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COMMITTEE OF EXPERTS ON THE TRANSPORT
OF DANGEROUS GOODS

GROUP OF EXPERTS ON EXPLOSIVES

Fifth session
Geneva, 2-6 May 1966

REPORT OF THE GROUP OF EXPERTS ON ITS FIFTH SESSION

1. The Group of Experts on Explosives held its fifth session at Geneva from 2 to 6 May 1966. Experts from the Federal Republic of Germany, France, the United Kingdom, the United States of America, the Central Office for International Railway Transport (CCTI) and the International Chamber of Commerce (ICC) took part in its work.*/ Observers from Italy and from the Inter-Governmental Maritime Consultative Organization (IMCO) also attended the session.*/
2. The Group of Experts adopted the provisional agenda submitted by the Secretariat (E/CN.2/CONF.5/R.50).
3. On the proposal of Mr. A. Reed (United Kingdom), Mr. L. Médard (ICC) was unanimously re-elected Chairman of the Group of Experts.
4. The Group observed one minute's silence in memory of Mr. D. Simmons, expert from the United Kingdom.

REPORT OF THE COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS ON ITS
FOURTH SESSION

5. The Group of Experts took note of the report (E/CN.2/CONF.5/16 and Add.1).
RESOLUTION ADOPTED BY THE ECONOMIC AND SOCIAL COUNCIL AT ITS FORTIETH SESSION
(MARCH 1966) CONCERNING THE TRANSPORT OF DANGEROUS GOODS
6. The Group of Experts took note of the resolution. In that connexion, the Secretariat announced that the document "Transport of Dangerous Goods" (ST/ECA/81) was being re-issued in revised form. The new edition would incorporate the amendments approved by the Committee of Experts in the report referred to in paragraph 5.

*/ See list of experts (E/CN.2/CONF.5/17).

LISTING AND CLASSIFICATION OF SUBSTANCES AND ARTICLES

Changes in names of listed articles, with particular reference to military ammunition

7. The Group considered documents E/CN.2/CONF.5/R.37 and Add.1 and E/CN.2/CONF.5/R.44 and Add.1. During a general discussion, Mr. W. Crow (United Kingdom) explained why the United Kingdom experts had replaced the proposals contained in document E/CN.2/CONF.5/R.37 by those appearing in document E/CN.2/CONF.5/R.44 and Add.1. Replying to a specific question he said that the new proposals constituted a compromise solution designed to avoid radical changes of the present nomenclature and classification.
8. The Group recognized that the transport of military ammunition raised special problems and that when the work in respect of packing and stowing had sufficiently advanced, the listing of such ammunition would have to be reviewed as a whole.
9. It was agreed that, in the meantime, Messrs. Crow, Heinrich, Herman and Pariselle would have consultations among themselves and hold a meeting with a view to studying the various aspects of the questions raised by the need for compatibility between the detailed and exacting requirements in respect of military ammunition and the United Nations Recommendations. Mr. Crow agreed to act as leader of this informal Group which will submit a report to the Group of Experts in time for study at its next session.

Use of the ratio "explosive contents to total weight (CWR)" for the classification of various articles

10. The Group considered that the ratio "explosive contents to total weight (CWR)" (see E/CN.2/CONF.5/13) paragraphs 4 and 5 and E/CN.2/CONF.5/R.37) could not be taken as a basis of classification for articles in class 1.

Miscellaneous proposed amendments

11. During the course of its work on the packing of explosives, the Group noted that the wording of several entries in the lists (ST/EGA/81), should be made more precise and that the entry concerning a substance which is no longer carried should be deleted. Bearing in mind the recommendation of the Committee of Experts

that unessential changes in the lists of dangerous goods should be avoided (E/CN.2/CONF.5/16, paragraph 34), the Group restricted to a minimum the amendments which it recommends for adoption. These proposals are contained in Annex 1 to this report.

Classification of dinitrotoluenes

12. The Group noted that the only entry in document ST/ECA/81 relating to dinitrotoluenes was item 6/1600, "Dinitrotoluenes, liquid" and that no provision was made for solid dinitrotoluenes. It was of the opinion that the latter were not explosives; in the revised draft of the RID they were included among toxic substances. It drew the attention of the Committee of Experts to these conclusions.

SAFETY EXPLOSIVES

13. The Group studied the special problem raised by the carriage of so called "Safety Ammunition" in the light of its previous consideration of the subject (E/CN.2/CONF.5/9, paragraph 12; E/CN.2/CONF.5/13, paragraphs 11 to 13), of the opinion given by the Committee of Experts (E/CN.2/CONF.5/16, paragraph 26) and of the proposals made by the expert of the United Kingdom (E/CN.2/CONF.5/R.32, paragraphs 5 to 9 and E/CN.2/CONF.5/R.47, Annex 3, Chapter II and pages 9 and following).
14. The Group came to the conclusion that explosive articles which met the following criteria could be included in a "Safety explosives group" and be carried by passenger train, boat and aircraft and by bus: they must be of such a nature and so packed that the functioning of a unit in its package neither entails the functioning of neighbouring units nor severely damages the outer packaging. Fire must not be able to cause them to explode en masse.
15. The Group was of the opinion that there was no need to draw up a list of articles to be included in the "Safety explosives group" since any explosive article appearing in the lists in document ST/ECA/81 could be so included,

provided it met the above-mentioned criteria. For analogous reasons, it was also unnecessary to draw up packing specifications. Governments applying the United Nations Recommendations would rely on the country of departure of consignments to take the necessary measures with a view to ensuring that articles dispatched as "safety explosives" met the required criteria. The competent governmental authority would issue a certificate to that effect either on the transport document or on a document accompanying the latter.

