγήν υπερθερμάνσεως. Πρέπει να είναι καταλλήλως μονωμένοι. Τα κυκλώματα θα προστατεύονται κατά υπερβολικού ρεύματος με αντιστάσεις ή αυτομάτους διακόπτας. Η συνδεσμολογία θα είναι σταθερά συνδεδεμένη και τοποθετημένη κατά τρόπο που οι αγωγοί να προστατεύονται κατά των κρούσεων, εξεχόντων λίθων και της θερμότητος της εκπεμπομένης αηροτοῦ σύστημα εξατμίσεως.

(β) Συσσωρευτάι:- Διακόπτης δια την διακοπήν όλων των ηλεκτρικών κυκλωμάτων θα τοποθετείται όσο το δυνα-

τόν πλησιέστερον στον συσσωρευτήν. Σύστημα απ' ευθείας 220.000 ελέγχου ή τηλεχειριστήριο θα έχει εγκατασταθῆ εἰς τὴν (Συνεχίζεται) θέσιν του οδηγού και από έξω από το δχημα. Θα εἶναι ευχερώς προσιτόν και θα σημειούται ευδιακρίτως. Ο διακόπτης θα μπορεῖ να ανοίγεται ενδσω λειτουργεῖ η μηχανή χωρίς να προκαλείται επικίνδυνος διακύμανσις. Η ηλεκτρική τροφοδοσία προς τον ταχογράφον μπορεῖ, εν τούτοις, να γίνεται διακυκλώματος συνδεδεμένου απ' ευθείας με τον συσσωρευτήν. Η συσκευή αυτή και η εγκατάστασις της θα εἶναι ουσιαστικώς ασφαλῆς σε μίγμα αποτελούμενον από 20 ~~εκατ~~ εκατῶ υδρογόνον και 80 ~~εκατ~~ εκατῶ αέρα. Εάν οι συσσωρευτές εἶναι τοποθετημένοι σε άλλο σημείο και ὄχι κάτω από το καπό της μηχανής, θα ασφαλίζονται εντός θήκης με σπές αερίσμου, μεταλλικής ἢ άλλου υλικού ἰσοδυνάμου αντοχῆς, με μονωμένα εσωτερικά τοιχώματα.

Όροι διέποντες το τμήμα του ηλεκτρικού εξοπλισμοῦ το κείμενον ὀπισθεν της θέσεως του οδηγού

(γ) Το σύνολο του εξοπλισμοῦ αυτού θα εἶναι ἔτσι σχεδιασμένο, εγκατεστημένο και προφυλαγμένο ὡστε να μη μπορεῖ να προκαλέσει ανάφλεξις ἢ βραχυκύκλωμα υπό ομαλῆς συνθηκῆς χρήσεως των οχημάτων και να ελαττώνει εἰς το ελάχιστον τον κίνδυνον της αναφλέξεως ἢ του βραχυκυκλώματος ~~δε~~ περιπτώσεως κρούσεως ἢ στρεβλώσεως.

Ειδικώτερον:-

#### I.- Συνδεσμολογία

Οι αγωγοί (βλέπε 2 (α)) θα αποτελούνται από καλώδια προστατευόμενα από περιβλήματα άνευ ραφῆς και στεγανά κατά της σκωριάσεως.

2.- Φωτισμός

220.000

Βιδωτές λυχνίες δεν θα χρησιμοποιούνται.

(Συνεχίζεται)

Εάν οι φανοί (λαμπτήρες) εις την καρρότσα του οχήματος δεν είναι σταθεροποιημένοι σε μέρη των τοιχωμάτων ή της οροφής εις τρόπον ώστε να προστατεύονται κατά οιασδήποτε μηχανικής βλάβης, πρέπει να προστατεύονται με έναν γερό κλωβό ή δικτυωτό.

220.001

Τα εύφλεκτα αέρια και είδη της Κλάσεως 2

220.002

των οποίων η μεταφορά δεν εξαιρείται δυνάμει των διατάξεων του περιθωρίου 2I.25I ~~από την~~ εφαρμογή των όρων του περιθωρίου 220.000 είναι τα κάτωθι:-

(α) Πεπιεσμένα αέριαΥδρογόνο (1<sup>ο</sup> (β))Μεθάνιο (1<sup>ο</sup> (β))Μονοξειδίο του άνθρακος (1<sup>ο</sup> (β Τ))Μίγματα αερίων 2<sup>ο</sup> (β)Συνθετικά αέρια (2<sup>ο</sup> (β Τ))Φωταέριον (2<sup>ο</sup> (β Τ))Υγραέριον (2<sup>ο</sup> (β Τ))(β) Υγροποιημένα αέριαΒουτάνιον (3<sup>ο</sup> (β))Βουτυλένιον (3<sup>ο</sup> (β))Κυκλοπροπάνιο (3<sup>ο</sup> (β))Ισοβουτυλένιο (3<sup>ο</sup> (β))Προπάνιο (3<sup>ο</sup> (β))Ισοβουτάνιο (3<sup>ο</sup> (β))

Προπυλένιο (3 <sup>ο</sup> (β))	220.002
Αιθυλοχλωρίδιο (3 <sup>ο</sup> (β Τ))	(Συνεχίζε- ται)
Μεθυλοχλωρίδιο (3 <sup>ο</sup> (β Τ))	
Διμεθυλαιθέρας (3 <sup>ο</sup> (β Τ))	
Υδροθειο (3 <sup>ο</sup> (β Τ))	
Αιθυλαμίνη (3 <sup>ο</sup> (β Τ))	
Μεθυλαμίνη (3 <sup>ο</sup> (β Τ))	
Τριμεθυλαμίνη (3 <sup>ο</sup> (β Τ))	
Μεθυλιομερκαπτάνη (3 <sup>ο</sup> (β Τ))	
Βουταδιένη (3 <sup>ο</sup> (γ))	
Βινυλοχλωρίδιο (3 <sup>ο</sup> (γ))	
Βινυβρωμίδιο (3 <sup>ο</sup> (γ Τ))	
Χλωροκυανίδιο (3 <sup>ο</sup> (γ Τ))	
Αιθυλενοξειδίιο (3 <sup>ο</sup> (γ Τ))	
Αεριώδη μίγματα Α, ΑΟ, ΑΛ, Β ή Γ (4 <sup>ο</sup> (β))	
Αιθάνιο (5 <sup>ο</sup> (β))	
Αιθυλένιο (5 <sup>ο</sup> (β))	
(γ) <u>Αίαν-ψυγμένα υγροποιημένα αέρια</u>	
Τα αέρια της 7 <sup>ο</sup> (β) και 8 <sup>ο</sup> (β)	
(δ) <u>Αέρια διαλυόμενα υπό πίεσιν</u>	
Ακετυλένιο (9 <sup>ο</sup> (γ))	
(ε) <u>Είδη περιέχοντα αέριο</u>	
Διανεμητά Αεροζόλ (AEROSOL DISPENSERS)	
της 10 <sup>ο</sup> , (β) και (β Τ)	

