DEPARTMENT OF TRANSPORTATION

Research and Special Programs Administration

49 CFR Parts 171 through 179

[Docket No. HM-181, Notice No. 87-4]

Performance-Oriented Packaging Standards; Miscellaneous Proposals; Corrections and Supplemental Proposals

AGENCY: Research and Special Programs Administration (RSPA), DOT.

ACTION: Notice of proposed rulemaking (NPRM); corrections and supplemental proposals.

SUMMARY: This document revises the notice of proposed rulemaking (NPRM) regarding performance-oriented packaging published on May 5, 1987 (52 FR 16482) to provide supplements and corrections to the proposals contained therein. In the May 5 publication, the Research and Special Programs Administration (RSPA) indicated that because of the magnitude of the proposals contained in the notice, it was inevitable that errors and omissions would come to light subsequent to publication and that a supplementary NPRM would be issued as soon as possible. The supplements and corrections contained in this notice address errors and omissions which have been brought to RSPA's attention since publication of the May 5 NPRM.

DATE: Comments must be received on or before February 26, 1988.

ADDRESSES: Address comments to: Dockets Branch, Research and Special Programs Administration, U.S. Department of Transportation, Washington, DC 20590. Comments should identify the docket and be submitted, if possible, in five copies. Persons wishing to receive confirmation of receipt of their comments should include a self-addressed stamped postcard. The Dockets Branch is located in Room 8426, Nassif Building, 400 Seventh Street SW., Washington, DC 20590, telephone number (202) 366-5046. Public dockets may be reviewed between the hours of 8:30 a.m. and 5:00 p.m., Monday through Friday.

FOR FURTHER INFORMATION CONTACT: Edward T. Mazzullo, Standards Division, Office of Hazardous Materials Transportation, U.S. Department of Transportation, 400 Seventh Street SW., Washington, DC 20590. Telephone: (202) 366-4488.

SUPPLEMENTARY INFORMATION:

I. General Discussion

This document supplements and corrects Docket HM-181, Notice No. 87-4, published on May 5, 1987 (52 FR 16482). The changes made in this document are generally based on errors and omissions pointed out to RSPA from the publication of the NPRM through August 1, 1987, but also involve supplemental proposals. The preamble discussion contained in the following paragraphs is addressed to the changes made to the May 5 NPRM. This discussion concerns some of the major issues addressed, and a section by section review of the changes. To aid the reader, the corrected regulatory text is republished in its entirety. An itemized listing of changes made in this document is available from the RSPA upon request. A lengthy discussion of the background to this rule is contained in the May 5 NPRM, including its history, a list of major features and a comprehensive section by section review of the proposals. Interested readers should refer to the May 5 NPRM (pages 52 FR 16482 through 16491) for this detailed background information.

Provisions for Tank Cars

On January 27, 1984, RSPA published a final rule (49 FR 3468) under Docket HM-175, entitled "Specifications for Railroad Tank Cars Used to Transport Hazardous Materials". In the preamble to that final rule, it was noted that FRA and RSPA would continue to evaluate the need for new rules for tank car tanks used for hazardous materials. Since publication of the final rule, FRA and RSPA have evaluated information from various sources including, but not limited to research studies and National Transportation Safety Board recommendations. Based upon an evaluation of this information, the May 5 NPRM under Docket HM-181 proposed new tank car standards for certain materials which are toxic by inhalation. The notice also proposed to specify thermal protection, head protection and larger safety valves for certain materials which would be reclassified as flammable gases under the proposed hazard class definitions. The notice further proposed improved outage requirements for certain materials and a new requirement for the inerting of tank car tank shipments of acetaldehyde.

In comments to the docket, it was pointed out to RSPA that there were inconsistencies between some of the bulk special provisions in § 172.101 and specific packaging sections in Part 173, that some of the proposed authorizations for use of tank cars were inappropriate for the materials to be packaged, and that certain tank cars would be rendered obsolete by the proposals. In this document, changes are made to correct inconsistencies and errors relating to authorizations for use of tank cars. Also, "grandfather" provisions are added to permit use of certain currently-authorized tank cars, in those instances where such continued usage is not believed to be detrimental to safety.

It should be noted that RSPA and FRA will continue to evaluate the need for new rules (over and above the proposals contained in the May 5 NPRM and this document) relating to the rail transportation of hazardous materials. For example, the FRA is sponsoring research on thermal and head protection requirements for aluminum tank cars and innovative head protection concepts for all tank cars used for hazardous materials, which may lead to future rulemaking action.

Materials Which Are Toxic By Inhalation

The provisions which were proposed in the May 5 NPRM for determining hazard classes and packing groups for materials which are toxic by inhalation did not specifically address mixtures and did not include limit tests for determining packing groups. To facilitate these determinations without requiring extensive animal testing, a new paragraph is added to § 173.133 to provide two methods of evaluating mixtures for inhalation toxicity. The first method provides for the numerical estimation of the LC_{50} of a mixture when the concentrations of its individual constituents are known. The second method allows the use of simplified threshold tests with animals when the data are unavailable to conduct the numerical estimation.

One of the most significant proposals in the notice concerns the designation of certain gases and liquids as poisonous (toxic) by inhalation for purposes of hazard communication (i.e., they must be identified on shipping papers and packages as an "Inhalation Hazard") and in some instances, for purposes of packaging. Division 2.3 gases (Packing Groups I, II and III) and Division 6.1, Packing Group I, poisons which are inhalation toxic were made subject to these additional requirements. These materials were identified by Special Provision 10 appearing in Column 7 of the § 172.101 Table in the May 5 NPRM, and appear in the following list:

Acetone cyanohydrin
Acrolein, inhibited
Acrylonitrile, inhibited
Allyl alcohol

Allylamine
Ammonia anhydrous
Arsenic trichloride
Arsine
Boron trichloride
Boron trifluoride
Bromine
Bromine chloride
Bromine pentafluoride
Bromine trifluoride
Bromoacetone
sec-Butyl chloroformate
n-Bulyl isocyanate
tert-Butyl isocyanate
Carbon dioxide and ethylene oxide mixtures
Carbon monoxide, cryogenic
Carbon monoxide gas
Carbon monoxide and hydrogen mixture
Carbonyl fluoride
Carbonyl sulfide
Chlorine
Chlorine pentafluoride
Chlorine trifluoride
Chloroacetic acid
Chloro acetonitrile
Chloroacetophenone, liquid
Chloropicrin
Chloropicrin/Methyl bromide
Chloropicrin/Methyl chloride
Chloropicrin mixtures, n.o.s.
Chloropivaloyl chloride
Coal gas
Compressed or liquefied gases, flammable, toxic, n.o.s.
Compressed or liquefied gases, toxic, n.o.s.
Crotonaldehyde, stabilized
Cyanogen, liquified
Cyanogen bromide
Cyanogen chloride
Cyclohexyl isocyanate
Diborane
Dichlorodifluoromethane and ethylene oxide mixture
Dichlorosilane
3,5 Dichloro-2,4,6 trifluoropyridine
Dimethylamine, anhydrous
Dimethyldichlorosilane
Dimethyl hydrazine, unsymmetrical
Dimethyl hydrazine, symmetrical
Di-n-amylamine
Di-(n-bulyl) amine
Dimethyl phosphorochloridothioate
Diphenylchloroarsine
Epichlorohydrin
Ethyl chloride
Ethyl chloroformate
Ethyl chlorothioformate
Ethyl dichloroarsine
Ethylene chlorohydrin
Ethylene dibromide
Ethyleneimine
Ethylene oxide
Ethyl fluoride
Ethyl isocyanate
Ethyltrichlorosilane
Fluorine, gas
Furan
Gas identification kit
Germane
Hexaethyltetraphosphate and compressed gas mixtures
Hexafluoroacetone
Hydrogen bromide, anhydrous
Hydrogen chloride, anhydrous
Hydrogen chloride, refrigerated liquid
Hydrogen cyanide, anhydrous
Hydrogen selenide, anhydrous
Hydrogen sulfide, liquefied
Insecticide gases, toxic, n.o.s.
Iron pentacarbonyl
Isopropyl chloroformate
Methacrylonitrile, inhibited
Methoxymethyl isocyanate
Methylamine, anhydrous
Methyl bromide
Methyl bromide and ethylene dibromide mixtures, liquid
Methyl chloride
Methyl chloroformate
Methyl chloromethyl ether
Methyl chlorosilane
Methyl dichloroarsine
Methyl dichlorosilane
Methylene isocyanate
Methyl hydrazine
Methyl isocyanate
Methyl isothiocyanate
Methyl mercaptan
Methyl orthosilicate
Methylphosphonic dichloride
Methylphophonous dichloride
Methyltrichlorosilane
Nickel carbonyl
Nitric acid, fuming
Nitric oxide
Nitric oxide and nitrogen tetroxide mixtures
Nitrogen dioxide, liquefied
Nitrogen trifluoride
Nitrogen trioxide
Nitrosyl chloride
Nitrous oxide, compressed
Nitrous oxide, refrigerated
tert-Octyl mercaptan
Organic phosphate mixed with compressed gas
Oxygen difluoride
Parathion and compressed gas mixture
Perchloro methylmercaptan
Perchloryl fluoride
Phenyl carbylamine chloride
Phenyldichloroarsine
Phenyl isocyanate
Phenyl mercaptan
Phenyl trichlorosilane
Phosgene
Phosphine
Phosphorus oxychloride
Phosphorus pentafluoride
Phosphorus trichloride
n-Propyl chloroformate
Selenium hexafluoride
Silicon tetrafluoride
Stibine
Sulfur dioxide, liquefied
Sulfur tetrafluoride
Sulfuryl fluoride
Tear gas devices (>2% tear gas substances)
Tellerium hexafluoride
Tetraethyldithiopyrophosphate and gases
Tetraethyl lead, liquid
Tetraethyl pyrophosphate and compressed gas mixture
Thia-4 pentanal
Thiophosgene
Titanium tetrachloride
Trimethyl chlorosilane
Trimethoxy silane
Tungsten hexafluoride
Xylyl bromide

Based on further review and evaluation of available data, RSPA believes that a number of these materials are incorrectly designated as toxic by inhalation and that certain other materials should be designated as being toxic by inhalation. In addition, there are a number of materials for which data are insufficient to make a conclusive determination. These categories of materials are set forth as follows:

Materials for which Special Provision 10 is added in this notice:

Allyl chloroformate
n-Butyl chloroformate
Chloroacetone, stabilized
Chloroacetophenone, solid
Chloroformates (not all mixtures)
Diketene
Dimethyl thiophosphoryl chloride
Diphenylamine chloroarsine
Ethyl phosphonothioic dichloride, anhydrous
Hexachlorocyclopentadiene
Nitric acid, with more than 70% nitric acid
Pentaborane
Sulfur chloride (mono)
Sulfur trioxide
Tetranitromethane
Thionyl chloride