16. With a view to drawing attention to the "Safety explosives group" the Group of Experts proposed that the text reproduced in Annex 1 be inserted at the end of paragraph 11 of the main text of the Recommendations contained in document ST/ECA/81. At a later stage in its work, when making consolidated proposals in respect of the packing of explosives, the Group would suggest a suitable text reflecting the views expressed in paragraph 15 above, for insertion in the United Nations Recommendations.

PACKING

17. The Group expressed its gratitude to the experts from France and the United Kingdom who had made such a valuable contribution to its work in preparing the reports in document E/CN.2/CONF.5/R.47.

Recommendations in respect of the requirements applicable to the packing of explosives in general

18. After considering the recommendations concerning the "General requirements for packing" drawn up by the Group of Rapporteurs on the Packing of Dangerous Goods (E/CN.2/CONF.5/14, Annex 1) and the proposals of the French and United Kingdom experts (E/CN.2/CONF.5/R.47, Annex 2, Chapter I, and Annex 3, Chapter I) the Group drafted, in respect of the packing of explosive substances and articles in general, the special recommendations which are reproduced in Annex 2 to this report. During the drafting of these recommendations, it appeared that there was no need for general provisions on packing applicable separately to substances, on the one hand, and to articles, on the other.

Desirable contents of the recommendations in respect of the packing of explosives

19. Reviewing the work of its fourth session and in particular the tentative recommendations made in respect of the packing of explosives in Category 2 (E/CN.2/CONF.5/13, Annex 3), the Group after an exchange of views came to the conclusion that it would be unrealistic to attempt to draw up very detailed packing requirements applicable to every substance and every article listed in document ST/ECA/81. For the purpose of recommendations at the world level, bearing in mind that competent governmental authorities would be responsible for the application of regulations, it would suffice, in addition to general requirements (see paragraph 18 above and Annex 2), to provide for:
- (a) the type (s) of packagings to be used for the packing of each substance or article (or each homogeneous group of substances or articles),
 - (b) the tests to be applied to packagings or packages,
 - (c) in the way of specifications in respect of each type of packaging or package, such minimum provisions essential to ensure safety as could not be covered by the tests referred to in (b).

Types of packagings to be used for explosive substances

20. Using as a basis of its work the proposals of the French expert (E/CN.2/CONF.5/R.47, Annex 2) the Group drew up the list at Annex 3. In doing so it took the view that corrugated fibreboard packagings could be used for the packing of explosive substances if they could stand the tests applicable to other fibreboard packagings. Taking into consideration the request of the Committee of Experts (E/CN.2/CONF.5/16, paragraph 55), it reduced the maximum net weight of packages in categories 4 and 5 to 75 and 100 kg respectively.

Performance tests for packages containing explosive substances or articles

21. The Group of Experts was of the opinion that tests should be performed on complete packages prepared as for shipment (the substance to be carried being replaced by a solid or liquid ballast, having the same weight and density); it would be unnecessary to test inner and outer packagings, except perhaps in the case of fibre or fibreboard receptacles, when testing would be applied to the material.

22. The Group agreed that except for the air pressure test and hydraulic test, the tests to be applied should be the same as the most stringent tests applicable to packages containing dangerous goods in other classes, with the exception of classes 2 and 7. It decided, therefore, to wait until the Group of Rapporteurs on the Packing of Dangerous Goods had completed its work in respect of the other classes before making any proposals in respect of class 1.

23. With regard to the air pressure and hydraulic tests, the Group recommended that one or the other should be applied; it felt that it would be unnecessary to apply both. Because of the need to ensure that gases would be released before they accumulated to the extent that they might produce an explosion, the Group agreed that the pressure to be applied in either test should be not less than 0.20 kg/cm^2 (3 p.s.i) but not more than 0.33 kg/cm^2 (5 p.s.i).

Specifications in respect of the various types of packagings

24. Subject to reconsideration in the light of the proposals which the Group of Rapporteurs on the Packing of Dangerous Goods might make in respect of the tests to which packages should be submitted the Group drew up the specifications given at Annex 4.

25. In view of the special problems raised by the fibreboard and fibre packagings, the Group decided to postpone its studies in this field until the above-mentioned Group of Rapporteurs had made proposals concerning the tests to be applied to both packages and materials.