220.003-

229.999

Προσθήκη Β.3

(βλέπε περιθώριο ΙΟ.Ι82)

ΠΙΣΤΟΠΟΙΗΤΙΚΟΝ ΕΓΚΡΙΣΕΩΣ ΓΙΑ ΟΧΗΜΑΤΑ ΜΕΤΑ-	230.000
ΦΕΡΟΝΤΑ ΩΡΙΣΜΕΝΑ ΕΠΙΚΙΝΔΥΝΑ ΕΙΔΗ (ΕΜ/ΤΑ)	239.999

## I.- ΠΙΣΤΟΠΟΙΗΤΙΚΟΝ Αρ. ....

- 2.- πιστοποιούν ότι το κατωτέρω οριζόμενο δχημα πληροί τους όρους τους προβλεπομένους υπό της Ευρωπαϊκής Συμφωνίας περί Διεθνούς Μεταφοράς Επικινδύνων Ειδών (Εμ/των) Οδικώς (ADR) για την αποδοχή του για τη διεθνή μεταφορά επικινδύνων ειδών (εμ/των) οδικώς.
- 
- 3.- Ισχύει μέχρι .....
- 4.- Το παρόν πιστοποιητικόν πρέπει να επιστραφεί εις την εκδούσαν υπηρεσίαν όταν το δχημα αποσυρθεί της υπηρεσίας· εάν το δχημα μεταβιβασθεί εις άλλον ιδιοκτήτην· κατά την λήξιν της ισχύος του πιστοποιητικού· και εάν υπάρχει ουσιώδης αλλαγή σε ένα ή περισσότερα βασικά χαρακτηριστικά του οχήματος.
- 5.- Τύπος οχήματος: κλειστό δχημα, ανοικτό δχημα, βυτιοφόρο μετά/άνευ κλειστού/ανοικτού ρυμουλκουμένου οχήματος/ημι-ρυμουλκουμένου οχήματος (διαγράψατε λέξεις που δεν έχουν εφαρμογήν) .....
- 6.- Ονοματεπώνυμο και εμπορική διεύθυνση μεταφορέως (ιδιοκτήτου) .....
- 7.- Αριθμός/Κυκλοφορίας (εάν όχι: αριθμός σασσί) .....

- 8.- Το ανωτέρω περιγραφόμενον όχημα έχει υποβληθεί εις  
 ..... την επιθεώρησιν την προβλεπομέ-  
 νην υπό της ADR, Παράρτημα Β, περιθώριο ΙΟ.Ι82 και  
 πληροί τους όρους που απαιτούνται για την αποδοχή του  
 για τη διεθνή μεταφορά οδικώς επικινδύνων ειδών (εμπο-  
 ρευμάτων) των Κλάσεων .....  
 αριθμοί ειδών .....
- 9.- Παρατηρήσεις .....
- ΙΟ.- ..... Ι9..
- ΙΙ.- Υπογραφή και σφραγίς εκδόσεως  
 υπηρεσίας εν .....
- Ι2.- Η ισχύς του παρόντος πιστοποιητικού παρατείνεται μέ-  
 χρι .....
- Ι3.- Υπογραφή και σφραγίς εκδόσεως  
 υπηρεσίας εν .....
- Ι4.- Η ισχύς του παρόντος πιστοποιητικού παρατείνεται μέ-  
 χρι .....
- Ι5.- Υπογραφή και σφραγίς εκδόσεως  
 υπηρεσίας εν .....
- Ι6.- Η ισχύς του παρόντος πιστοποιητικού παρατείνεται μέ-  
 χρι .....
- Ι7.- Υπογραφή και σφραγίς εκδόσεως  
 υπηρεσίας εν .....

Παρατηρήσεις:- Ι.- Οι διαστάσεις του πιστοποιητικού θα  
 είναι 2ΙΟ X 297 MM (χιλ.) (σχήμα Α4). Έδσο η προσθία όσα  
 και η οπισθία σελίδα θα χρησιμοποιηθούν. Το χρώμα θα είναι  
 λευκό, με ροδόχρουν διαγώνιον λωρίδα.



2.- Κάθε ρυμουλκούμενο όχημα θα αποτελεί το αντικείμενο χωριστού πιστοποιητικού εκτός εάν καλύπτεται υπό του πιστοποιητικού του οχήματος με το οποίο είναι συζευγμένο.

3.- Οσάκις πιστοποιητικόν εκδίδεται συμφώνως προς το άρθρο 4, παράγραφος 2, της Συμφωνίας σε όχημα του οποίου η κατασκευή δεν πληροί εξ ολοκλήρου τους όρους του Παραρτήματος "B", η ισχύς του πιστοποιητικού δεν θα παρατείνεται πέραν της διάρκειας της ανακλήσεως της παρεχομένης υπό του ρηθέντος άρθρου 4, επιφυλασσομένων οσάκις θεωρείται ενδεδειγμένον των διατάξεων των περιθωρίων II.605, 2I.605, 3I.605 και 6I.605\* και το κείμενον της παραγράφου 8 του πιστοποιητικού της εγκρίσεως θα αντικαθίσταται δια των κάτωθι:- "Το ανωτέρω περιγραφόμενον όχημα δεν πληροί εξ ολοκλήρου τους όρους του Παραρτήματος "B", αλλά δικαιούται του ευεργετήματος των διατάξεων του άρθρου 4, παράγραφος 2, της Συμφωνίας".

-----

Προσθήκη Β.4

Πίνακες αφορώντες την μεταφορά επικινδύνων υλών της Κλάσεως 7°  
Ετικέττα που θα τοποθετείται στα οχήματα που μεταφέρουν αυτές  
τις ύλες.