Materials for which Special Provision 10 is removed from the § 172.101 Table in this notice:

Di-n-amylamine
Di-(n-butyl) amine
Epichlorohydrin
Ethyl chloride
Ethyltrichlorosilane
Furan
Methacrylonitrile, inhibited
Tetraethyl lead, liquid
Thia-4-pentanal

Materials which remain in the § 172.101 lable designated, by Special Provision 10, as toxic by inhalation for which data are inconclusive:

Acrylonitrile, inhibited
Dimethyldichlorosilane
Methyl dichlorosilane

Methyl trichlorosilane
Phenyl trichlorosilane
Trimethyl chlorosilane

Materials which may be toxic by inhalation but are not designated as such by Special Provision 10 in the § 172.101 Table:

Chloropicrin mixtures, n.o.s.
Chlorosulfonic acid
Cumyl hydroperoxide
Ethyl phosphonous dichloride
Hydrazine
Hydrobromic acid, greater than 49% concentration
Isophorone diisocyanate
Methyl fluoride
Methyl parathion
Nitrocresol
Phosphorous pentachloride
Phosphorous pentoxide
Pivaloyl chloride
Propyl trichlorosilane
Sulfuric acid, fuming
Sulfuryl chloride
Tetraethyl dithiopyrophosphate
Thionyl chloride
Tributyl amine
Trimelhyl acetyl chloride
Vanadium oxytrichloride

RSPA is considering further rulemaking action under Docket HM-196 to address issues involving inhalation toxic materials, such as classification, test criteria and packing group criteria. However, RSPA requests comments in this docket addressed to the toxicity of specific materials and other issues involving toxicity by inhalation.

Section 172.101 Table

The preamble to the § 172.101 Table is revised to be consistent with the changes made under Docket HM-145F for hazardous substances. Also, it is proposed, in paragraph (c)(10) of § 172.101, to adopt criteria contained in the UN Recommendations for selection of shipping names for mixtures and solutions.

With the exception of "n.o.s." entries, all entries for hazardous substances in the ORM-E hazard class (89) are removed from the Table. Approximately 50 names for hazardous substances in classes other than ORM-E are also removed. Exclusive of the ORM-E entries, approximately 490 entries in the § 172.101 Table are revised. The Table presented in the May 5 NPRM was based on the 1984 edition of the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Technical Instructions). The vast majority of changes (257) to the Table consist of updating shipping names (additions, deletions and revisions) and aircraft quantity limitations (revisions) to be consistent with both the United Nations Recommendations on the Transport of Dangerous Goods (UN Recommendations), fourth revised edition, and the 1987-1988 edition of the ICAO Technical Instructions. Consistency with the ICAO Technical Instructions is not maintained for poisonous materials in Packing Group I and gases which are toxic by inhalation for which RSPA proposes that they not be permitted for transport aboard aircraft. A series of "n.o.s." entries (i.e., "not otherwise specified") is added to address inhalation toxic liquids which are not specifically named (e.g., "Poisonous liquids, n.o.s., *inhalation hazard, Packing Group I, Zone A"),* to correct a deficiency in the May 5 NPRM. Other changes include corrections of typographical and spelling errors (114) and revisions and additions of shipping descriptions to eliminate errors and omissions (72). A listing of the specific changes is available from RSPA upon request.

Columns 10A, 10B and 10C contain stowage requirements for hazardous materials aboard vessels. Although not presented in the regulatory text of this document, RSPA proposes to eliminate these requirements and in their place to require compliance with stowage requirements contained in the International Maritime Dangerous Goods Code (IMDG Code). This would simplify the § 172.101 Table and recognizes RSPA's belief that, as a practical matter, compliance with the IMDG Code is necessary for shipments by vessel at present. Comments addressed to this proposal are requested.

Labeling and Placarding

The May 5 NPRM is modified to include provisions for the Class 9 label which were recently added to the UN Recommendations and to include requirements for multiple labeling based on the UN Recommendations. It is proposed to not require placards for Division 6.1, Packing Group III (i.e., "KEEP AWAY FROM FOOD") because placards for this class serve little, if any, useful purpose from the standpoint of emergency response. Also, no placards are proposed for Class 9.

Section 172.510 is modified to require display of POISON or POISON GAS placards on square backgrounds on rail cars for those materials in Division 2.3 or 6.1 which meet Packing Group I criteria for inhalation toxicity. As originally proposed, all packing groups within Division 2.3 would require the square background and Division 6.1 materials which are toxic by inhalation (some of which are currently Poison A materials) would not require the square background. RSPA does not believe that Packing Group II or III materials warrant the same restrictive handling provisions as now apply to Poison A materials, whereas Packing Group I materials (both liquids and gases) do.

Participation in International Standards-Setting Organizations

As discussed in the May 5 NPRM, the RSPA participates in the activities of a number of organizations which promulgate international standards involving the transportation of hazardous materials: the United Nations Committee of Experts on the Transport of Dangerous Goods, and its subsidiary bodies, the Group of Experts on Explosives and the Group of Rapporteurs; the International Maritime Organization; the Dangerous Goods Panel of the International Civil Aviation Organization; the Economic Commission for Europe Group of Experts on the Transport of Dangerous Goods; and, the International Atomic Energy Agency. In the past, RSPA has apprised the public of its involvement in international activities through periodic public meetings, announced in the **Federal Register**, in which RSPA representatives provide briefings on the international activities. In many instances, RSPA representatives are supported at international meetings by industry experts in specific areas such as explosives and organic peroxides, and work with representatives of the regulated industry in developing policies and proposals. Further, the Hazardous Materials Advisory Council (HMAC), a non-profit organization having membership from all segments of industry involved in hazardous materials transportation, holds formal observer status at U.N. meetings. HMAC has a special committee which devotes itself to international issues and RSPA has actively participated in its meetings. However, some members of the industry have commented that there is a need for more industry participation in the development of proposals by RSPA for presentation at the international meetings and in the evaluation of proposals developed by other participants in the international meetings. Comments addressed to this issue are requested. For example, when RSPA personnel participate in a HMAC meeting, it must be open to non-HMAC members during such participation. On that basis, is it necessary that RSPA resources be expended to establish a new forum for discussion of international issues?

II. Review by Sections

The following review by sections addresses only the corrections and supplements to the May 5 NPRM. For a comprehensive review by sections, interested persons should refer to the preamble of the May 5 NPRM (pages 52 FR 16491 through 16510).

Part 171; General Information, Regulations and Definitions.

Section 171.7. In § 171.7. the table of material incorporated by reference in paragraph (c) is revised to correct typographical errors in nine of the entries.

Section 171.8. In § 171.8, the definitions for "Composite packaging", "UN standard packaging", and "Water reactive material" are revised to correct typographical errors.

Section 171.11. In § 171.11, paragraph (c) is revised to require compliance with 49 CFR requirements, rather than the ICAO Technical Instructions, for materials which are toxic by inhalation.

Section 171.12. In § 171.12, paragraph (b) is revised to clarify application of provisions of the IMDG Code. Compliance with 49 CFR requirements, rather than the IMDG Code, would be required for materials which are toxic by inhalation. Acceptance of packagings conforming to the IMDG Code, rather than to specific 49 CFR packaging requirements, would be limited to non-bulk packagings only.

Part 172: Hazardous Materials Table. Special Provisions and Hazardous Materials Communications and Regulations.

Section 172.101. In the preamble to the § 172.101 Table, paragraph (b) is revised to remove the letter "E" as a symbol in Column 1 of the Table; paragraphs (b)(2) and (b)(6) are revised to include reference to hazardous substances and hazardous wastes, rather than to the "E" symbol; and subparagraph (b)(4) is removed. Subparagraph (c)(9) is revised to include reference to the Appendix to the § 172.101 Table which designates hazardous substances under CERCLA. Subparagraph (c)(10) is revised to implement provisions from the UN Recommendations for determining the proper shipping names for mixtures and solutions. Subparagraph (c)(12)(ii) is revised by adding the words "and packing group" after the words "hazard class" in the first sentence.

In the § 172.101 Table, changes are made to remove the "E" symbol, RQ designations, and obsolete shipping names for hazardous substances. As previously discussed, over 400 entries are revised to align the Table more closely with the UN Recommendations and the ICAO Technical Instructions, and to correct errors and omissions.

Section 172.102. In § 172.102, Special Provisions in subparagraphs (c)(1), (c)(2), (c)(3), (c)(5) and (e)(7)(ii) would be revised to correct errors and omissions and eliminate inconsistencies. Substantive changes include the addition of Special Provisions 12 and 13, for inhalation toxic materials, exclusion of multi-unit tank car tanks from Special Provision B14, concerning insulation of tanks, and revision of Special Provisions B30 through B32 to "grandfather" certain currently used tank cars for materials which meet Division 2.3 criteria. Special Provisions B42 through B53 are added to address discrepancies in the original proposal.

Section 172.313. In § 172.313, the word "outer" is added between the words "plastic" and "packaging" to clarify that requirements to mark "POISON" on plastic packagings do not apply to inner receptacles such as liners.

Section 172.330. In § 172.330, subparagraph (a)(2) is revised to clarify that shipping name markings on multi-unit tank car tanks need only be two inches high. Paragraph (f) would be removed to eliminate an obsolete labeling provision.

Section 172.400. In § 172.400, the table in paragraph (b) is changed to add the CLASS 9 label.

Section 172.400a. In § 172.400a, subparagraph (a)(8) would be added to read "A package containing Division 1.4, Compatibility Group S, material" to provide a labeling exception for Division 1.4S materials.

Section 172.402. Paragraph (a) of § 172.402 is revised to propose labeling for multiple hazards which is consistent with Chapter 13 of the UN Recommendations.

Section 172.446. A new § 172.446 is added to adopt a CLASS 9 label for miscellaneous hazardous materials, for consistency with the UN Recommendations.

Section 172.504. In § 172.504, paragraph (e), the entries for "Division 1.3" are moved from Table 2 to Table 1 to require placarding for any quantity of Division 1.3 materials, consistent with existing provisions for Class B explosives. It is proposed not to require placarding for Division 6.1, Packing Group III, materials; therefore, in Table 2 the placard name for "Division 6.1 (PGIII)" is changed from "KEEP AWAY FROM FOOD" to "(None)". The entry in Table 2 for Class 7 "Radioactive Yellow-III label" is removed, as these materials are subject to Table 1 placarding requirements. A new subparagraph (f)(6) would be added to § 172.504 to provide a placarding exception for Division 1.4S explosives.

Section 172.510. Paragraph (a) of § 172.510 is revised to require that placards be displayed on square backgrounds on rail cars transporting Explosives 1.1 and 1.2 materials and Packing Group I materials which are toxic by inhalation. The May 5 notice did not address Division 6.1 materials that are toxic by inhalation and required the square background for all packing groups of Division 2.3 materials.