Particular packing requirements concerning explosive articles

26. The Group adopted the following method of work in respect of its studies in this field. Bearing in mind the conclusions of the Group concerning the "Safety explosives group" (paragraphs 13 to 16 above), and the desirable contents of recommendations in respect of the packing of explosives (paragraph 19 above), the experts would send to the Secretariat, if possible before 30 June 1966, their comments on the contents of E/CN.2/CONF.5/R.47, Annex 3, Chapters III and IV and Add.1. Subject to the approval of the Government of the United Kingdom concerning the work to be carried out within a given period, these comments would be sent to Mr. Reed who would prepare, if possible for 30 September 1966, a new

set of requirements covering all explosive articles included in the lists contained in Annex 1 to document ST/ECA/81 as amended to date. This new set of requirements would be circulated to the members of the Group of Experts who would be asked to forward to the Secretariat, in good time, any suggestion they might wish to make with a view to amending Mr. Reed's proposals. By carrying out this procedure, it would be possible to expedite the work of the Group's next session in this field.

STOWAGE REQUIREMENTS

27. The Group decided to study at its next session whether it was necessary, with a view to ensuring safety, to make some recommendations in respect of the stowage of consignments of explosives in transport equipment.

JOINT SESSION OF THE GROUP OF EXPERTS ON EXPLOSIVES AND THE GROUP OF RAPORTEURS ON THE PACKING OF DANGEROUS GOODS

28. The Group agreed that at a later stage it would be desirable to hold a joint session with the Group of Rapporteurs on the Packing of Dangerous Goods but it felt that it was too early to state when such a session should take place.

NEXT SESSION OF THE GROUP

29. The Group was of the opinion that its next session should be held about three months before the next session of the Committee of Experts. With a view to reducing travel it expressed the wish that its next session should be held either immediately before or immediately after a session of the Group of Rapporteurs on the Packing of Dangerous Goods.
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Annex 1 - Annexe 1

PROPOSED AMENDMENTS TO THE RECOMMENDATIONS
CONTAINED IN DOCUMENT ST/ECA/81

PROPOSITIONS DE MODIFICATIONS A APPORTER
AUX RECOMMANDATIONS CONTENUES DANS LE
DOCUMENT ST/ECA/81

1. Proposed addition to the main text
of the Recommendations (page 4)

It is proposed to add the following
text at the end of paragraph 11
(either included in that paragraph
or forming a new paragraph 12) :

"Explosive articles in class 1 may
also be classified in the so called
'Safety explosives group' provided
that their nature is such and that
they are so packed:

- (a) that the functioning of a
unit in the package
containing them neither
entails the functioning of
neighbouring units nor
severely damages the outer
packaging; and
- (b) that a fire does not cause
them to explode en masse."

1. Proposition d'additif au texte
principal des Recommendations (page 4)

A la fin du paragraphe 11 (soit inclus
dans ce paragraphe, soit formant un
nouveau paragraphe 12) il est proposé
d'ajouter le texte suivant :

"Les objets explosibles de la classe 1
peuvent aussi être rangés dans le
"groupe des munitions de sûreté", à
condition que leur nature et la ma-
nière dont ils sont emballés soient
telles :

- a) que le fonctionnement de l'un
d'eux dans le colis qui les
contient n'entraîne pas le fonc-
tionnement de ses voisins et
n'endommage pas gravement l'em-
ballage extérieur; et
- b) qu'un incendie ne puisse provoquer
leur explosion en masse."

2. Proposed amendments to the lists in annex 1

It is proposed that the following amendments be made:

Insert a new entry:

(n) "Charges propellant for cannon*
PE, MFH"

In the description, pages 353 (English text) and 351 (French text), after

"... propellant explosive." insert:
"Some present a major fire hazard."

Insert a new entry:

(n) "Explosives, Blasting, Group E"

Page 355, add new description:

"EXPLOSIVES, BLASTING, GROUP E

These blasting explosives, which must contain neither nitroglycerin, nitroglycol, ammonium nitrate nor chlorates, are mixtures of organic nitrated compounds and combustible materials such as hydrocarbons and aluminium powder. Included in this group are plastic explosives."

2. Propositions de modification des listes à l'annexe 1

Il est proposé que les modifications suivantes soient apportées :

Insérer un nouveau poste :

"Charges propulsives pour canons*, PP,RIV" 1.3 +

Dans la description, pages 351

(texte français) et 353 (texte anglais), après "... dépassant 19,1 mm." insérer :

"Certaines présentent un risque d'incendie violent."

Insérer un nouveau poste :

"Explosifs de mine, Groupe E" 1.1.2 +

Page 355, ajouter une nouvelle description :

"EXPLOSIFS DE MINE, GROUPE E

Ces explosifs de mine, qui ne doivent renfermer ni nitroglycérine, ni nitroglycol, ni nitrate d'ammonium, ni chlorates, sont des mélanges de composés nitrés organiques et de matières combustibles telles que hydrocarbures ou poudre d'aluminium. Ce groupe comprend les explosifs plastiques."