Οι κατώτατες αποστάσεις οι οριζόμενες στον κατωτέρω πίνα- 240.000  
κα μεταξύ των ραδιενεργών υλών και των χώρων των οχημάτων  
των φυλασσομένων για τον οδηγό και το συνοδευόν αυτόν προ-  
σωπικό είναι σύμφωνα με τις διατάξεις του περιθωρίου  
3659(8)

Ολικόν ποσόν  
δείκτου μεταφοράς

Κατώτατες αποστάσεις σε μέτρα, προστατευ-  
τικό υλικό δεν παρεμβάλλεται, από τα εν-  
διαίτηματα ή τον κανονικώς καταλαμβανόμε-  
νον χώρο εργασίας

Ισχύοντα στοιχεία στη περίπτωση χρόνου εκ-  
θέσεως μη υπερβαίνοντος τις 250 ώρες ετη-  
σίως

Κάτω των	2	1.0
	2 έως 4	1.5
	4 έως 8	2.5
	8 έως 12	3.0
	12 έως 20	4.0
	20 έως 30	5.0
	30 έως 40	5.5
	40 έως 50	6.5

Οι κατώτατες αποστάσεις ασφαλείας οι αναφερόμενες στο 240.001 περιθώριο 3657 για τη φόρτωση και αποθήκευση κδλων τα οποία φέρουν ετικέττα "FOTO" ομού μετά των κδλων της Κατηγορίας II - ΚΙΤΡΙΝΟΝ ή Κατηγορίας III - ΚΙΤΡΙΝΟΝ δίδονται στον παρακάτω πίνακα.

Αποστάσεις χωρισμού για τη φόρτωση και την αποθήκευση κδλων τα οποία φέρουν ετικέττα με την λέξη FOTO ομού μετά των κδλων των Κατηγοριών II - ΚΙΤΡΙΝΟΝ ή III ΚΙΤΡΙΝΟΝ

Ολικόν ποσόν/ποσότης (SUM) των κδλων της κατηγορίας		Ολικόν Ποσόν του δεικτού μεταφοράς	Διάρκεια ταξειδίου ή αποθηκείσεως σε ώρες							
ΚΙΤΡΙΝΟΝ III	ΚΙΤΡΙΝΟΝ II		I	2	4	10	24	48	120	240

Κατώταται αποστάσεις σε μέτρα

		0.2	0.5	0.5	0.5	0.5	I	I	2	3
		0.5	0.5	0.5	0.5	I	I	2	3	5
I		I	0.5	0.5	I	I	2	3	5	7
2		2	0.5	I	I	1.5	3	4	7	9
4		4	I	I	1.5	3	4	6	9	13
8		8	I	1.5	2	4	6	8	13	18
I	10	10	I	2	3	4	7	9	14	20
2	20	20	1.5	3	4	6	9	13	20	30
3	30	30	2	3	5	7	11	16	25	35
4	40	40	3	4	5	8	13	18	30	40
5	50	50	3	4	6	9	14	20	32	45

240.002-

240.009

240.010

Η ετικέττα η οποία θα τοποθετείται εις τα τοιχώματα των οχημάτων συμφώνως προς τις διατάξεις του περιθωρίου 3659(6) θα συμμορφούται προς το παρακάτω μοντέλο:-

RADIOACTIVE : ΡΑΔΙΕΝΕΡΓΟΝ

(Κατώτατο μήκος πλευράς: 15 CM (εκ.))

Σύμβολο και επιγραφή μαύρα σε λευκό φόντο (ελάχιστο 3310)

240.011

249.999

Προσθήκη Β.5

ΚΑΤΑΣΤΑΣΙΣ ΥΛΩΝ ΑΝΑΦΕΡΟΜΕΝΩΝ ΕΙΣ ΠΕΡΙΘΩΡΙΟΝ 10.500 (2)

## ΠΑΡΑΤΗΡΗΣΙΣ·

- Το πρώτο νούμερο του αριθμού προσδιορισμού του κινδύνου ορίζει τον βασικόν (αρχικόν) κίνδυνον ως έπεται:-

2.-Αέριον

5.- Οξειδωτική ύλη ή οργανικόν

3.-Ευφλεκτον Υγρόν

υπεροξειδιον

4.-Ευφλεκτον Στερεόν

6.- Τοξικές Ύλες.

8.- Διαβρωτικές

- Το δεύτερο και τρίτο νούμερο προσδιορίζουν δευτερεύοντα κινδύνους:-

0.-ουδεμία σημασία

6.- τοξικός κίνδυνος

1.-κίνδυνος εκρήξεως

8.- κίνδυνος διαβρώσεως

2.-ενδέχεται να ανα-  
δίδει αέριον9.- κίνδυνος βιαίας αντιδράσεως από  
στιγματάαν αποσύνθεσιν ή αυτο-  
πολυμερισμόν3.-κίνδυνος ευφλέκτου  
ύλης

## 5.-κίνδυνος οξειδώσεως

- Οσάκις το πρώτο και δεύτερο νούμερο είναι το ίδιο, μία έντασις  $\xi$  του βασικού κινδύνου δημειούται, ήτοι:

33 σημαίνει υψηλώς (λίαν) εύφλεκτον υγρόν (σημείον αναφλέξεως κάτω των  $21^{\circ}\text{C}$ ). 66 σημαίνει λίαν επικίνδυνος τοξική ύλη. 88 σημαίνει λίαν επικίνδυνος διαβρωτική ύλη.

Οσάκις τα δύο πρώτα νούμερα είναι 22, καθορίζεται φυγμένον αέριον. Ο συνδυασμός 42 καθορίζει στερεόν το οποίον αναδίδει αέριο σε επαφή με το νερό.

- Οσάκις του αριθμού προσδιορισμού του κινδύνου προηγείται το γράμμα "X", τούτο σημαίνει απόλυτον απαγόρευσιν εφαρμογής νερού επί του προϊόντος.