Section 172.519. In § 172.519, subparagraph (a)(3) is amended to change "200 pounds" to read "175 pounds", and to add the phrase "(waterproofing materials included)" at the end of the paragraph, for consistency with changes promulgated under Docket HM-166U (52 FR 13034) on April 20, 1987.

Section 172.547. In § 172.547, paragraph (b) is revised to change the size of the letters in the word "SPONTANEOUSLY" from "33mm (1.3 inches)" to read "25.4mm (1.0 inches)" to eliminate a problem with regard to size of lettering on the SPONTANEOUSLY COMBUSTIBLE placard.

Section 172.553. § 172.553 is removed, since it is proposed not to prescribe a placard for Division 6.1, Packing Group III, materials.

Part 173: Shippers, General Requirements for Shipments and Packagings.

Section 173.2a. In § 173.2a, paragraph (c), the precedence of hazard table is amended to correct a typographical error (for row 3 I and column 8 I(1), the entry "8" is changed to "3"); for consistency with the UN Recommendations with regard to classifying pesticides which are both flammable and poisonous (a footnote is added to require that pesticides which meet both Class 3, Packing Group III, and Division 6.1, Packing Group III, be classed in Division 6.1); and to reflect new criteria in the UN Recommendations for assigning packing groups to Class 4 materials.

Section 173.12. In § 173.12, paragraph (c), on reuse of packagings for waste materials, is revised to clarify that the provisions of § 173.28 do not apply.

Section 173.24. In paragraph (b)(1), the phrase "Except as otherwise provided" is added to clarify that there are instances, such as when vented packages are authorized, when releases of hazardous materials to the environment are permitted.

Section 173.24a. In § 173.24a, subparagraph (c)(iii), the spelling of the word "receptacles" is corrected.

Section 173.24b. Paragraph (b)(3) is revised to require five percent outage only for Division 6.1, Packing Group I, liquids, rather than for all inhalation toxic liquids regardless of packing group. It is believed to be unnecessarily restrictive to require this amount of outage for Division 6.1, Packing Groups II and III, materials which are toxic by inhalation.

Paragraph (d) is added to prohibit the use of tank cars equipped with heating coils for Division 2.3 and Division 6.1, Packing Group I, materials toxic by inhalation, for safety reasons.

Section 173.27. In § 173.27, paragraph (a) would be revised by adding the phrase "containing Class 4, 5, or 8 materials" to eliminate a major difference between proposed provisions for air shipments and the ICAO Technical Instructions. Subparagraph (c)(3)(ii) is amended to change "178.504(a)(5)" to read "178.503(a)(5)".

Section 173.28. In § 173.28, subparagraph (a)(2) is revised to require that the leakproofness test for reuse of packagings be conducted using an internal air pressure of at least 7.0 pounds. This proposal addresses concerns expressed by members of industry concerning the inadequacy of test pressures in the UN Recommendations. RSPA believes that the increased test pressure may be necessary to detect leaks in used packagings which may contain residues of their previous contents. RSPA is not convinced that pressures higher than those proposed in § 178.604 are necessary for detecting leaks in new packagings and requests comments on this issue.

Section 173.31. In § 173.31, provisions for retest of tank cars currently contained in Footnote v of Retest Table 1 in paragraph (c) are relocated to subparagraph (a)(13). Paragraph (a)(12) is revised to require reclosing pressure relief devices on tank cars used for Class 2 gases and Classes 3, 4, and Division 6.1 liquids, with the exception of Packing Group III of Division 6.1.

Section 173.32. In § 173.32, in paragraph (s), " Kpa" is corrected to "kPa".

Section 173.115. In paragraph (c)(2), reference to LC50 criteria in § 173.132 is added.

Section 173.120. In paragraph (a)(1)(i), the section reference "§ 173.300" is corrected to read "§ 173.115".

Section 173.124. In paragraph (a), the definition for "flammable solid" is revised for consistency with the UN Recommendations. Paragraph (d) is added to recognize new criteria which will appear in Chapter 14 of the UN Recommendations for evaluating materials for inclusion in Class 4. These criteria are available from the RSPA upon request.

Section 173.125. This section is revised to recognize new criteria which will appear in Chapter 14 of the UN Recommendations for determining packing groups for Class 4 materials. These criteria are available from the RSPA upon request.

Section 173.128. Paragraph (c) is added to recognize new criteria, which will appear in Chapter 14 of the UN Recommendations, for evaluating materials for inclusion in Class 5. These criteria are available from the RSPA upon request.

Section 173.132. In Figure 1 of paragraph (a), the graph is revised editorially by changing the word "Class" to "Division" and by deleting the symbols which appear at the right extreme of the horizontal axis. In paragraph (a)(3)(ii), the first occurrence of the word "not" is in error and is removed. In paragraph (b)(3), reference is included to criteria in § 173.133(b) for LC_{50} determinations for mixtures and for limit tests.

Section 173.133. Paragraph (b) is added to provide alternatives to testing for inhalation toxicity for mixtures and solutions (subparagraph (b)(1)) and to provide simplified threshold toxicity tests (i.e., limit tests) when the LC_{50} of mixtures is to be determined through testing (subparagraph (b)(2)).

Section 173.137. This section is revised to correct the format and to clarify that the three packing groups for Class 8 are mutually exclusive.

Section 173.150. In § 173.150, in the first sentence in paragraph (b), "Class 8" is corrected to read "Class 3". In subparagraph (f)(3)(vii), "173.21," is inserted between "173.1," and "173.24". Also, paragraph (e) is revised to provide an exception from the regulations for aqueous solutions of alcohol containing at least 50 percent water, similar to the exception provided at present in § 173.115(b)(2)(ii). The exception was unintentionally omitted in the May 5 NPRM.

Section 173.154. Paragraph (d) is revised to provide an exception for materials which are corrosive only to steel, when transported in bulk packagings, similar to the exception provided at present in § 173.245(b). The exception was unintentionally omitted in the May 5 NPRM.

Section 173.158. In § 173.158, at the end of subparagraph (f)(2), the number "1" in front of paragraph (g) is removed and paragraph (g) is moved to the left margin, to correct a format error.

Section 173.159. In § 173.159, subparagraph (g)(1) is amended to change the word "nor" to read "with not" in the first sentence, to correct an editorial error.

Section 173.164. In § 173.164, subparagraph (a)(3) is amended to change the symbol for kilograms from "Kg" to "kg", in the last sentence. The introductory text of paragraph (a) is revised to clarify that the specified packaging, at the Packing Group I performance level, is only required for transportation by aircraft. Paragraph (c) is added to provide packagings, at the Packing Group III performance level, for transportation in other modes and paragraph (d) is added to provide an exception for quantities of mercury of less than one pound (i.e., less than a reportable quantity) when transported by motor vehicle or rail car.

Section 173.181. In § 173.181, subparagraph (c)(1) is revised to change the word "incombustible" to read "noncombustible".

Section 173.185. In § 173.185, subparagraph (i)(5) is amended to change the word "packagers" to read "packagings".

Section 173.186. In § 173.186, paragraph (c) is amended to change the word "matdrials" to read "materials", and, in paragraph (e) in the first sentence, the word "packag ings" is amended to read "packagings".

Section 173.192. In § 173.192, paragraph (a) is revised to authorize use of Specification 3D and 33 cylinders, as are currently authorized.

Section 173.195. In § 173.195, paragraph (a)(2) is revised to authorize use of Specification 3A480 cylinders and paragraph (b) is revised to permit use of alternate means of testing for leakage, other than with picrate paper, without the need for approval.

Section 173.196. In § 173.196, subparagraph (c)(2)(ii) is amended to change the word "packagings(s)" to read "packagings", in the second and third sentences.

Section 173.213. In § 173.213, paragraph (b) is amended to change the identification code for a plastic jerrican from "3112" to "3H2".

Section 173.216. In § 173.216, subparagraph (d)(2) is amended to change the word "cosignor" to read "consignor".

Section 173.225. The Organic Peroxides Table in paragraph (b)(4) is updated to include organic peroxides with identification numbers UN3058 through UN3081.

Section 173.226. In § 173.226, subparagraph (c)(2) is amended to change the phrase "back-off of" to read "back-off or", in the fourth sentence.

Section 173.227. In § 173.227, subparagraph (b)(3)(ii) is amended to change the phrase "drum is" to read "drum is—", at the end of the sentence.

Section 173.228. In § 173.228, paragraph (a) is amended to change the section citation "§ 172:101" to read "§ 172.101", in the first sentence.

Section 173.230. In § 173.230, paragraph (a) is amended to change the section cite "§ 473.306" to read "§ 173.306".

Subpart F of Part 173. In Subpart F of Part 173, the term "tank cars" is revised to read "tank car tanks" wherever it appears, and the term "110 tank car tanks" is revised to read "110 multi-unit tank car tanks" wherever it appears, in order to use more precise terminology.

Section 173.240. In § 173.240, paragraph (c) is revised to change the section title from "*Portable tanks and bins*" to read "*Portable tanks, bins and other bulk packagings.*" and to authorize non-specification bulk packagings other than portable tanks and bins, such as flexible bulk containers.

Section 173.241. In § 173.241, paragraph (c) is amended by deleting the word "metal", in order to allow use of non-metallic (e.g., polyethylene) portable tanks for certain low hazard materials, and by adding a sentence to the paragraph to specify valves and minimum design pressures for DOT 57 portable tanks used for the transport by water of Class 3, Packing Group II, materials, consistent with existing provisions for water transport.

Section 173.242. In paragraph (a), AAR 206W and 211W tank cars are removed from the list of authorized tank cars, to correct an error. In paragraph (c), a sentence is added to specify valves and minimum design pressures for DOT 57 portable tanks used for the transport by water of Class 3, Packing Group II, materials, consistent with existing provisions.

Section 173.245. Upon further consideration by the RSPA and FRA, paragraph (a) is revised to remove the authorization for use of DOT 105S500W and 112S500W tank cars for Division 2.3 gases and to add authorization to use DOT 112T500 tank cars. Also, a requirement is added that tank car appurtenances, dome fittings, safety devices, loading and handling procedures, etc., be approved. This is similar to existing approval provisions for Poison A materials.

Section 173.248. In § 173.248, paragraph (a) and the introductory text preceding it are revised to authorize certain tank cars that are currently authorized for ethylene oxide. Paragraph (b) is removed and reserved to remove authorizations for use of cargo tanks. These changes are based on further consideration by the RSPA and FRA.

Section 173.306. In paragraph (h)(1) the spelling of the word "COMPLY" is corrected.