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| 1/72 Add at the end:
"containing, by weight, at least 15% water or at least 10% phlegmatiser" and insert the following footnote:
"The transport of this substance when it contains less water or less phlegmatiser than mentioned above, should be prohibited except with special authorization granted by the competent authorities. Small samples, however, may be carried irrespective of the water or phlegmatiser content as items of sub-division 1.2.2." | Ajouter à la fin :
"contenant, en poids, au moins 15 % d'eau ou au moins 10 % de flegmatisant" et insérer le renvoi suivant :
"Le transport de cette matière lorsqu'elle contient moins d'eau ou moins de flegmatisant qu'indiqué ci-dessus, devrait être interdit sauf permission spéciale délivrée par les autorités compétentes. Toutefois, les petits échantillons pourront être transportés, quelle que soit la teneur en eau ou flegmatisant, comme faisant partie de la subdivision 1.2.2." |
| 1/75 At the end read:
"... at least 25 % non volatile phlegmatiser". | A la fin lire :
"... au moins 25 % de flegmatisant non volatil". |
| 1/120 Delete this entry. | Supprimer ce poste. |
| 1/150 Add at the end:
"containing, by weight, at least 25% water or at least 15% phlegmatiser".
Add same footnote as for 1/72 (see above). | Ajouter à la fin :
"contenant, en poids, au moins 25 % d'eau ou au moins 15 % de flegmatisant".
Ajouter le même renvoi que pour 1/72 (voir ci-dessus). |
| 1/186 Add at the end: "MFH" | Ajouter à la fin : "RIV" |
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1/226 Add at the end:

"containing, by weight, at least
15% water or at least 10%
phlegmatiser".

Add same footnote as for 1/72 and
1/150 (see above).

Ajouter à la fin :

"contenant, en poids, au moins 15 % d'eau
ou au moins 10 % de flegmatisant".

Ajouter le même renvoi que pour 1/72 et
1/150 (voir ci-dessus).

Annex 2 - Annexe 2

RECOMMENDATIONS IN RESPECT OF THE
REQUIREMENTS APPLICABLE TO THE
PACKING OF EXPLOSIVES IN GENERAL

In addition to the "General packaging requirements" concerning dangerous goods (see E/CH.2/CONF.5/14, annex 1) the following provisions are applicable to explosives (class 1)

1. When the weight of the package warrants it, the outer packaging should be fitted with handles, handholds or other handling devices adapted to the weight of the package with a view to facilitating handling.
2. Nails, staples and other metallic closure devices should not protrude into the interior of the outer packaging.
3. The nature and the thickness of the outer packaging should be such that friction during transport does not generate any heating likely to alter the chemical stability of the contents.
4. The closure device of receptacles containing liquid explosives should afford a double protection against leakage.

RECOMMANDATIONS RELATIVES AUX CONDI-
TIONS GENERALES D'EMBALLAGE DES MA-
TIERES ET OBJETS EXPLOSIBLES

Outre les "Conditions générales d'emballage" relatives aux marchandises dangereuses (voir E/CH.2/CONF.5/14, annexe 1), les dispositions suivantes sont applicables aux matières et objets explosibles (classe 1)

1. Lorsque le poids du colis l'exige, l'emballage extérieur doit être muni de moyens de préhension en rapport avec le poids du colis afin de faciliter la manutention.
2. Les pointes, agrafes et autres dispositifs métalliques de fermeture ne doivent pas pénétrer à l'intérieur de l'emballage extérieur.
3. La nature et l'épaisseur de l'emballage extérieur doivent être telles que les frottements, au cours du transport, ne puissent engendrer un échauffement de nature à altérer la stabilité chimique du contenu.
4. Le dispositif de fermeture des récipients contenant des explosifs à l'état liquide doit garantir une double étanchéité.

5. The closure of packages containing wetted or diluted substances should be such that the percentage of liquid (water, solvent or phlegmatizer) does not fall, during transport, below the limits prescribed by the relevant regulation for the purposes of classifying substances.

6. Inner packagings, fittings and cushioning materials and the placing of substances or articles in packages should be such that no dangerous movement may occur within packages during transport.

7. In principle, explosive substances or articles should not be packed together with explosive substances or articles of a different nature. However, when such mixed packing is allowed by a regulation, it should be such that an accidental explosion of any part of the contents of the package would not be communicated to the rest of the contents.

8. Each package should be marked on the outside with the name of its contents, as well as with the net weight of explosive and the gross weight of the package.

5. La fermeture des colis contenant des matières mouillées ou diluées doit être telle que le pourcentage de liquide (eau, solvant ou flegmatisant) ne tombe pas, au cours du transport, au-dessous des limites prescrites par la réglementation relative à la classification des matières.

6. Les emballages intérieurs, les matériaux de calage et de rembourrage, ainsi que la disposition des matières ou objets dans les colis, doivent être tels qu'aucun déplacement dangereux ne puisse se produire à l'intérieur du colis en cours de transport.

7. En principe, les matières ou objets explosibles ne doivent pas être emballés avec des matières ou objets explosibles de nature différente. Cependant, lorsqu'un tel emballage en commun est admis par une réglementation, il devrait être tel qu'une explosion accidentelle d'une partie du contenu du colis ne puisse se communiquer au reste du contenu.

8. Chaque colis doit porter à l'extérieur le nom de son contenu ainsi que le poids net de la matière ou des objets explosibles et le poids brut du colis.