Οι ύλες οι αναφερόμενές στο περιθώριο I0.500(2)

απαριθμούνται κατωτέρω:-

250.000

Όνομασία Ύλης	Κλάσις και αριθμός Είδους	Αριθμός Προσδιορισμού Κινδύνου (άνω μέρος) (γ)	Αριθμός Προσδιορισμού Ύλης (κάτω μέρος) (δ)
(α)	(β)	(γ)	(δ)

A

Ακετάλη (L, L-διεθοξυαιθάνιο)	3, I <sup>0</sup> (α)	33	I088
Ακεταλδεΰδη	3, 5 <sup>0</sup>	33	I089
Οξικό οξύ, παχόμορφο (και τα υδάτινα διαλύματά του περιέχοντα άνω του 80 <sup>0</sup> /ο καθαρό οξύ)	8, 2I <sup>0</sup> (γ)	83	I842
Οξικός Ανυδρίτης	8, 2I <sup>0</sup> (ε)	83	I7I5
Ακετόνη	3, 5 <sup>0</sup>	33	I090
Ακετόνη κυανιδρίνη (βλέπε 2-κυανοπροπάνιο-2-OL)			

(α)	(β)	(γ)	(δ)
Ακετονιτρίλιο	6.Ι, 2 <sup>ο</sup> (β)	633	Ι648
Ακετυλοχλωρίδιο	8, 22 <sup>ο</sup>	83	Ι7Ι7
Ακρυλαδεύδη	3, Ι <sup>ο</sup> (α)	336	Ι092
Ακρυλονιτρίλιο	6.Ι, 2 <sup>ο</sup> (α)	633	Ι093
Αήρ	2, 8 <sup>ο</sup> (α)	22	Ι003
Οινόπνευμα (βλέπε αιθανόλη)			
Αλλυλική αλκοόλη	6.Ι, Ι3 <sup>ο</sup> (α)	63	Ι098
Αμμωνία	2, 3 <sup>ο</sup> (α Τ)	268	Ι005
Αμμωνία, διαλυομένη στο ύδωρ, με άνω του 35 <sup>ο</sup> /ο αλλά όχι άνω του 40 <sup>ο</sup> /ο αμμωνία κατά βάρος	2,	268	2073
Αμμωνία, διαλυομένη στο ύδωρ, με άνω του 40 <sup>ο</sup> /ο αλλά όχι άνω του 50 <sup>ο</sup> /ο αμμωνία κατά βάρος	2, 9 <sup>ο</sup> (α Τ)	268	2073
Οξικός αμυλεστέρας (βλέπε οξικό πεντόλιο)			
Αλκοόλαι αμυλίου (πλην της τριτοταγούς αλκοόλης)	3, 3 <sup>ο</sup>	30	ΙΙ05
Τριτοταγής αλκοόλη	3, Ι <sup>ο</sup> (α)	33	ΙΙ05
Ανιλίνη	6.Ι, ΙΙ <sup>ο</sup> (β)	60	Ι547
Πενταχλωριούχο αντιμόνιο	8, ΙΙ <sup>ο</sup> (α)	80	Ι730
Άργεο (ψυγμένο)	2, 7 <sup>ο</sup> (α)	22	Ι95Ι
<u>Β</u>			
Βένζαλδεύδη	3, 4 <sup>ο</sup>	30	Ι990
Βενζόλιο	3, Ι <sup>ο</sup> (α)	33	ΙΙΙ4
Βενζυλοχλωρίδιο	8, 22 <sup>ο</sup>	83	Ι736
Βρώμιο	8, Ι4 <sup>ο</sup>	886	Ι744

(α)	(β)	(γ)	(δ)
1,3 Βουταδιένιο	2,3 <sup>ο</sup> (γ)	239	1010
Βουτάνιο	2,3 <sup>ο</sup> (β)	23	1011
Βουταν-1-οL-(βουτυλική αλκοόλη, κανονική)	3, 3 <sup>ο</sup>	30	1120
Βουταν-2-οL (σεκ, βουτυλική αλ- κοόλη)	3, 3 <sup>ο</sup>	30	1121
Τριτοταγής βουτανόλη	3, 5 <sup>ο</sup>	33	1122
N-οξικό βουτύλιο	3, 3 <sup>ο</sup>	30	1123
σεκ-οξικό βουτύλιο	3, 1 <sup>ο</sup> (α)	33	1124
N-βουτυλική αλκοόλη (βλέπε βου- ταν-1-οL)			
σεκ-βουτυλική αλκοόλη (βλέπε βου- ταν-2-οL)			
Βουτυλαμίνη	3, 5 <sup>ο</sup>	338	1125
N-βουτυλοχλωρίδιο (βλέπε Η-χλω- ροβουτάνιο)			
I-βουτελένιο	2, 3 <sup>ο</sup> (β)	23	1012
Βουτυραλδεΐδη	3, 1 <sup>ο</sup> (α)	33	1129
<u>Γ</u>			
Διάλυμα χλωρικού ασβεστίου	5.1,4 <sup>ο</sup> (α)	50	2429
Διοξείδιο του άνθρακος	2, 5 <sup>ο</sup> (α)	20	1013
Διοξείδιο του άνθρακος, υγρό (ψυγμένο)	2, 7 <sup>ο</sup> (α)	22	2187
Διθειάνθραξ	3, 1 <sup>ο</sup> (α)	336	1131
Φωσγένιο (βλέπε φωσγένιο)			
Χλώριο	2, 3 <sup>ο</sup> (α Τ)	266	1017
Μονοχλωροβενζόλιο	3, 3 <sup>ο</sup>	30	1134

(α)	(β)	(γ)	(δ)
Ι-Χλωροβουτάνιο (βουτυλιοχλωρίδιο)	3, I <sup>0</sup> (α)	33	II 27
Χλωροδιφθορομεθάνιο (R22)	2, 3 <sup>0</sup> (α)	20	IOI8
Ι-Χλωρο-2, 3-εποξειπροπάνιο (επιχλωρυδρίνη)	6, I, I2 <sup>0</sup> (α)	663	2023
2-Χλωροαιθανόλη (βλέπε γλυκολική χλωρυδρίνη)			
Χλωροπρένιο	3, I <sup>0</sup> (α)	336	I99I
Χλωροσουλφονικό οξύ	8, II <sup>0</sup> (α)	88	I754
Χλωροτριφθορομεθάνιο (RI3)	2, 5 <sup>0</sup> (α)	20	IO22
Κρεζόλη	6, I, 22 <sup>0</sup> (α)	60	2076
Κυμένιο	3, 3 <sup>0</sup>	30	I9I8
Διαλύματα, ανοργάνων, κυανιδίων	6, I, 3I <sup>0</sup> (β)	66	I935
2-Κυανοπροπάνιο-2-οL (ακετόνη κυανυδρίνη)	6, I, II <sup>0</sup> (α)	66	I54I
Κυκλοεξάνιο	3, I <sup>0</sup> (α)	33	II45
Κυκλοεξανόλη	3, 3 <sup>0</sup>	30	I9I5
Κυκλοεξάνιο	3, I <sup>0</sup> (α)	33	2256
Κυκλοπεντάνιο	3, I <sup>0</sup> (α)	33	II46
Κυκλοπροπάνιο	2, 3 <sup>0</sup> (β)	23	IO27
<u>Δ</u>			
Δεκαύδροναφθαλινη	3, 3 <sup>0</sup>	30	II47
Διακετοναλκοόλη, τεχνική	3, 5 <sup>0</sup>	33	II48
I, 2-Διαμινοαιθάνιο (αιθυλενοδια- μίλη)	8, 35 <sup>0</sup>	83	I604
I, 6-Διαμινοεξάνιο (εξαμεθυλεμοδια- μίλη)	8, 35 <sup>0</sup>	80	I783