Section 173.314. This section is substantially revised to implement bulk packaging provisions for tank cars consistent with proposed packaging provisions in other sections. Paragraph (a) is revised to correct an erroneous section reference. Paragraph (b) is revised to require all single unit tank cars carrying flammable or poisonous gases or hydrogen fluoride to be marked with the name of contents. Paragraph (c) is revised to correct section references for preparing compressed gases for shipment. The table in paragraph (c) is revised to include requirements for head protection, thermal protection, and larger safety valves for certain materials; to remove from the table those commodities that do not have specific outage or tank test pressure requirements, to remove notes rendered obsolete by other proposed changes, and to revise certain notes. Paragraphs (d) and (f) are removed since those provisions would be contained in §§ 173.24b and 173.31. New paragraph (i) is added to incorporate the provisions of § 179.102–11(a).

Section 173.322. Paragraph (d) is added to authorize specification cylinders as a packaging for ethyl chloride.

Section 173.323. In § 173.323, subparagraphs (b)(1), in the first sentence, and (b)(2), in the second sentence, are revised to change the word "incombustible" to read "noncombustible".

Part 178; Specifications For Packagings.

Section 178.0–3. In § 178.0–3, subparagraph (a)(3) is amended to change the word "permancy" to read "permanency".

Section 178.502. In § 178.502, subparagraph (a)(1)(ii) is amended to change the word "barrell" to read "barrel".

Section 178.503. In § 178.503, in subparagraph (d)(1) the UN symbol which was missing from the May 5 NPRM is added; also, in subparagraphs (d)(2)(i) and (d)(2)(ii) the examples of markings are revised for clarity.

Section 178.516. In § 178.516, paragraph (b)(3) is revised for clarity.

Section 178.521. In § 178.521 subparagraph (b)(2) is amended to change the words "waterresistant" to read "water resistant", in the first sentence.

Section 178.523. In § 178.523, subparagraph (b)(2)(x) is amended to change the words "highdensity" to read "high density", in the second sentence.

Section 178.601. In § 178.601, a sentence would be added between the second and third sentences in paragraph (c) to clarify that the chemical compatibility test for plastic packagings need not be repeated during periodic retesting. In the second sentence, the word "compatibility" is corrected.

Section 178.602. In § 178.602, paragraph (g) is revised to clarify that the chemical compatibility test for plastic packagings need not be repeated during periodic retesting.

Section 178.608. § 178.608 is revised for clarity. As proposed, each hazardous material for which a packaging is intended for use would have to be compatibility tested in that package. In those instances where packages are intended for use for many products, this may impose an onerous burden on the packaging manufacturer. Comments are requested with regard to alternatives to testinq each hazardous material for which a packaging is intended for use.

Part 179; Specifications for Tank Cars.

Section 179.101–1. The section reference, "§ 179.100–18" is corrected to read "§ 179.100–4".

Section 179.102. The proposal to remove this section in its entirety is withdrawn in order to retain some of the commodity specific requirements which appear in the section.

Section 179.105. In paragraph (c), "ethylene oxide" is changed to "a Division 2.3 material" to provide the option, for poisonous gases, of using increased insulation in conjunction with smaller valves.

III. Administrative Notices

Executive Order 12291

The effect of this rule, as proposed, does not meet criteria specified in section 1(b) of Executive Order 12291 and is, therefore, not a major rule, but is a significant rule under the regulatory procedures of the Department of Transportation (44 FR 11034). This proposed rule does not require a Regulatory Impact Analysis, or an environmental impact statement under the National Environmental Policy Act (42 U.S.C. 4321 *et seq.*). A regulatory evaluation and flexibility analysis is available for review in the Docket.

Impact on Small Entities

Based on limited information concerning size and nature of entities likely affected by this proposed rule, I certify this proposal will not, if promulgated, have a significant economic impact on a substantial

number of small entities. This certification is subject to modification as a result of a review of comments received in response to this proposal. A preliminary regulatory flexibility analysis is available for review in the docket.

Paperwork Reduction Act

Information collection requirements contained in this proposal are being submitted for approval to the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act of 1980 (Pub. L. 96-511).

List of Subjects

49 CFR Part 171

Hazardous material transportation, Definitions.

49 CFR Part 172

Hazardous materials transportation, Markings, Labels, Placards, Packaging.

49 CFR Part 173

Hazardous materials transportation, Packaging.

49 CFR Part 174

Hazardous materials transportation, Rail carriers.

49 CFR Part 175

Hazardous materials transportation, Air carriers.

49 CFR Part 176

Hazardous materials transportation, Maritime carriers.

49 CFR Part 177

Hazardous materials transportation, Motor carriers.

49 CFR Part 178

Hazardous materials transportation, Packaging specifications and standards.

49 CFR Part 179

Hazardous materials transportation, Tank cars.

In consideration of the foregoing, 49 CFR Parts 171 through 179 would be amended as follows:

PART 171—GENERAL INFORMATION REGULATIONS AND DEFINITIONS

1. The authority citation for Part 171 would continue to read as follows:

Authority: 49 U.S.C. 1803, 1804, 1805, 1808; 49 CFR Part 1.

§ 171.3 [Amended]

1a. In § 171.3, paragraph (e) preceding Note 1 would be removed.

2. In § 171.7, paragraph (d) would be removed and paragraph (c) would be revised to read as follows:

§ 171.7 Matter incorporated by reference.

* * * * *

(c) *Table of material incorporated by reference.* The following Table sets forth material incorporated by reference. It gives the name and address of the organization from which the material is available, the name of the material, and the section(s) of this subchapter, other than § 171.7, in which the matter is referenced.

Source and name of material	49 CFR reference
The Aluminum Association, 420 Lexington Avenue, New York, NY 10017:	
Aluminum Standards and Data, 1970-71, December 1969	178.65-5.
Aluminum Standards and Data, Sixth Edition, 1979	
Aluminum Standards and Data, Seventh Edition, June 1982	
American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018:	
ANSI B9.1-64, Safety Code for Mechanical Refrigeration, 1964 Edition	173.306.
ANSI B 16.5-77 Steel Pipe Flanges, Flanged Fittings	178.34.
ANSI N14.1-71 Packaging of Uranium Hexafluoride for Transport, 1982 Edition	173.417.
American Society of Mechanical Engineers, United Engineering Center, 354 47th Street, New York, NY 10017:	
ASME Code, Section VIII (Division 1) and IX of1977 Edition of American Society of Mechanical Engineers Boiler and Pressure Code Addenda through December 31, 1979.	173.32; 173.33; 173.306; 173.315; 177.814; 178.245; 178.251; 178.255; 178.337; 178.338; 178.340; 178.342; 178.343; 179.400.
ASME Code, Section V (FR Nonedestructive Examination, 1977	173.33.
ASME Code, Section IX (FR Welding and Brazing Qualification 77 and Addendum 79)	178.245; 178.340; 178.270; 178.337; 178.338.
American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103:	
Noncurrent ASTM Standards are available from: Engineering Societies Library, 354 E. 47th Street, New York, NY 10017.	
ASTM A 20-81 Standard Specification for General Requirements for Steel Plates for Pressure Vessels, Revision C, 1982.	178.337.
ASTM A 47-68 Malleable Iron Castings	179.200.
ASTM A 53-69a Welded and Seamless Steel Pipe	179.12-2.
ASTM A 178-70 Electric Resistance Welded Carbon Steel Boiler Tubes	179.12.
ASTM A 192-69 Seamless Carbon Steel Boiler Tubes for High Pressure Service	179.12.
ASTM A 211-75 Standard Specification for Spiral-Welded Steel or Iron Pipe App.B	192.113; Part 192; 195.106.
ASTM A 240-82 Standard Specification for Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Fusion-Welded Unfired Pressure Vessels, Revision A.	173.57; 179.100; 179.200; 179.201; 179.220; 179.400.
ASTM A 242-81 Standard Specification for High-Strength Low-Alloy Structural Steel, 1982	179.100.
ASTM A 262-68 Recommended Practices for Detecting Susceptibility to Intergranular Attack in Stainless Steels.	179.200.
ASTM A 269-69 Seamless and Welded Austenitic Stainless Steel Tubing for General Service	179.12.
ASTM A 285-78 Pressure Vessel Plates, Carbon Steel, Low and Intermediate-Tensile Strength	179.100; 179.200; 179.220; 179.300.
ASTM A 300-58 Steel Plates for Pressure Vessels for Service at Low Temperatures	178.337.
ASTM A 300-68 Notch Toughness Requirements for Normalized Steel Pressure Plates for Pressure Vessels.	179.102.
ASTM A 302-78 Pressure Vessel Plates, Alloy Steel, Manganese-Molybdenum and Manganese-Molybendum Nickel.	179.100; 179.200; 179.220.
ASTM A 312-70a Seamless and Welded Austenitic Stainless Steel Pipe	179.12.