Annex 3 - Annexe 3

TYPES OF PACKAGINGS TO BE USED FOR
EXPLOSIVE SUBSTANCES1. All substances in sub-division 1.1.1

(maximum net weight 20 kg)

(a) Textile bags placed in wooden kegs or casks, which are in turn placed in wooden barrels; or

(b) Plastics bags placed in metal cans which are in turn placed in wooden boxes; or

(c) Textile bags placed in rubberized receptacles which are in turn placed in metal drums or wooden barrels.

2. Blasting explosives, Group A

(maximum net weight : 25 kg for fibreboard packagings; 30 kg for wooden packagings)

Inner packaging

Sheets or bags of plastics material or waxed paper.

Outer packaging

Fibreboard boxes or wooden boxes or barrels.

TYPES D'EMBALLAGES A UTILISER POUR LES
MATIERES EXPLOSIBLES1. Toutes les matières explosives de la subdivision 1.1.1

(poids net maximal 20 kg)

a) Sacs en textile placés dans des tonnelets en bois renfermés dans des tonneaux en bois; ou

b) Sacs en matière plastique placés dans des bidons ou boîtes métalliques renfermés dans des caisses en bois; ou

c) Sacs en textile placés dans des récipients caoutchoutés renfermés dans des fûts métalliques ou des tonneaux en bois.

2. Explosifs de mine, Groupe A

(poids net maximal : 25 kg pour l'emballage en carton; 30 kg pour l'emballage en bois)

Emballage intérieur

Feuilles ou sacs en matière plastique ou papier paraffiné.

Emballage extérieur

Caisses en carton ou bien caisses ou tonneaux en bois.

3. Pentaerythrite tetranitrate
(Pentaerythritol tetranitrate or PETN)

(maximum net weight : 25 kg for fibreboard packagings; 30 kg for wooden packagings)

(a) Wetted

(i) Sheets or bags of plastics material placed in wooden boxes or barrels or in fibreboard boxes,

(ii) Cotton or rubber bags or rubberized canvas, placed in rubber or rubberized bags which are placed in turn in wooden barrels or kegs or in metal drums.

(b) Phlegmatised

Same as for wetted substance, except that textile bags may be used as second inner receptacle.

4. Cyclonite (Cyclotrimethylene-trinitramine, or Hexogene, or R.D.X.)

(maximum weight : 25 kg for fibreboard packings; 30 kg for wooden packagings)

(a) Wetted

Sheets or bags of plastics material or rubberized canvas bags, placed in wooden boxes or barrels or in fibreboard boxes.

(b) Phlegmatised

As 3 (b) above.

3. Tétranitrate de pentaérythrite
(Tétranitrate de pentaérythritol ou Penthrite)

(poids net maximal : 25 kg pour l'emballage en carton; 30 kg pour l'emballage en bois)

a) Humide

i) Feuilles ou sacs en matière plastique placés dans des caisses ou tonneaux en bois ou dans des caisses en carton,

ii) Sacs en coton ou caoutchouc ou toile caoutchoutée, placés dans des sacs en caoutchouc ou caoutchoutés renfermés dans des tonneaux en bois ou des fûts métalliques.

b) Flegmatisé

Comme pour la matière humide, sauf que des sacs en textile peuvent être utilisés comme second emballage intérieur.

4. Cyclonite (Cyclotriméthylène-trinitramine ou Hexogène)

(poids net maximal : 25 kg pour l'emballage en carton; 30 kg pour celui en bois)

a) Humide

Feuilles ou sacs en matière plastique ou sacs en toile caoutchoutée placés dans des caisses ou des tonneaux en bois ou dans des caisses en carton.

b) Flegmatisé

Comme pour 3 b) ci-dessus.

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| <p>5. <u>Cyclo-tetramethylene-tetramine (Hex)</u>
As 4 above.</p> <p>6. <u>Nitroglycerin, desensitized with at least 40 %, by weight, non volatile phlegmatiser</u>
(maximum net weight 30 kg)
Steel drums, lined or not.</p> <p>7. <u>Nitroglycerin, spirit of, over 5 % but not more than 10 %, by weight, solution in alcohol</u>
(maximum net weight 30 kg)
Glass receptacles or metal cans placed in wooden boxes (insertion of absorbant cushioning material).</p> <p>8. <u>Diethylene-glycol dinitrate containing, by weight, at least 25 % non volatile phlegmatiser</u>
As 6 above.</p> <p>9. <u>Blasting explosives, Group B</u>
Same requirements as for "Blasting explosives, Group A".</p> <p>10. <u>Blasting explosives, Group C</u>
(maximum net weight 50 kg)
Sheets or bags of plastics material or waxed paper or rubberized canvas placed in wooden boxes or barrels.</p> | <p>5. <u>Cyclo-tétraméthylène-tétramine (Octogène)</u>
Comme pour 4 ci-dessus.</p> <p>6. <u>Nitroglycérine désensibilisée avec au moins 40 %, en poids, de flegmatisant non volatil</u>
(poids net maximal 30 kg)
Fûts en acier avec ou sans revêtement.</p> <p>7. <u>Nitroglycérine en solution alcoolique à plus de 5 % mais pas plus de 10 %, en poids, de nitroglycérine</u>
(poids net maximal 30 kg)
Récipients en verre ou bidons métalliques placés dans des caisses en bois (interposition de matière absorbante formant tampon).</p> <p>8. <u>Dinitrate de diéthylène-glycol contenant, en poids, au moins 25 % de flegmatisant non volatil</u>
Comme sous 6 ci-dessus.</p> <p>9. <u>Explosifs de mine du groupe B</u>
Mêmes conditions que pour les "Explosifs de mine du groupe A".</p> <p>10. <u>Explosifs de mine du groupe C</u>
(poids net maximal 50 kg)
Feuilles ou sacs en matière plastique ou papier paraffiné ou toile caoutchoutée placés dans des caisses en bois ou des tonneaux en bois.</p> |
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11. Black powder