(α)	(β)	(γ)	(δ)
I,2-Διχλωροδιφθορομεθάνιο (R12)	2, 3 <sup>0</sup> (α)	20	I028
I,2-Διχλωροαιθάνιο	3, 1 <sup>0</sup> (α)	336	II84
Διχλωροφθορομεθάνιο (R2I)	2, 3 <sup>0</sup> (α)	20	I029
Διχλωρομονοφθορομεθάνιο (βλέπε διχλωροφθορομεθάνιο)			
Διχλωροπροπένιο	3, 3 <sup>0</sup>	36	2047
I,2-Διχλωρο-I, I,2 2-τετραφθοροαιθάνιο (R.II4)	2, 3 <sup>0</sup> (α)	20	I958
I,I-Διεθοξυαιθάνιο (βλέπε ακετάλη)			
Διαιθυλαμίνη	3, 5 <sup>0</sup>	338	II54
Διεθυλοβενζόλιο	3, 4 <sup>0</sup>	30	2049
Διεθυλαιθέρας (θειϊκός αιθέρας)	3, 1 <sup>0</sup> (α)	33	II55
Δι-ισοπροπυλαιθέρας	3, 1 <sup>0</sup> (α)	33	II59
2,2-Διμεθυλοβενζόλιοϋπεροξειδίο	5.2, 10 <sup>0</sup>	539	2II6
Ανθρακικό αιθάνιο	3, 1 <sup>0</sup> (α)	33	II6I
Διμεθυλαιθέρας	2, 3 <sup>0</sup> (β.T)	23	I033
Διμεθυλοθειϊκό άλας (DIMETHYL SULPHATE)	6.I, 13 <sup>0</sup> (β)	663	I595
Διοξάνη (DIOXANE)	3, 5 <sup>0</sup>	336	II65
Διχλωριούχον δισθειον (DISULPHUR DICHLORIDE)	8, 11 <sup>0</sup> (α)	886	I828

E

Επιχλωρυδρίνη (βλέπε I-χλωρο-2,3-εποξυπροπάνιο)			
Αιθανεθιδόλη (αιθυλομερκαπτάνη)	3, 1 <sup>0</sup> (α)	336	2363
Αιθανόλη (αιθυλική αλκοόλη, αλκοόλη)	3, 5 <sup>0</sup>	33	II70

(α)	(β)	(γ)	(δ)
Οξικόν εθοξυαιθύλιον	3, 3 <sup>ο</sup>	30	II72
Οξικόν Αιθύλιον (οξικός εστέρας)	3, I <sup>ο</sup> (α)	33	II73
Ακρυλικό Αιθύλιον (ETHYL ACRYLATE)	3, I <sup>ο</sup> (α)	339	I9I7
Αιθυλική Αλκοόλη (βλέπε αιθανόλη)			
Αιθυλικό βενζόλιο	3, I <sup>ο</sup> (α)	33	II75
Αιθυλοχλωρίδιο	2, 3 <sup>ο</sup> (β I)	23	IO37
Αιθυλένιον	2, 5 <sup>ο</sup> (β)	23	I962
Αιθυλένιον (ψυγμένο)	2, 7 <sup>ο</sup> (β)	223	IO38
Αιθυλενοδιαμίλη (βλέπε I, 2-διαμινοαιθάνιο)			
Μυρμηκικός Αιθυλεστέρας	3, I <sup>ο</sup> (α)	33	II90
Αιθυλομερκαπτάνη (βλέπε αιθενεθιόλη)			
Πυριτικό Αιθύλιον (βλέπε πυριτικόν τετρααιθύλιον)			
<u>Φ</u> (F)			
Φθοριοβορικό οξύ (υδάτινα διαλύματα περιέχοντα όχι άνω του 78 <sup>ο</sup> /ο καθαρού οξέος)	8, 7 <sup>ο</sup>	88	I775
Μυρμηκικό οξύ (περιέχον όχι κάτω του 70 <sup>ο</sup> /ο καθαρού οξέος)	8, 2I <sup>ο</sup> (β)	80	I779
Φουρφοουραλδεΰδη	3, 4 <sup>ο</sup>	36	II99
<u>Γ</u> (Z)			
Γλυκολική χλωροϋδρίνη (2-χλωροαιθανόλη)	6.I, I2 <sup>ο</sup> (β)	66	II35
<u>Η</u>			
Εξαμεθυλενοδιαμίλη (βλέπε I, 6-διαμινοεξάνιο)			

(α)	(β)	(γ)	(δ)
Υδραζίνη σε υδάτινα διαλύματα περιέχοντα όχι άνω του 72 <sup>ο</sup> /ο υδραζίνη:-			
- διαλύματα περιέχοντα άνω του 64 <sup>ο</sup> /ο	8, 34 <sup>ο</sup>	86	2029
- διαλύματα περιέχοντα όχι άνω του 64 <sup>ο</sup> /ο	8, 34 <sup>ο</sup>	86	2030
Υδροβρωμικό οξύ, άνυδρον (βλέπε υδροβρώμιο)			
Διαλύματα υδροβρωμικού οξέος	8, 5 <sup>ο</sup>	88	1788
Υδρογονάνθρακες, υγροί, καθαροί ή σε μίγματα, μη άλλως οριζόμενοι στη Προσθήκη αυτή:-			
- με σημείο αναφλέξεως κάτω των 21 <sup>ο</sup> C	3, 1 <sup>ο</sup> (α)	33	1203
- με σημείο αναφλέξεως μεταξύ 21 <sup>ο</sup> C και 55 <sup>ο</sup> C	3, 3 <sup>ο</sup>	30	1223
- με σημείο αναφλέξεως άνω των 55 <sup>ο</sup> C	3, 4 <sup>ο</sup>	30	1202
Μίγματα αερίων υδρογονανθράκων, Α, ΑΟ, ΑΛ, Β και Γ (υγροποιημένα)	2, 4 <sup>ο</sup> (β)	23	1965
Υδροχλωρικό οξύ, άνυδρο (βλέπε υδροχλώριο, υγροποιημένο)			
Διαλύματα υδροχλωρικού οξέος	8, 5 <sup>ο</sup>	88	1789
Υδροκυάνιο, διαλύματα (περιέχοντα όχι άνω του 20 <sup>ο</sup> /ο υδροκυανίου)			
	6.Ι, 1 <sup>ο</sup> (β)	66	1613
Υδροφθορικό οξύ, υδάτινα διαλύματα περιέχοντα άνω του			