Source and name of material	49 CFR reference
ASTM A 333-67 Seamless and Welded Steel Pipe for Low-Temperature Service	178.45.
ASTM A 370-77 Standard Methods and Definition for Mechanical Testing of Steel Products, 1982	179.102.
ASTM A 388-67 Ultrasonic Testing and Inspection of Heavy Steel Forging	178.45.
ASTM A 441-81 Standard Specification for High-Strength Low-Alloy Structural Manganese Vanadium Steel.	178.338.
ASTM A 514-81 Standard Specification for High-Yield Strength Quenched and Tempered Alloy Steel Plate, Suitable for Welding.	178.338.
ASTM A 515-69 Carbon Steel Plates for Pressure Vessels for Intermediate and Higher Temperature Service.	179.100; 179.200; 179.220; 179.300.
ASTM A 516-79b Standard Specification for Pressure Vessel Plates, Carbon Steel, for Moderate and Lower-Temperature Service, 1982 Edition.	178.337; 179.100; 179.102; 179.200; 179.220.
ASTM A 537-80 Standard Specification for Pressure Vessel Plates, Heat-Treated, Carbon-Manganese-Silicon Steel, 1982 Edition.	179.100.
ASTM A 572-82 Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Quality, 1982 Edition.	178.338; 179.100.
ASTM A 588-81 Standard Specification for High-Strength Low-Alloy Structural Steel with 50 Ksi Minimum Yield Point to 4 in. Thick.	179.100; 178.338.
ASTM A 606-75 Standard Specification for Steel Sheet and Strip Hot-Rolled and Cold-Rolled, High-Strength, Low-Alloy, with Improved Atmospheric Corrosion Resistance, 1975 (Reapproved 1981).	178.338.
ASTM A 612-7a High Strength Steel Plates for Pressure Vessels for Moderate and Lower-Temperature Service.	178.337.
ASTM A 633-79a Standard Specification for Normalized High-Strength Low-Alloy Structural Steel, 1979 Edition.	178.338.
ASTM A 715-81 Standard Specification for Steel Sheet and Strip, Hot-Rolled, High-Strength, Low-Alloy, with Improved Formability, 1981.	178.338.
ASTM B 90-69 Magnesium Alloy Sheet and Plate	178.251.
ASTM B 161-70 Nickel Seamless Pipe and Tube, 1970	179.12.
ASTM B 162-69 Nickel Plate, Sheet, and Strip	179.200.
ASTM B 209-69 Aluminum Alloy Sheet and Plate	178.340; 179.100; 179.200; 179.220.
ASTM B 210-70 Aluminum Alloy Drawn Stainless Tables (FR B210-68(78))	179.12.
ASTM B 221-76 Aluminum Alloy Extruded Bars, Rods, Shapes and Tubes	179.12.
ASTM B 241-69 Standard Specification for Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.	179.12.
ASTM B 557-81 Tension Testing Wrought and Cast Aluminum and Magnesium-Alloy Products, 1979	178.251.
ASTM B 580-79 Standard Specification for Anodie Oxide Coatings on Aluminum, 1979	173.316; 173.318.
ASTM C 148-77 Standard Methods of Polariscopic examination of Glass Containers, 1977	178.17.
ASTM D 56-79 Standard Method of Test for Flash Point by Tag Closed Tester	173.120.
ASTM D 88-56 (Reapproved 80) Standard Method for Test of Saybolt Viscosity	173.120.
ASTM D 93-80 Standard Method of Test for Flash Point by Pensky Martens Closed Tester	173.120.
ASTM D 323-58, 68 Vapor Pressure of Petroleum Products (Reid Methods)	173.119; 173.300.
ASTM D 1838-64 Copper Strip Corrosion by Liquefied Petroleum (LP) Gases	173.315.
ASTM D 2161-79 Conversion of Kinematic Viscosity to Saybolt Universal Viscosity or to Saybolt Furol Viscosity.	173.120.
ASTM D 3243-73T Flash Point of Aviation Turbine Fuels by Setaflash Closed Tester	173.120.
ASTM D 3278-78 Flash Point of Liquids by Setaflash Closed Tester	173.120.
ASTM E 8-69 Tension Testing of Metallic Materials	178.45.
ASTM E 8-81 Tension Testing of Metallic Materials	178.36; 178.37; 178.38; 178.39; 178.40; 178.41; 178.43; 178.44; 178.48; 178.49; 178.50; 178.51; 178.52; 178.53; 178.54; 178.55; 178.56; 178.57; 178.58; 178.59; 178.60; 178.61; 178.68; 178.251.
ASTM E 23-60 Notched Bar Impact Testing of Metallic Materials	178.57; 179.400.
ASTM E 112-63 Estimating the Average Grain Size of Metals	Part 178, App. A.
ASTM E 290-77 Semi-Guided Bend Test for Ductility of Metallic Materials	
ASTM E 487-74 Constant Temperature Stability of Chemical Materials	173.21.
ASTM E 681-79 Standard Test Method for Limits of Flammability of Chemicals	173.115.
ASTM G 26-70 Standard Recommended Practice for Operating Light-and-Water Exposure Apparatus (Xenon-Arc-Type) for Exposure of Nonmetallic Materials, 1970.	172.407; 172.519.
Association of American Railroads, 59 East Van Buren Street, Chicago, IL 60605:	
AAR Catalog Nos. F70BHT; F71BHT; F72BHT; F73BHT; F79BHT	179.14.
AAR Catalog Nos. SE60CHT; SE60CHTE; SE70CHT; SE70CHTE	179.14.
AAR Catalog Nos. F70CHT; F70CHTE; F73AHT; F73AHTE; F79CHT; F79CHTE	179.14.
AAR Catalog Nos. SE67BTH; SE67BTHE; SE68BTH; SE68BTHE; SF79CHT; SF79CHTE	179.14.
AAR Catalog Nos. SE60CHT; SE60CHTE; SE67BHT; SE67BHTE; SE68BHT; SE68BHTE	179.50.
AAR Catalog Nos. SE70CHT; SE70CHTE; SE79CHT; SE70CHTE	179.105.
AAR Specification for Design Fabrication and Construction of Freight Cars; September 1, 1964	179.100.
AAR Specification for Tank Cars, Specification M-1002, 1981	173.31.
AAR Specification for Tank Cars, September 1985, Exclusive of (1) pp. 28-80, AAR, Part 179, changes to DOT regulations proposed by AAR Committee of Tank Cars, and (2) DOT Regulations in Effect, October 1985.	179.6; 179.12; 179.100; 179.101; 179.102; 179.103; 179.105; 179.200; 179.201; 179.220; 179.300; 179.400.

Source and name of material	49 CFR reference
American Water Works Association, 1010 Vermont Avenue NW., Suite 810, Washington, DC 20005:	
AWWA Standard C207-55, Steel Pipe Flanges, 1955	173.360.
Bureau of Explosives, 1920 L Street NW., Washington, DC 20036:	
Closed Drum Apparatus (Test)	173.300.
Impact Apparatus (Test), January 24, 1961	173.53; 173.64; 173.65; 173.114.
Open Drum Apparatus (Test)	173.300.
Fetterley's Formula (The Determination of the Relief Dimensions for Safety Valves on Containers in which Liquefied gas is charged and when the exterior surface of the container is exposed to a temperature of 1,200 °F.).	173.315.
Flame Projection Test, 1958	173.300.
Pamphlet No. 6, Illustrating Methods for Loading and Bracing Carload and Less Than Carload Shipments of Explosives and Other Dangerous Articles, 1962.	174.101; 174.290; 174.112; 174.115.
Pamphlets 6A (includes Appendix No. 1, October 1944 and Appendix 2, December 1945), Illustrating Methods for Loading and Bracing Carload and Less Than Carload Shipments of Loaded Projectiles, Loaded Bombs, etc., 1943.	174.101; 174.290.
Pamphlet 6C, Illustrating Methods for Loading and Bracing Trailers and Less-Than Trailer Shipments of Explosives and Other Dangerous Articles Via Trailer-on-Flatcar(TOFC) or Container-on-Flatcar (COFC), September 1968.	174.55; 174.63; 174.101; 174.112; 174.115.
Pamphlets 1 & 2, Emergency Handling of Hazardous Materials in Surface Transportation; June 1973	177.861.
Canadian Transport Commission, 275 Slater Street, Ottawa, Ontario K1A 0N9: Canadian Transport Commission Regulations; 1974	171.12a; 172.401; 172.502; 174.11.
Chlorine Institute, Inc., 342 Madison Avenue, New York, NY 10017:	
Type 1/½ JQ 225, Dwg. H5-1970, October 7, 1968; or Type 1½ JQ 225, Dwg. H50155, Revision A, April 28, 1969.	173.315.
Standards for Angle Valves, and Dwg. 104-4, May 5, 1958 or Dwg. 104-5, September 1, 1972	173.33.
Standards for Excess Flow Valves, Dwg. 101-4, and 106-3, May 16, 1969, Dwg. 101-6, and 106-5, September 1, 1973.	173.33.
Standards for Housing and Manway covers for Steel Cargo Tanks Manufactured on or before December 31, 1974, Dwg. 177-1; November 7, 1962 or Dwg. 173-2, September 11, 1971; Tanks manufactured after January 1, 1975, Dwg. 137-2, (9/1/71).	173.337.
Compressed Gas Association, Inc., 1235 Jefferson Davis Highway, Arlington, VA 22202:	
CGA Pamphlet C-3, Standards for Welding and Brazing on Thin Walled Containers, 1975	178.47; 178.51; 178.54; 178.56; 178.57; 178.58; 178.60; 178.61; 178.68.
CGA Pamphlet C-6, Standards for Visual Inspection of Compressed Gas Cylinders, 1975	173.31; 173.34; 173.126.
CGA Pamphlet C-7, A Guide for the Preparation of Precautionary Markings for Compressed Gas Containers, Appendix A, May 15, 1972, and Addenda January 1976.	172.400.
CGA Pamphlet C-8, Standard for Requalification of DOT-3HT Cylinder Design, 1979	173.34.
CGA Pamphlet C-12, Qualification Procedure for Acetylene Cylinder Design, 1979	173.34; 173.303.
CGA Pamphlet C-14, Procedures for Fire Testing of DOT Cylinder Pressure Relief Device Systems, 1979.	173.34.
CGA Pamphlet G-2.2, Tentative Standard Method for Determining Minimum of 0.2% Water in Anhydrous Ammonia, 1975.	173.315.
CGA Pamphlet G-4.1, Cleaning Equipment for Oxygen Service, 1977	178.338.
CGA Pamphlet S-1.1, Pressure Relief Device Standards Part 1—Cylinders for Compressed Gasses, 1979.	173.34.
CGA Pamphlets S-1.2, Safety Relief Device Standards Part 2—and Portable Tanks for Compressed Gasses, 1980.	173.315; 173.318.
CGA Technical Bulletin TB-2, Guidelines for Inspection and Repair of MC-330 and MC-331 Cargo Tanks, 1975.	173.33.
Department of Defense (DOD), 2461 Eisenhower Avenue, Alexandria, VA: DOD TB 700-2, Explosives Hazard Classification Procedures	173.86.
Department of Energy (USDOE), 1000 Independence Avenue SW., Washington, DC 20545: USDOE publications available from: Superintendent of Documents Government Printing Office (GPO) or The National Technical Information Service (NTIS)	
USDC, USDOE Materials and Equipment Specification No. SP, Revision 1 and Supplement Fire Resistant Phenolic Foam.	178.356.
USAEC, ORO 651—Uranium Hexafluoride Handling Procedures and Container Criteria, Revision 3, 1972.	173.417; 178.356; 178.358.
Department of Health and Human Services (DHHS), Public Health Service, Center for Disease Control, National Institute for Occupational Safety and Health (NIOSH), Cincinnati, Ohio 45226:	
NIOSH Registry—of Toxic Effects of Chemical Substances, 1978 (Available from the Superintendent of Documents (GPO))S.	172.203.
Department of Transportation (USDOT), 400 Seventh St., SW., Washington, DC 20590: Guidelines for Selecting Preferred Highway Routes for Highway Route Controlled Quantity Shipments of Radioactive Materials [51 FR 5968 February 18, 1986] Effective March 20, 1986, HMT-166T	177.825.
Fertilizer Institute, 1015 18th Street, Washington, DC 10036:	
Definitions and Test Procedures for Ammonium Nitrate Fertilizer (Revised May 7, 1971) January 16, 1973.	174.510.
General Services Administration, Specification Office, Rm. 6662, 7th and D Street SW., Washington, DC 20407:	
Federal Specification RR-C-901b, General 1-3	173.304; 173.302.