(maximum net weight 50 kg)

(a) Bags of textile or rubberized or plastics material placed in wooden boxes or barrels or in fibreboard boxes; or

(b) Small metal boxes placed in wooden or fibreboard boxes; or

(c) Steel drums, lined or not^{*/}

12. Black powder compressed in pellets

(maximum net weight 35 kg)

Kraft paper or waxed paper sheets or bags of plastics material placed in wooden or fibreboard boxes.

13. Hydrazine nitrate

As 10 above.

14. Pentolites dry or containing, by weight, less than 15 % water

(maximum net weight 50 kg)

Sheets or bags of plastics material placed in wooden boxes or barrels or in fibreboard boxes.

11. Poudre noire

(poids net maximal 50 kg)

a) Sacs en textile, toile caoutchoutée ou matière plastique placés dans des tonneaux ou des caisses en bois ou dans des boîtes en carton; ou

b) Petites boîtes métalliques placées dans des caisses en bois ou en carton; ou

c) Fûts en acier, avec ou sans revêtement^{*/}

12. Poudre noire comprimée

(poids net maximal 35 kg)

Feuilles de papier Kraft ou de papier paraffiné ou sacs en matière plastique placés dans des caisses en bois ou en carton.

13. Nitrate d'hydrazine

Comme sous 10 ci-dessus.

14. Pentolites, sèches ou contenant, en poids, moins de 15 % d'eau

(poids net maximal 50 kg)

Feuilles ou sacs en matière plastique, placés dans des caisses ou tonneaux en bois ou dans des caisses en carton.

^{*/} In the mind of the majority of the Experts, specifications for steel drums should be made more precise in the case of black powder.

^{*/} Dans l'esprit de la majorité des experts, les spécifications données pour les fûts en acier devront être précisées dans le cas de la poudre noire.

15. Pentolites, wetted with at least 15 %, by weight, of water
(maximum net weight 50 kg)
Sheets or bags of plastics material or rubberized cloth placed in wooden boxes or barrels or in fibreboard boxes.
16. Hexolites dry or containing, by weight, less than 15 % water
As 14 above.
17. Hexolites (wetted)
As 15 above.
18. Nitrocelluloses (puncotton) unmodified, compressed in blocks, with, by weight, more than 17 % and less than 25 % water
(maximum net weight 50 kg)
(a) Steel drums, lined, or steel drums, removable head; or
(b) Sheets or bags of plastics material or waxed paper, placed in wooden boxes or in fibre drums.
19. Organic peroxydes of Class 1
(maximum net weight 50 kg)
(a) Dry
Sheets or bags of plastics material placed in wooden boxes or barrels.
(b) Wetted
Sheets or bags of plastics material placed in steel drums, lined or with removable head, in aluminium drums or in wooden boxes.
15. Pentolites, mouillées avec, en poids, au moins 15 % d'eau
(poids net maximal 50 kg)
Feuilles ou sacs en matière plastique ou tissu caoutchouté placés dans des tonneaux ou caisses en bois ou dans des caisses en carton.
16. Hexolites sèches ou contenant moins de 15 % d'eau
Comme sous 14 ci-dessus.
17. Hexolites (mouillées)
Comme sous 15 ci-dessus.
18. Nitrocelluloses (coton-poudre) non modifiées, comprimées en pains, avec, en poids, plus de 17 % et moins de 25 % d'eau
(poids maximal 50 kg)
a) Fûts en acier avec ou sans revêtement ou fûts en acier avec ouverture totale; ou
b) Feuilles ou sacs en matière plastique ou papier paraffiné placés dans des caisses en carton ou des fûts en fibre.
19. Peroxydes organiques de la classe 1
(poids net maximal 50 kg)
a) Secs
Feuilles ou sacs en matière plastique placés dans des caisses ou tonneaux en bois.
b) Mouillés
Feuilles ou sacs en matière plastique placés dans des fûts en acier avec revêtement ou avec ouverture totale, des fûts en aluminium ou des caisses en bois.

20. Tetryl

(maximum net weight 50 kg)

Sheets or bags of textile or plastics material placed in wooden boxes or barrels or in fibreboard boxes.