(α)	(β)	(γ)	(δ)
85°/ο καθαρό οξύ —	8, 6°(β)		
Υδροφθορικό οξύ, υδάτινα διαλύμα- τα περιέχοντα άνω του 60°/ο αλλά όχι/του 85°/ο καθαρό οξύ	8, 6°(γ)	886	1790
Υδροφθορικό οξύ, υδάτινα διαλύμα- τα περιέχοντα όχι άνω του 60°/ο καθαρό οξύ	8, 6°(δ)		
Υδροφθορικό οξύ, άνυδρο (βλέπε υδροφθόριο)			
Υδροβρώμιο	2, 3°(α T)	286	1048
Υδροχλώριο	2, 5°(α T)	286	1050
Υδροφθόριο (άνυδρο υδροφθορικό οξύ)	8, 6°(α)	886	1052
Διαλύματα υπεροξειδίου του υδρο- γόνου:			
- περιέχοντα άνω του 40°/ο αλλά όχι άνω του 60°/ο υπερο- ξειδίου του υδρογόνου	8, 41°(α)	85	2014
- περιέχοντα άνω του 6°/ο αλλά όχι άνω του 40°/ο υπεροξει- δίου του υδρογόνου	8, 41°(β)	85	2014
Υπεροξειδίο του υδρογόνου και δια- λύματα υπεροξειδίου του υδρο- γόνου περιέχοντα άνω του 60°/ο υπεροξειδίου του υδρο- γόνου	5.1, 1°	559	2015
Υποχλωριώδη διαλύματα			
- περιέχοντα άνω των 50 GM δια- θεσίμου χλωρίου ανά λίτρο	8, 37°(α)	85	1791

(α)	(β)	(γ)	(δ)
- περιέχοντά όχι άνω των 50GM διαθεσίμου χλωρίου ανά λίτρο	8, 37°(β)	85	I79I
<u>I</u>			
Ισοβουτάνιο	2, 3°(β)	23	I969
Οξικόν ισοβουτάνιο	3, I°(α)	33	I2I3
Ισοβουτυλένιο	2, 3°(β)	23	I055
Ισοπρένιο (μεθυλοβουταδιένιο)	3, I°(α)	339	I2I8
Ισοπροπανόλη (βλέπε προπάνιο-2-OL)			
Ακετικό ισοπροπύλιο	3, I°(α)	33	I220
Ισοπροπυλική αλκοόλη (βλέπε προ- πάνιο-2-OL)			
Ισοπροπυλαμίνη	3, 5°	338	I22I
<u>Λ</u>			
Ιλαρυντικό (γελαστικό) αέριο (βλέπε υδροξείδιο του αζώ- του)			
Αλλύλια μολύβδου, μίγματα με αλο- γόνας οργανικές συνθέσεις π.χ. αιθυλικό υγρό (ETHYL FLUID)	6.1, I4°	663	I649
<u>M</u>			
P-υδροπεροξείδιο μεθανυλίου (με περιεχόμενο υπεροξειδίου μη υπερβαλόν το 95%/ο)	5.2, I4°	539	2I25
Μεθάνιο (ψυγμένο)	2, 7°(β)	223	I972
Μεθανόλη (μεθυλική αλκοόλη, ξυλό- πνευμα)	3, 5°	336	I230
Μεθοξυμεθάνιο (βλέπε διμεθυλαι- θέρα)			

(α)	(β)	(γ)	(δ)
Οξικός μεθυλεστέρας	3, 1 <sup>ο</sup> (α)	33	1231
Ακρυλικό μεθύλιο	3, 1 <sup>ο</sup> (α)	339	1919
Μεθυάλη (METHYLAL)	3, 1 <sup>ο</sup> (α)	33	1234
Μεθυλική αλκοόλη (βλέπε μεθανόλη)			
Μεθυλαμίνη	2, 3 <sup>ο</sup> (β Τ)	263	1061
Μεθυλαμβλική αλκοόλη	3, 3 <sup>ο</sup>	30	2053
Μεθυλοβρωμίδιο (βρωμομεθάνιο)	2, 3 <sup>ο</sup> (α Τ)	263	1062
Μεθυλοβουταδιένιο (βλέπε ισοπρένιο)			
Μεθυλοχλωρίδιο (χλώρομεθάνιο)	2, 3 <sup>ο</sup> (β Τ)	236	1063
Μεθυλαιθυλική κετόνη	3, 1 <sup>ο</sup> (α)	33	1193
Μυρμηκικός μεθυλεστέρας	3, 1 <sup>ο</sup> (α)	33	1243
Μεθυλοϊσοβουτυλική κετόνη	3, 1 <sup>ο</sup> (α)	33	1245
Μεθακρυλικόν μεθύλιον	3, 1 <sup>ο</sup> (α)	339	1247
Μεθυλοπροπιονικός εστέρας	3, 1 <sup>ο</sup> (α)	33	1248
Μεθυλοβινυλικός αιθέρας	2, 3 <sup>ο</sup> (γ Τ)	239	1087
Μικτά οξέα νιτρώσεως (θειϊκόν και νιτρικόν οξύ)			
- περιέχοντα άνω του 30 <sup>ο</sup> /ο καθαρού νιτρικού οξέος	8, 3 <sup>ο</sup> (α)	856	1796
- περιέχοντα όχι άνω του 30 <sup>ο</sup> /ο καθαρού νιτρικού οξέος	8, 3 <sup>ο</sup> (β)	886	1796
Μίγματα Α, ΑΟ, ΑΠ, Β και Γ (βλέπε μίγματα αερίων υδρογονανθράκων, υγροποιημένα)			
Μονοχλωροδιφθορομεθάνιον (βλέπε χλωροδιφθοριομεθάνιο)			