Source and name of material	49 CFR reference
Institute of Makers of Explosives, 420 Lexington Avenue, New York, NY 10017: IME Safety Library Publication No. 22 (IME Standard 22), Recommendation for the Safe Transportation of Detonators in a Vehicle with Certain Other Explosive Materials, January 1, 1985	177.835.
International Atomic Energy Agency (IAEA), Wagramerstrasse 5, P.O. Box 100, A-1400, Vienna, Austria: Also available from: Unipub Incorporated, P.O. Box 433, New York, NY 10016:	
IAEA, Regulations for the Safe Transport of Radioactive Materials, Safety Series No. 6, 1973, Revised Edition (as amended).	171.12; 173.417.
International Civil Aviation Organization (ICAO), P.O. Box 400, Place de l'Aviation Internationale, 1000 Sherbrooke Street West, Montreal, Quebec, Canada H3A 2R2:	
ICAO Technical Instructions available from: INTEREG, International Regulations, Publishing and Distribution Organization, P.O. Box 60105, Chicago, IL 60660:	
Technical Instructions for the Safe Transport of Dangerous Goods by Air, DOC 9284-AN/905 (1986) [50 FR 49394, December 2, 1985].	171.11; 172.401.
International Maritime Organization (IMO), 4 Albert Embankment, London, SE17SR, United Kingdom or New York Nautical Instrument & Service Corporation, 140 W. Broadway, New York, NY 10013:	
International Maritime Dangerous Goods Codes, Volumes I, II, III, IV, 1977, and Amendments 14-76, 15-77, and 16-78, 17-79, 19-80, 20-82, 21-83 and 22-84 thereto.	171.12; 172.102; 172.401; 172.407; 176.5; 176.11; 176.27; 176.30.
International Organization for Standardization, Case Postale 56, CH-1211, Geneve 20, Switzerland: Also available from: ANSI, 1430 Broadway, New York, NY 10018:	
ISO 82-197(e) Steel Tensile Testing, 1974	178.270-3.
ISO-2431-72	173.121.
ISO R780-1968	172.312.
National Association of Corrosion Engineers, 1440 South Creek, Houston, TX 77084:	
NACE Standard TM-01-69, Test Method Laboratory Corrosion Testing of Metals for the Process Industries, 1969.	173.500.
National Bureau of Standards, Department of Commerce, 5285 Port Royal Road, Springfield, VA 22151:	
USDC, NBS Handbook H-28 (1957), 1957 Handbook of Screw-Thread Standards for Federal Services, Part II, December 1966 Edition.	178.45.
USDC, CAPE 1662, Civilian Applications Program Engineering Drawings (a package of information which include drawings and bills of material, describing insulated, protective overpacks).	178.356; 178.358.
National Fire Protection Association, Batterymarch Park, Quincy, MA 02269:	
NFPA Pamphlet No. 58—Standard for the Storage and Handling of Liquefied Petroleum Gasses, 1979	173.315.
National Motor Freight Traffic Association, Inc., Agent, 1616 P Street, NW., Washington, DC 20036:	
National Motor Freight Classification NMF 100-1, 1982	177.841.
Nuclear Regulatory Commission, 1717 H Street NW., Washington, DC 20555:	
(USNRC) 10 CFR Part 71, Packaging of Radioactive Material for Transport and Transportation of Radioactive Materials Under Certain Conditions.	173.417.
Society of Plastics Industries, Inc., Organic Peroxide Producers Safety Division, 355 Lexington Avenue, New York, NY 10017: Self Accerlerating Decomposition Temperature Test, 1972	173.21.
Transport Canada, TDG Canadian Government Publishing Center, Supply and Services, Canada, Ottawa K1A O59:	
Transport of Dangerous Goods Regulations, as of July 1, 1985, incorporating Registration Numbers SOR/85-77, SOR85/585 and SOR/85-609.	171.12a; 172.401; 172.502.
Uniform Classification Committee, 222 South Riverside Plaza, Chicago, IL 60606:	
Uniform Freight Classification (UFC), Rule 40, Section 5	173.620.
Uniform Freight Classification (UFC), Rule 41, Sections 2 and 3	173.620.
United Nations, United Nations Sales Section, New York, NY 10017: UN Recommendations for the Transport of Dangerous Goods, Fourth Revised Edition (1986)	172.401; 172.407; 172.519.

* * * * *

3. In § 171.8, the following definitions and abbreviations would be added, revised, or deleted, as indicated, in appropriate alphabetical order:

§ 171.8 Definitions and abbreviations.

Add:

"Bag" means a flexible packaging made of paper, plastic film, textiles, woven material or other similar materials.

"Box" means a packaging with complete rectangular or polygonal faces, made of metal, wood, plywood, reconstituted wood, fiberboard, plastic, or other suitable material.

"Bulk packaging" means a packaging, including a transport vehicle—

(1) Having an internal volume greater than 450 liters (118.9 gallons) as a receptacle for a liquid,

(2) Having a capacity greater than 400 kilograms (881.8 pounds) as a receptacle for a solid, or

(3) Having a water capacity greater than 453.6 kilograms (1,000.0 pounds) as a receptacle for a gas.

"Class" means hazard class. See "hazard class".

"Class 1" See § 173.50.
"Class 2" See § 173.115.
"Class 3" See § 173.120.
"Class 4" See § 173.124.
"Class 5" See § 173.128.
"Class 6" See § 173.132.
"Class 7" See § 173.403.
"Class 8" See § 173.136.
"Class 9" See § 173.140.

"Closure" means a device which closes an opening in a receptacle.

"Combination packaging" means a combination of packagings consisting of one or more inner packagings secured in a non-bulk outer packaging. It does not include a composite packaging.

"Composite packaging" means a packaging consisting of an outer packaging and an inner receptacle, so constructed that the inner receptacle and the outer packaging form an integral packaging. Once assembled it remains thereafter an integrated single unit; it is filled, stored, shipped and emptied as such.

"Crate" means an outer packaging with incomplete surfaces.

"Domestic transportation" means transportation between places within the United States other than through a foreign country.

"Dangerous when wet material" See § 173.124.

"Division" means a subdivision of a hazard class.

"Drum" means a flat-ended or convex-ended cylindrical packaging made of metal, fiberboard, plastic, plywood, or other suitable materials. This definition also includes packagings of other shapes made of metal or plastic (e.g., round taper-necked packagings or pail-shaped packagings) but does not include cylinders, jerricans, wooden barrels or bulk packagings.

"Hazard class" means the category of hazard assigned to a hazardous material under the defining criteria of Part 173 of this subchapter and the provisions of the § 172.101 Table.

"Infectious substance" See § 173.134.

"Inner packaging" means a receptacle which requires an outer packaging in order to perform its containment function.

"Inner receptacle" means a receptacle which requires an outer packaging in order to perform its containment function.

"International transportation" means transportation —

(1) Between any place in the United States and any place in a foreign country;

(2) Between places in the United States through a foreign country; or

(3) Between places in one or more foreign countries through the United States.

"Jerrican" means a metal or plastic packaging of rectangular or polygonal cross-section.

"kg" means kilogram.

"kPa" means kilopascal.

"L" means liter.

"Manufacturer" means a person who applies to a packaging a DOT specification marking or a United Nations mark (see § 178.503).

"Maximum capacity" means the maximum inner volume of receptacles or packagings.

"Maximum net mass" means the maximum net mass of contents in a single packaging or, as used in Subpart M of Part 178, the maximum combined mass of inner packagings and the contents thereof.

"mL" means milliliter.

"Non-bulk packaging" means a packaging—

(1) Having an internal volume of 450 liters (118.9 gallons) or less as a receptacle for a liquid,

(2) Having a capacity of 400 kilograms (881.8 pounds) or less as a receptacle for a solid, or

(3) Having a water capacity of 453.6 kilograms (1000.0 pounds) or less as a receptacle for a gas.

"n.o.s. entry" means a shipping description from the § 172.101 Table which includes the abbreviation "n.o.s."

"Outer packaging" means the outermost enclosure of a composite or combination packaging together with any absorbent materials, cushioning and any other components necessary to contain and protect inner receptacles or inner packagings.

"Pa" means pascal.

"Packing group" means a grouping according to the degree of danger presented by hazardous materials. Packing Group I indicates great danger; Packing Group II, medium danger; Packing Group III, minor danger. See § 172.101(f).

"Poisonous materials" See § 173.132.

"Primary hazard" means the hazard class of a material, as assigned in the § 172.101 Table.

"Receptacle" means a containment vessel for receiving and holding materials, including any means of closing.

"Specification packaging" means a packaging conforming to one of the specifications or standards for packagings in Part 178 or Part 179 of this subchapter.

"Strong outer (or outside) packaging" means a packaging which meets or exceeds the performance requirements of § 173.24 of this subchapter applicable to non-specification packagings, either as a single packaging or as the outer packaging of a combination packaging.

"Subsidiary hazard" means a hazard of a material other than the primary hazard. See "primary hazard".

"Table in § 172.101" or "§ 172.101 Table" means the Hazardous Materials Table in § 172.101 of this subchapter.

"UN" means United Nations.

"UN standard packaging" means a specification packaging conforming to the requirements in Subparts L and M of Part 178.

"Wooden barrel" means a packaging made of natural wood, of round cross-section, having convex walls, consisting of staves and heads and fitted with hoops.

(Revise:)

"Bottle" means a receptacle having a neck of relatively smaller cross section than the body and an opening capable of holding a closure for retention of the contents.

"Cargo aircraft only" means an aircraft that is used to transport cargo and is not engaged in carrying passengers. For purposes of this subchapter, the terms "cargo aircraft only", "cargo-only aircraft" and "cargo aircraft" have the same meaning.

"Combustible liquid" See § 173.120.

"Compressed gas" See § 173.115.

"Corrosive material" See § 173.136.

"Etiologic agent" See § 173.134.

"Flammable gas" See § 173.115

"Flammable liquid" See § 173.120.

"Flammable solid" See § 173.124.

"Flash point" means the minimum temperature at which a substance gives off flammable vapors which, in contact with sparks or flame, will ignite. (For criteria, see § 173.121.)

"Gross weight" or "Gross mass" means the weight of a packaging plus the weight of its contents.

"Limited quantity" when specified as such in a section applicable to a particular material, means the maximum amount of a hazardous material for which there is a specific labeling and packaging exception.

"Magnetic material" See § 173.21(d).

"Marking" means descriptive name, identification number, instructions, cautions, weight, specification, or UN marks, or combinations thereof, required by this subchapter on outer packagings of hazardous materials.

"Name of contents" means the proper shipping name as specified in § 172.101.

"Net weight", "Net mass", or "Net quantity" means the mass or volume of hazardous material contained in a package, excluding the weight or volume of any packaging material, except in the case of explosive devices where the net weight is the weight of the finished device excluding packagings. See also "*maximum net mass*".

"Organic peroxide" See § 173.128.

"ORM" means other regulated material. See § 173.144.

"Oxidizer" See § 173.128.

"Package" means the complete product of the packing operation, consisting of the packaging and its contents as prepared for transport. For radioactive materials, see § 173.403 of this subchapter.

"Packaging" means a receptacle and any other components or materials necessary for the receptacle to perform its containment function and to ensure compliance with the minimum packing requirements of this subchapter. For radioactive materials, see § 173.403 of this subchapter.

"Pyrophoric liquid" See § 173.124(b).