21. Blasting explosives, Group D

(maximum net weight 75 kg)

(a) Dry

Kraft paper bags or sheets or bags of plastics material, placed in wooden boxes, barrels, plywood boxes or metal drums.*

(b) Wetted

Kraft paper bags, sheets or bags of plastics material, placed in wooden boxes or barrels, plywood boxes, fibre drums or fibreboard boxes.

20. Tétryl

(poids net maximal 50 kg)

Feuilles ou sacs en textile ou en matière plastique placés dans des caisses ou tonneaux en bois ou des caisses en carton.

21. Explosifs de mine du groupe D

(poids net maximal 75 kg)

a) Secs

Sacs en papier Kraft ou feuilles ou sacs en matière plastique, placés dans des caisses ou tonneaux en bois, des fûts en contre-plaqué ou des fûts métalliques.*

b) Humidifiés (mouillés)

Sacs en papier Kraft, feuilles ou sacs en matière plastique, placés dans des caisses ou tonneaux en bois, des fûts en contre-plaqué, des fûts en fibre ou des caisses en carton.

*/ While the Experts, for the most part, were in favour of "double packing", some Experts drew attention to the fact that in some countries this substance is carried in multi-ply bags specially designed to ensure tightness.

*/ Bien que la majorité des experts se soit prononcée en faveur du "double emballage", certains experts ont fait remarquer que dans certains pays la matière est transportée dans des sacs à plusieurs épaisseurs de papier, spécialement conçus pour en assurer l'étanchéité.

22. Explosives, propellant, ME

(maximum net weight 50 kg)

(a) Kraft paper or plastics material or rubberized canvas bags, placed in wooden boxes or barrels or in plywood drums or fibreboard boxes or fibre drums; or

(b) Receptacles of galvanised or varnished steel or brass, zinc or copper, placed in wooden boxes; or

(c) Metal cans or tins containing not more than 1 kg of substance, grouped in a wooden box or fibre-board box.

23. Explosives, propellant, MFH

(maximum net weight 75 kg)

As 22 above, but with 22 c) type of packaging : maximum net weight 50 kg.

24. Modified nitrocelluloses of class 1

(maximum net weight 75 kg)

Paper bags or sheets or bags of plastics material, placed in wooden barrels or boxes, or in fibreboard boxes.

25. High explosive aromatic nitro-derivatives without acidic character

As 24 above.

26. Nitro-urea

As 24 above.

22. Poudres propulsives, ME

(poids net maximal 50 kg)

a) Sacs en matière plastique ou papier Kraft ou toile caoutchoutée, placés dans des caisses ou tonneaux en bois, ou des fûts en contre-plaqué, ou des caisses en carton ou des fûts en fibre; ou

b) Récipients en acier galvanisé ou verni, en laiton, en zinc ou en cuivre, placés dans des caisses en bois; ou

c) Bidons ou boîtes métalliques ne contenant pas plus d'un kg de matière, groupés dans une caisse en bois ou une caisse en carton.

23. Poudres propulsives, RIV

(poids net maximal 75 kg)

Comme 22 ci-dessus, mais pour le type 22 c) d'emballage : poids net maximum 50 kg.

24. Nitrocelluloses modifiées de la classe 1

(poids net maximal 75 kg)

Sacs en papier, feuilles ou sacs en matière plastique, placés dans des tonneaux ou caisses en bois ou dans des caisses en carton.

25. Dérivés nitro-aromatiques détonants sans caractère acide

Comme sous 24 ci-dessus.

26. Nitro-urée

Comme sous 24 ci-dessus.

27. Nitroguanidine

(maximum net weight 75 kg)

Paper bags or sheets or bags of plastics material, placed in wooden barrels or boxes or in fibreboard boxes or in metal drums.

28. Nitrocelluloses of class 1 not mentioned above

(maximum net weight 100 kg)

(a) Steel drums, lined; steel drums, removable head; or aluminium drums; or

(b) Sheets or bags in plastics material rubberized canvas, or paper bags with interposed aluminium foil, placed in wooden barrels or boxes or in fibre drums.

29. Powder cake

(maximum net weight 100 kg)

(a) Steel drums, lined; steel drums, removable head; or aluminium drums; or

(b) Sheets or bags of plastics material placed in wooden boxes or barrels or in fibre drums.

30. Nitro starch

As 29 above.

27. Nitroguanidine

(poids net maximal 75 kg)

Sacs en papier, feuilles ou sacs en matière plastique, placés dans des tonneaux ou caisses en bois ou des caisses en carton ou des fûts métalliques.

28. Nitrocelluloses de la classe 1 non mentionnées ci-dessus

(poids net maximal 100 kg)

a) Fûts en acier revêtus ou à ouverture totale, ou fûts en aluminium; ou

b) Feuilles ou sacs en matière plastique, tissu caoutchouté, sacs en papier avec interposition de feuille aluminium, placés dans des caisses ou tonneaux en bois ou dans des fûts en fibre.

29. Galettes

(poids net maximal 100 kg)

a) Fûts en acier revêtus ou fûts en acier à ouverture totale ou fûts en aluminium; ou

b) Feuilles ou sacs en matière plastique placés dans des caisses ou tonneaux en bois ou des fûts en fibre.