(α)	(β)	(γ)	(δ)
Μονομεθυλαμίνη (βλέπε μεθυλαμίνη)			
Υδάτινα διαλύματα μονομεθυλαμίνης)	3, 5 <sup>ο</sup>	336	1235
<u>N</u>			
Ναφθαλίνη εις λιωμένη κατάσταση	4. I, II <sup>ο</sup> (γ)	44	2304
Φυσικόν αέριον (ψυγμένον)	2, 8 <sup>ο</sup> (β)	223	2043
Νιτρικό οξύ			
- περιέχον άνω του 70 <sup>ο</sup> /ο καθαρού οξέος	8, 2 <sup>ο</sup> (α)	856	2032
- περιέχον άνω του 55 <sup>ο</sup> /ο αλλά όχι άνω του 70 <sup>ο</sup> /ο καθαρού οξέος	8, 2 <sup>ο</sup> (β)	886	2031
Νιτροβενζόλιο	3, 4 <sup>ο</sup>	36	1662
Άζωτον (ψυγμένον)	2, 7 <sup>ο</sup> (α)	22	1977
Διοξειδίου του αζώτου NO <sub>2</sub> (υπεροξειδίου του αζώτου, τετροξειδίου του αζώτου N <sub>2</sub> O <sub>4</sub> )	2, 3 <sup>ο</sup> (α T)	265	1067
Υπεροξειδίου του αζώτου (βλέπε διοξειδίου του αζώτου)			
Τετροξειδίου του αζώτου (βλέπε διοξειδίου του αζώτου)			
Υποξειδίου του αζώτου N <sub>2</sub> O	2, 5 <sup>ο</sup> (α)	25	1070
<u>O</u>			
Ατμίζον θειϊκό οξύ (OLEUM)	8, I <sup>ο</sup> (α)	886	1831
Οξυγόνον (ψυγμένον)	2, 7 <sup>ο</sup> (α)	225	1073
<u>Π</u>			
Παραδεύδη	3, I <sup>ο</sup> (α)	33	1264

(α)	(β)	(γ)	(δ)
Οξικόν πεντύλιον (οξικόν αμύλιον) 3, 3 <sup>ο</sup>		30	1104
Υπερχλωρικό οξύ, σε υδάτινα διαλύματα:-			
- περιέχοντα άνω του 50 <sup>ο</sup> /ο αλλά όχι άνω του 72.5 <sup>ο</sup> /ο υπερχλωρικού οξέος	5, I, 3 <sup>ο</sup>	588	1873
- περιέχοντα όχι άνω του 50 <sup>ο</sup> /ο καθαρού οξέος	8, 4 <sup>ο</sup>	85	1802
Φαινόλη	6, I, 13 <sup>ο</sup> (γ)	68	1671
Φωσγένιο	2, 3 <sup>ο</sup> (α T)	266	1076
Οξυχλωριούχος φωσφόρος (βλέπε φωσφορυλοχλωρίδιο)			
Τριχλωριούχος φωσφόρος	8, II <sup>ο</sup> (α)	88	1809
Φωσφόρος, λευκός ή κίτρινος	4.2, I <sup>ο</sup>	436	1381
Φωσφορυλοχλωρίδιο (οξυχλωριούχος φωσφόρος)	8, II <sup>ο</sup> (α)	88	1810
Καυστική ποτάσσα	8, 32 <sup>ο</sup>	88	1814
Κάλιον	4.3, I <sup>ο</sup> (α) X	423	2257
Διάλυμα χλωρικού καλίου	5, I, 4 <sup>ο</sup> (α)	50	2427
Προπάνιο	2, 3 <sup>ο</sup> (β)	23	1978
N-Προπανόλη (προπυλική αλκοόλη)	3, 5 <sup>ο</sup>	33	1274
Προπιοναλδεΐδη	3, I <sup>ο</sup> (α)	33	1275
Προπαν-2-οL (ισοπροπυλική αλκοόλη)	3, 5 <sup>ο</sup>	33	1219
Οξικόν προπύλιον	3, I <sup>ο</sup> (α)	33	1276
Προπυλική αλκοόλη (βλέπε N-προπανόλη)			
Προπυλένιον	2, 3 <sup>ο</sup> (β)	23	1077
Προπυλενοδιαμίνη	8, 35 <sup>ο</sup>	83	2258



(α)	(β)	(γ)	(δ)
Προπυλενιοξείδιο	3, I <sup>ο</sup> (α)	336	I280
Πυριδίνη	3, 5 <sup>ο</sup>	36	I282
<u>R</u>			
RI2 (βλέπε διχλωροδιφθοριομεθάνιο)			
RI3 (βλέπε χλωροτριφθοριομεθάνιο)			
R2I (βλέπε διχλωροφθοριομεθάνιο)			
R22 (βλέπε χλωροδιφθοριομεθάνιο)			
RII4 (βλέπε διχλωροτετραφθοριομεθάνιο)			
<u>Σ</u>			
Τετραχλωριούχο πυρίτιο	8, II <sup>ο</sup> (α)	88	I818
Καυστικό νάτριο	8, 32 <sup>ο</sup>	88	I824
Νάτριον	4.3, I <sup>ο</sup> (α)	X423	I428
Διάλυμα χλωρικού νατρίου	5.1, 4 <sup>ο</sup> (α)	50	2428
Διάλυμα χλωριώδους νατρίου	5.1, 4 <sup>ο</sup> (φ)	50	I908
Στυρένιον	3, 3 <sup>ο</sup>	30	2055
Διοξείδιον του θείου	2, 3 <sup>ο</sup> (α T)	26	I079
Θειϊκόν οξύ			
- περιέχον άνω του 85 <sup>ο</sup> /ο καθαρού οξέος	8, I <sup>ο</sup> (α)	88	I830
- περιέχον άνω του 75 <sup>ο</sup> /ο αλλά όχι άνω του 85 <sup>ο</sup> /ο καθαρού οξέος	8, I <sup>ο</sup> (β)	88	I830
- περιέχον όχι άνω του 75 <sup>ο</sup> /ο καθαρού οξέος	8, I <sup>ο</sup> (γ)	88	I830
- άχρηστο, τελείως απονιτρωμένο	8, I <sup>ο</sup> (δ)	88	I832