"Spontaneously combustible material" See § 173.124(b).

"Water reactive material" see "Dangerous when wet material, § 173.124(c)."

Remove:

NRC
Outside container
Poison A
Poison B
Pyrophoric solid
STC

4. The title and text of § 171.10 would be revised to read as follows:

§ 171.10 Hazardous materials in bulk on board vessels or barges.

Except for transportation in bulk packagings (as defined in § 171.8 of this part), the requirements of this subchapter do not apply to the bulk carriage of hazardous materials by vessel or barge. See 46 CFR Subchapters D, I, O and N for requirements applicable to bulk carriage by vessel or barge.

§ 171.11 [Amended]

5. In § 171.11, paragraphs (d)(4)(i) and (d)(4)(ii) would be removed, paragraphs (d)(4)(iii) and (d)(4)(iv) would be redesignated as (d)(4)(i) and (d)(4)(ii), respectively, and paragraph (c) would be revised to read as follows:

§ 171.11 Use of ICAO Technical Instructions.

* * * * *

(c) Is not a forbidden material or package according to § 173.21 or Column 3 of the § 172.101 Table and does not meet the definition for Division 2.3 (§ 173.115(c) of this subchapter) or Division 6.1, Packing Group I, for inhalation toxicity (§§ 173.132(a)(3) and 173.133(a) of this subchapter).

* * * * *

6. In § 171.12, paragraphs (c), (d) and (f) would be removed, paragraph (e) would be redesignated as paragraph (c) and paragraph (b) would be revised to read as follows:

§ 171.12 Import and export shipments.

* * * * *

(b) *IMDG Code.* The IMDG Code sets forth descriptions, classifications, packagings, labeling and vessel stowage requirements. Notwithstanding the provisions of this subchapter, a material which is packaged, marked, classed, labeled, placarded, described, stowed and segregated in accordance with the IMDG Code, and otherwise conforms to the requirements of this section, may be offered and accepted for transportation and transported within the United States. The following conditions and limitations apply:

(1) The provisions of this paragraph apply only to materials in international transportation or in domestic transportation, a portion of which involves transportation by vessel.

(2) Bulk packagings must conform to the requirements of this subchapter.

(3) A material may not be transported under the provisions of this paragraph if it is—

(i) A forbidden material or package according to § 173.21 or Column 3 of the § 172.101 Table;

(ii) A Class 1 explosive other than Division 1.4;

(iii) A Division 2.3 material or Division 6.1, Packing Group 1, inhalation toxic material;

(iv) A Class 7 material.

(4) The provisions of this paragraph do not apply to materials designated as hazardous materials under this subchapter that are not subject to the requirements of the IMDG Code.

(5) A number of materials listed in the IMDG Code may not be subject to the requirements of this subchapter. The provisions of this subchapter do not apply to materials listed in the IMDG Code which are not designated as hazardous materials under this subchapter.

(6) When a hazardous material is also a hazardous waste as defined in this subchapter—

(i) The word "Waste" must precede the proper shipping name on shipping papers and packages; and

(ii) The requirements of § 172.205 with respect to hazardous waste manifests are applicable.

(7) When a hazardous material is also a hazardous substance as defined in this subchapter, the requirements of §§ 172.203(c) and 172.324 are applicable.

(8) When a hazardous material is poisonous, the requirements of § 172.203(k) are applicable.

* * * * *

§ 171.12a [Amended]

7. Section 171.12a would be amended as follows:

a. In paragraph (a) introductory text, the reference to "paragraph (b)" is changed to "paragraphs (b) and (g)";

b. In paragraph (d), the introductory phrase preceding the word "specification" is changed to read "Except as specified in paragraph (g) of this section and § 173.301(i) of this subchapter,"

c. In paragraph (e) the reference to "paragraph a" is changed to read "paragraphs (a) and (g)".

8. In § 171.12a, the introductory text of paragraph (b)(2) would be revised and paragraph (g) would be added, as follows:

§ 171.12a Canadian shipments and packagings.

* * * * *

(b) * * *

(2) A material or article meeting the definition for Class 1 (explosives) according to this subchapter, except that, notwithstanding the requirements of Part 172 of this subchapter—

* * * * *

(g) Tank cars used under the provisions of this section must conform to the following requirements:

(1) Each class CTC–105, 112, and 114 tank car shall be equipped with a coupler vertical restraint system in accordance with § 179.14 of this subchapter.

(2) After December 31, 1987, each tank car which does not conform to a DOT specification shall be equipped with a coupler vertical restraint system in accordance with § 179.14 of this subchapter.

§ 171.14 [Removed]

9. Section 171.14 would be removed.

PART 172—HAZARDOUS MATERIALS TABLE, SPECIAL PROVISIONS AND HAZARDOUS MATERIALS COMMUNICATIONS REGULATIONS

10. The authority citation for Part 172 would continue to read as follows:

Authority: 49 U.S.C. 1803, 1804, 1805, 1808; 49 CFR Part 1, unless otherwise noted.

11. In Part 172, §§ 172.101 and 172.102 would be revised as follows:

Subpart B—Table of Hazardous Materials and Special Provisions

§ 172.101 Purpose and use of hazardous materials table.

(a) The Hazardous Materials Table (Table) in this section designates the materials listed therein as hazardous materials for the purpose of transportation of those materials. For each listed material, the Table identifies the hazard class or specifies that the material is forbidden in transportation, and gives the proper shipping name or directs the user to the preferred proper shipping name. In addition, the Table specifies or references requirements in this subchapter pertaining to labeling, packaging, quantity limits aboard aircraft and stowage of hazardous materials aboard vessels.

(b) *Column 1: Symbols.* Column 1 of the Table contains five symbols ("+","A","D","I", and "W"), as follows:

(1) The plus (+) fixes the proper shipping name and the hazard class for that entry without regard to whether the material meets the definition of that class. An alternate proper shipping name and hazard class may be authorized by the Director, OHMT.

(2) The letter "A" restricts the application of requirements of this

subchapter to materials offered or intended for transportation by aircraft, unless the material is a hazardous substance or a hazardous waste.

(3) The letter "D" identifies proper shipping names which are appropriate for describing materials for domestic transportation but may be inappropriate for international transportation under the provisions of international regulations (e.g., IMO, ICAO). Except for hazardous substances or hazardous wastes classed as ORM-E materials, an alternate proper shipping name may be selected when international transportation is involved.

(4) [Reserved]

(5) The letter "I" identifies proper shipping names which are appropriate for describing materials in international transportation. An alternate proper shipping name may be selected when only domestic transportation is involved.

(6) The letter "W" restricts the application of requirements of this subchapter to materials offered or intended for transportation by vessel, unless the material is a hazardous substance or a hazardous waste.

(c) *Column 2: Hazardous materials descriptions and proper shipping names.* Column 2 lists the hazardous materials descriptions and proper shipping names of materials designated as hazardous materials. Modification of a proper shipping name may otherwise be required or authorized by this section. Proper shipping names are limited to those shown in Roman type (not italics).

(1) Proper shipping names may be used in the singular or plural and in either capital or lower case letters.

(2) Punctuation marks and words in italics are not part of the proper shipping name but may be used in addition to the proper shipping name. The word "or" in italics indicates that any terms in the sequence may be used as the proper shipping name as appropriate.

(3) The abbreviation "n.o.i." or "n.o.i.b.n." may be used interchangeably with "n.o.s.".

(4) Except for hazardous wastes, when qualifying words are used as part of the proper shipping name, their sequence in the package markings and shipping paper description is optional. However, the entry in the Table reflects the preferred sequence.

(5) Except for a material classed as an organic peroxide, when one entry references another entry by use of the word "*see*", if both names are in roman type, either name may be used as the proper shipping name (e.g., Ethyl alcohol. *See* Ethanol). However, the referenced entry is preferred. For a material classed as an organic peroxide, the technical name shall be used as the proper shipping name. An organic peroxide formulation that is not listed by its technical name, shall be described as "organic peroxide, mixture", "Organic peroxide, sample, n.o.s.", or "organic peroxide, trial quantities, n.o.s.", as appropriate.

(6) When a proper shipping name includes a concentration range as part of the shipping description, the actual concentration, if it is within the range stated, may be used in place of the concentration range. For example, an aqueous solution of hydrogen peroxide containing 30 percent peroxide may be described as "Hydrogen peroxide, aqueous solution *with not less than 20 percent but not more than 40 percent hydrogen peroxide*" or "Hydrogen peroxide, aqueous solution *with 30 percent hydrogen peroxide*".

(7) Use of the prefix "mono" is optional in any shipping name when appropriate. Thus, Iodine monochloride may be used interchangeably with Iodine chloride. In "Glycerol alpha-monochlorohydrin" the term "mono" is considered a prefix to the term "chlorohydrin" and may be deleted.

(8) *Hazardous substances.* The Appendix to this section lists materials which are listed or designated as hazardous substances under section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Proper shipping names for hazardous substances (see the appendix to this section and § 171.8 of this subchapter) shall be determined as follows:

(i) If the hazardous substance appears in the Table by technical name, then the technical name is the proper shipping name.

(ii) If the hazardous substance does not appear in the Table and is not a forbidden material, then an appropriate generic shipping name shall be selected corresponding to the hazard class of the material as determined by the defining criteria of this subchapter (see §§ 173.2 and 173.2a of this subchapter). For example, a hazardous substance which is listed in the appendix but not in the Table and which meets the definition of a flammable liquid might be described as "Flammable liquid, n.o.s." or other appropriate shipping name corresponding to the flammable liquid hazard class.

(9) If the word "waste" is not included in the hazardous material description in Column 2 of the table, the proper shipping name for a hazardous waste (as defined in § 171.8 of this subchapter shall include the word "Waste" preceding the proper shipping name of the material. For example: Waste acetone.

(10) *Mixtures and solutions.* (i) A mixture or solution comprised of a hazardous material identified in the Table by technical name and non-hazardous material shall be described using the proper shipping name of the hazardous material and the qualifying word "mixture" or "solution", as appropriate, unless—

(A) The packaging specified in Column 8 is inappropriate to the physical state of the material;

(B) The shipping description indicates that the proper shipping name applies only to the pure or technically pure hazardous material;

(C) The hazard class or packing group of the mixture or solution is different from that specified for the entry; or

(D) There is a significant change in the measures to be taken in emergencies.

(ii) If one or more of the conditions specified in paragraphs (i)(A), (i)(B), (i)(C), and (i)(D) of paragraph (c)(10) of this section are satisfied, then a proper shipping name shall be selected as prescribed in paragraph (c)(12)(ii) of this section.

(11) Except for a material subject to or prohibited by § 173.21, 173.51, 173.86(d), 173.86(e)(1) or 173.114a(g)(2) of this subchapter, a material for which the hazard class is uncertain and must be determined by testing or a material that is a hazardous waste may be assigned a tentative shipping name, hazard class and identification number, based on the shipper's tentative determination according to—

(i) Defining criteria in this subchapter;

(ii) The hazard precedence prescribed in § 173.2a of this subchapter; and

(iii) The shipper's knowledge of the material.