30. Nitro-amidon

Comme sous 29 ci-dessus.

Annex 4 - Annexe 4

SPECIFICATIONS IN RESPECT OF THE VARIOUS
TYPES OF PACKAGINGS1. Steel barrels and drums and other
steel receptacles(a) Materials and construction

- (i) Sheets for receptacles must be made of suitable steel. Body seams must be welded, head and chime seams welded or double seamed. If double seamed is used, measures shall be taken to prevent the introduction of explosive substances into the recesses of seams.

- (ii) If the receptacle is fitted with a lining, the latter must cover the whole inner surface and adhere tightly to it.

(b) Closures

If the closure device includes a screw-thread, it shall not be possible for explosive substances to contaminate it.

The closure device shall include a suitable gasket.

SPECIFICATIONS RELATIVES AUX DIVERS TYPES
D'EMBALLAGES1. Tonneaux, fûts et autres récipients
en aciera) Matériaux et construction

- i) La tôle du récipient doit être en un acier approprié. Les joints du corps doivent être soudés, ceux du fond et des rebords soudés ou assemblés par double agrafage. Si l'on emploie le double agrafage, des dispositions doivent être prises pour prévenir l'introduction de matières explosibles dans l'interstice des joints.

- ii) Si le récipient comporte un revêtement intérieur, ce dernier doit couvrir toute la surface intérieure et être bien adhérent.

b) Fermetures

Si le dispositif de fermeture comprend un filetage, aucune trace de matière explosive ne doit pouvoir venir s'y loger.

Le dispositif de fermeture comprendra un joint approprié.

2. Aluminium barrels, drums or other aluminium receptacles

(a) Materials and construction

Body and heads must be made of aluminium at least 99% pure or of an aluminium base alloy of equivalent corrosion resistance and physical properties.

(b) Closures

Closure device shall include a suitable gasket. If the receptacle has a cylindrical form and a removable head, the closure must be of the bolted ring type.

3. Wooden boxes

(a) Construction

Sections of the box must be closely fitted.

(b) Closures

Closures must remain secure under normal conditions of transport^{*/}.

^{*/} This provision could be deleted if it were taken up in the "General packing requirements" applicable to all dangerous goods.

2. Tonneaux, fûts ou autres récipients en aluminium

a) Matériaux et construction

Le corps et les fonds doivent être en aluminium à 99 % au moins de pureté, ou en alliage à base d'aluminium de résistance à la corrosion et de propriétés physiques équivalentes.

b) Fermetures

Le dispositif de fermeture comprendra un joint approprié. Si le récipient est cylindrique et à ouverture totale, la fermeture doit être du type à cerceau serré par boulon avec des pattes filetées.

3. Caisses en bois

a) Construction

Les différentes parties de la caisse doivent être sans jeu.

b) Fermetures

Les fermetures doivent demeurer verrouillés dans les conditions normales de transport^{*/}.

^{*/} Cette disposition pourrait être supprimée si les "Conditions générales d'emballage" applicables à toutes les marchandises dangereuses la reprenaient.

- | | |
|---|---|
| <p>4. <u>Wooden barrels or kegs</u></p> <p>(a) <u>Materials and construction</u></p> <p>Staves must be of uniform thickness, well equalized, circled and jointed. Headings must be of uniform thickness and jointed.</p> | <p>4. <u>Tonneaux ou tonnelets en bois</u></p> <p>a) <u>Matériaux et construction</u></p> <p>Les douelles doivent être d'épaisseur uniforme, bien égalisées, cerclées et ajustées. Les fonds doivent avoir une épaisseur uniforme et être bien ajustés.</p> |
| <p>5. <u>Wooden drums, glued plywood</u></p> <p>(a) <u>Materials and construction</u></p> <p>The plywood must be at least 2-ply for the body and 3-ply for heads. All adjacent plies must be firmly glued together cross grain with a weather-resistant glue. There must be one wooden and one metal hoop, efficiently secured at each chime. Head battens are required, with end rounded to fit the chime.</p> | <p>5. <u>Fûts en bois contre-plaqué collé</u></p> <p>a) <u>Matériaux et construction</u></p> <p>Le contre-plaqué sera à deux plis au moins pour le corps et à trois plis au moins pour les fonds. Les plis adjacents seront à fils croisés; une colle résistant aux intempéries sera utilisée pour les maintenir ensemble. Chaque jable devra porter un cerceau en bois et un cerceau en métal bien assujettis. Les fonds devront porter des couvre-joints dont les extrémités seront arrondies pour bien s'adapter au jable.</p> |
| <p>6. <u>Fibreboard boxes</u>
(to be completed later)</p> | <p>6. <u>Caisses en carton</u>
(à compléter ultérieurement)</p> |
| <p>7. <u>Fibre drums</u>
(to be completed later)</p> | <p>7. <u>Fûts en fibre</u>
(à compléter ultérieurement)</p> |
| <p>8. <u>Boxes made of wood and fibreboard</u>
(to be completed later)</p> | <p>8. <u>Caisses en bois et carton</u>
(à compléter ultérieurement)</p> |