(α)	(β)	(γ)	(δ)
Θειϊκό και νιτρικό οξύ (βλέπε μικτά οξέα νιτρώσεως)			
Θειϊκός αιθέρας (βλέπε διεθυλαιθέρας)			
Θείον εις λιωμένη κατάσταση	4.1, 2 <sup>ο</sup> (β)	44	2448
Θειώδες οξύ, άνυδρον (βλέπε διοξείδιο του θείου)			
Τριοξείδιο του θείου	8, 9 <sup>ο</sup>	885	1829
Θειοχλωρίδιο (SULPHURYL CHLORIDE)	8, 11 <sup>ο</sup> (α)	88	1834
<u>T</u>			
Τετρααιθυλικός μδλυβδος	6.1, 14 <sup>ο</sup>	663	1649
Πυριτικόν τετρααιθύλιον (πυριτικό αιθύλιο)	3, 3 <sup>ο</sup>	30	1292
TETRAHYDROFURAN	3, 5 <sup>ο</sup>	33	2056
Τετραμεθυλικός μδλυβδος	6.1, 14 <sup>ο</sup>	663	1649
Θειονυλοχλωρίδιο (THIONYL CHLORIDE)	8, 11 <sup>ο</sup> (α)	88	1836
Τετραχλωριούχο τιτάνιον	8, 11 <sup>ο</sup> (α)	88	1838
Τολουόλιο	3, 1 <sup>ο</sup> (α)	33	1294
Τριαιθυλαμίνη	3, 5 <sup>ο</sup>	336	1296
Τριαιθυλενική τετραμίνη	8, 35 <sup>ο</sup>	80	2259
Τριαιθυλαμίνη	2, 3 <sup>ο</sup> (β T)	236	1083
Διαλύματα τριαιθυλαμίνης	3, 5 <sup>ο</sup>	336	1297
266-υδροϋπεροξείδιο τριμεθυλονορπινανύλιο, με περιεχόμενον υπεροξειδίου μη υπερβαίνον το 95 <sup>ο</sup> /ο	5.2, 15 <sup>ο</sup>	539	2162
Τριπροπυλαμίνη	8, 35 <sup>ο</sup>	83	2260
Τουρπεντίνης	3, 3 <sup>ο</sup>	30	1299

(α)	(β)	(γ)	(δ)
<u>V (B)</u>			
Οξικό βινύλιο	3, 1 <sup>ο</sup> (α)	33	I30I
Χλωριούχο βινύλιο (βινυλχλωρίδιο)	2, 3 <sup>ο</sup> (γ)	239	I086
<u>W</u>			
Ευλόπνευμα (βλέπε μεθανόλη)			
<u>X (E)</u>			
Ευλόλιο	3, 3 <sup>ο</sup>	30	I307
Ευλενόλη	6.I, 22 <sup>ο</sup> (β)	60	226I

250.00I

Αριθμοί προσδιορισμού θα εικονίζονται επί της πινακίδος (ελάσματος) ως σημειούνται κατωτέρω:

33 Αριθμός προσδιορισμού κινδύνου  
(2 ή τρία νούμερα)

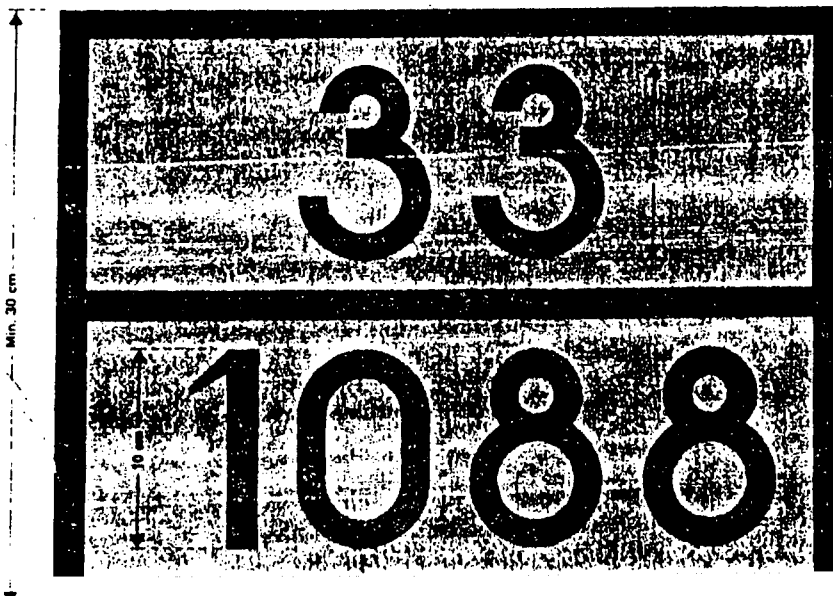
I088 Αριθμός προσδιορισμού ύλης  
(4 νούμερα)

Φόντο πορτοκαλί.

Πλαίσιον, οριζόντιος γραμμή και αριθμοί μαύρα,  
πάχους 15 mm (χιλ.)

250.002-

250.999



## Άρθρο δεύτερο

Η αποδοχή κάθε νεότερης αναθεώρησης των διατάξεων της Συμφωνίας που κυρώνεται με το νόμο αυτό, καθώς και η ρύθμιση τεχνικών και λεπτομερειακών ζητημάτων εφαρμογής της, γίνεται με απόφαση του αρμόδιου, κατά περίπτωση Υπουργού ή με κοινή απόφαση των συναρμοδίων, κατά περίπτωση, Υπουργών, δημοσιευόμενη στην Εφημερίδα της Κυβερνήσεως.

## Άρθρο τρίτο

Η ισχύς του παρόντος αρχίζει από τη δημοσίευσή του στην Εφημερίδα της Κυβερνήσεως, της δε Συμφωνίας κατά τα προβλεπόμενα από το άρθρο 6 αυτής.

Παραγγέλλομε τη δημοσίευσή του παρόντος στην Εφημερίδα της Κυβερνήσεως και την εκτέλεσή του ως νόμου του Κράτους.

Αθήνα, 18 Δεκεμβρίου 1987

Ο ΠΡΟΕΔΡΟΣ ΤΗΣ ΔΗΜΟΚΡΑΤΙΑΣ  
**ΧΡΗΣΤΟΣ ΑΝΤ. ΣΑΡΤΖΕΤΑΚΗΣ**

## ΟΙ ΥΠΟΥΡΓΟΙ

ΕΣΩΤΕΡΙΚΩΝ	ΜΕΤΑΦΟΡΩΝ & ΕΠΙΚΟΙΝΩΝΙΩΝ
<b>ΚΑΡΩΛΟΣ ΠΑΠΟΥΔΙΑΣ</b>	<b>ΚΩΣΤΑΣ ΜΠΑΝΤΟΥΒΑΣ</b>

*Θεωρήθηκε και τέθηκε η Μεγάλη Σφραγίδα του Κράτους.*

Αθήνα, 21 Δεκεμβρίου 1987

Ο ΕΠΙ ΤΗΣ ΔΙΚΑΙΟΣΥΝΗΣ ΥΠΟΥΡΓΟΣ  
**ΑΓΑΜΕΜΝΩΝ ΚΟΥΤΣΟΓΙΩΡΓΑΣ**