(12) Except when the proper shipping name in the Table is preceded by a plus (+)—

(i) If it is specifically determined that a material meets the definition of a hazard class other than the class shown in association with the proper shipping name, the material shall be described by an appropriate proper shipping name listed in association with the correct class for the material.

(ii) If an appropriate technical name is not shown in the Table, selection of a proper shipping name shall be made from the generic descriptions or "n.o.s." entries corresponding to the specific hazard class and packing group of the material. The name that most appropriately describes the material shall be used; e.g., an alcohol not listed by its technical name in the Table shall

be described as "Alcohol, n.o.s." rather than "Flammable liquid, n.o.s.". Some mixtures may be more appropriately described according to their application, such as "Coating solution" or "Extracts, flavoring, liquid", rather than by an "n.o.s." entry, such as "Flammable liquid, n.o.s." It should be noted, however, that an n.o.s. entry as a proper shipping name may not provide sufficient information for shipping papers and package markings. Under the provisions of Subparts C and D of this part, the technical name of the constituent which makes the product a hazardous material may be required in association with the proper shipping name.

(iii) If a material meets the definition of more than one hazard class, and is not identified in the Table by a specific description or a dual hazard "n.o.s." entry (e.g., "Flammable liquid, corrosive, n.o.s."), the hazard class of the material shall be determined by using the precedence specified in § 173.2a of this subchapter, and an appropriate shipping description shall be selected as described in paragraph (c)(12)(ii) of this section.

(iv) If it is specifically determined that a material is not a forbidden material and does not meet the definition of any hazard class, the material is not a hazardous material.

(13) When the proper shipping name in the Table is preceded by the letter "D", the hazardous material may be described by an "n.o.s." entry or generic proper shipping name in place of the more specific technical name. However, the technical name of the hazardous material shall be entered in association with the proper shipping name, when appropriate, as for a hazardous substance.

(d) *Column 3: Hazard class.* Column 3 contains a designation of the hazard class or division corresponding to each proper shipping name, or the word "Forbidden".

(1) A material for which the entry in this column is "Forbidden" may not be offered for transportation or transported. This prohibition does not apply if the material is diluted, stabilized or incorporated in a device and it is classed in accordance with the definitions of hazardous materials contained in Part 173 of this subchapter.

(2) When a reevaluation of test data or new data indicates a need to modify the "Forbidden" designation or the hazard class or packing group specified for a material specifically identified in the table, this data should be submitted to the Director, OHMT.

(3) A basic description of each hazard class and the section reference for class definitions appear in § 173.2 of this subchapter.

(e) *Column 4: Identification number.* Column 4 lists the identification number assigned to each proper shipping name. Those preceded by the letters "UN" are associated with proper shipping names considered appropriate for international transportation as well as domestic transportation. Those preceded by the letters "NA" are associated with proper shipping names not recognized for international transportation, except to and from Canada. Identification numbers in the "NA9000" series are associated with proper shipping names not appropriately covered by international hazardous materials (dangerous goods) transportation standards, or not appropriately addressed by international transportation standards for emergency response information purposes, except for transportation between the United States and Canada.

(f) *Column 5: Packing group.* Column 5 specifies the packing group(s) assignment for a material conforming to the associated hazard class and proper shipping name. Classes 1 and 7 and Divisions 2.1 and 2.2 of Class 2 do not have packing groups. Packing groups I, II and III indicate the degree of danger presented by the material is either great, medium or minor, respectively. If more than one packing group is indicated for an entry, the packing group for the hazardous material is determined using the criteria for assignment of packing groups specified in Subpart D of Part 173. When a reevaluation of test data or new data indicates a need to modify the specified packing group(s), the data should be submitted to the Director, OHMT.

(g) *Column 6: Labels.* Column 6 specifies the hazard warning label(s) required for a package filled with a material conforming to the associated hazard class and proper shipping name, unless the package is otherwise excepted from labeling by provisions in Subpart D of Part 172, or Part 173 of this subchapter. The first label shown for each entry is indicative of the primary hazard of the material, additional labels are indicative of subsidiary hazards. Provisions in § 172.402 may require that a label other than that specified in Column 6 be affixed to the package in addition to that specified in Column 6.

(h) *Column 7: Special provisions.* Column 7 specifies codes for special provisions applicable to hazardous materials. When Column 7 refers to a special provision for a hazardous material, the meaning and requirements of that special provision are as set forth in § 172.102.

(i) *Column 8: Packaging authorizations.* Columns 8a, 8b and 8c specify the applicable sections for exceptions, non-bulk packaging requirements and bulk packaging requirements, respectively, in Part 173 of this subchapter. Columns 8a, 8b and 8c are completed in a manner which indicates that "§ 173." precedes the designated numerical entry. For example, the entry "202" in column 8b associated with the proper shipping name "Gasoline" indicates that for this material conformance to non-bulk packaging requirements prescribed in § 173.202 of this subchapter is required. When packaging requirements are specified, they are in addition to the standard requirements for all packagings prescribed in § 173.24 of this subchapter and any other applicable requirements in Subparts A and B of Part 173 of this subchapter.

(1) *Exceptions.* Column 8a contains exceptions from some of the requirements of this subchapter. The referenced exceptions are in addition to those specified in Subpart A of Part 173 and elsewhere in this subchapter. A "None" in this column means no packaging exceptions are authorized, except as may be provided by special provisions in Column 7.

(2) *Non-bulk packaging.* Column 8b references the section in Part 173 of this subchapter which prescribes packaging requirements for non-bulk packagings. A "None" in this column means non-bulk packagings are not authorized, except as may be provided by special provisions in Column 7. Each reference in this column to a material which is a hazardous waste or a hazardous substance, and whose proper shipping name is preceded in Column 1 of the Table by the letter "A" or "W", is modified to include "§ 173.204" on those occasions when the material is offered for transportation or transported by a mode in which its transportation is not otherwise subject to requirements of this subchapter.

(3) *Bulk packaging.* Column 8c specifies the section in Part 173 of this subchapter which prescribes packaging requirements for bulk packagings other than IM portable tanks. A "None" in this column means bulk packagings are not authorized, except as may be provided by special provisions in Column 7. Authorizations for use of IM portable tanks are set forth in Column 7.

(j) *Column 9: Quantity limitations.* Columns 9a and 9b specify the maximum quantities that may be offered for transportation in one package by passenger-carrying aircraft or rail car

(Column 9a) or by cargo aircraft only (Column 9b), subject to the following:

(1) "Forbidden" means the material may not be offered for transportation or transported in the applicable mode of transport.

(2) The quantity limitation is "net" except where otherwise specified, such as for "Consumer commodity" which specifies "65 lbs. gross."

(3) When articles or devices are specifically listed by name, the net quantity limitation applies to the entire article or device (less packaging and packaging materials) rather than only to its hazardous components.

(4) A package offered or intended for transportation by aircraft and which is filled with a material forbidden on passenger-carrying aircraft but permitted on cargo aircraft only, or which exceeds the maximum net quantity authorized on passenger-carrying aircraft, shall be labeled with the CARGO AIRCRAFT ONLY label specified in § 172.448 of this part.

(k) *Column 10: Vessel stowage requirements.* Columns 10a (Cargo vessel) and 10b (Passenger vessel) specify the authorized stowage locations on board vessels. Column 10c (Other stowage provisions) specifies codes for stowage requirements for specific hazardous materials. The meaning of each code in Column 10c is set forth in § 176.84 of this subchapter. Section 176.63 of this subchapter sets forth the physical requirements for each of the authorized locations listed in columns 10a and 10b. (For bulk transportation by vessel, see 46 CFR Parts 30 to 40, 70, 98, 148, 151, 153 and 154.) The authorized stowage locations specified in Columns 10a and 10b are defined as follows:

(1) "1" means the material shall be stowed "on deck."

(2) "2" means the material must be stowed "under deck."

(3) "3" means the material must be stowed "under deck away from heat."

(4) "1,2" means the material may be stowed "on deck" or "under deck." However, "under deck" stowage should be used, if available.

(5) "1,3" means the material may be stowed "on deck" or "under deck away from heat." However, "under deck away from heat" stowage should be used, if available.

(6) "4" means the material may be transported on a passenger vessel in only the quantity specified in column 9a of the Table, and is subject to the stowage requirements specified for a cargo vessel for the same material.

(7) "5" means the material is forbidden and may not be offered for transportation or transported by vessel.

(8) "6" means the material shall be transported in a magazine subject to the requirements of §§ 176.135 through 176.144 of this subchapter.

(l) *Changes to the Table.* (1) Unless specifically stated otherwise in the amendment or the "Effective date" entry in its preamble, if any entry in this Table is changed by an amendment to this subchapter—

(i) Such a change does not apply to the shipment of any package filled prior to the effective date of the amendment; and

(ii) Stocks of preprinted shipping papers and package markings may be continued in use, in the manner previously authorized, until depleted or for a one-year period, subsequent to the effective date of the amendment, whichever is less.

(2) A shipping description or any associated entry which is listed in the § 172.101 Table may be altered, if the alteration is approved by the Director, OHMT.

(3) A shipping description or any associated entry which is listed in the current edition of the IMDG Code but is not listed in the § 172.101 Table may be used as if it were listed in the Table, if approved by the Director, OHMT.

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Accellerene, see p-Nitrosodimethylaniline													
	Accumulators, electric, see Batteries, wet etc..													
D	Accumulators, pressurized, pneumatic *or* hydraulic (*containing non-flammable gas*).	2.2	NA1956		NONFLAMMABLE GAS.		306	306	None	No limit	No limit	1,2	1,2	
	Acetal	3	UN1088	II	FLAMMABLE LIQUID.	T7	150	202	242	5 L	60 L	1,3	5	12
	Acetaldehyde	3	UN1089	I	FLAMMABLE LIQUID.	B16, N1, N15, T20, T26, T29.	None	201	243	Forbidden	30 L	1,3	5	12
A	Acetaldehyde ammonia	9	UN1841	III	CLASS 9		155	204	241	200 kg	200 kg	1,2	1,2	34
	Acetaldehyde oxime	3	UN2332	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1,3	
	Acetic acid, glacial *or* Acetic acid solution, *more than 80 per cent acid, by weight.*	8	UN2789	II	CORROSIVE	B2, N1, N11, N26, N35, T8.	154	202	242	1 L	30 L	1,3	1,3	21
	Acetic acid solution, *more than 10 per cent but not more than 80 per cent acid, by weight.*	8	UN2790	II	CORROSIVE	B2, N1, N11, N26, N35, T8.	154	202	242	1 L	30 L	1,2	1,2	
	Acetic anhydride	8	UN1715	II	CORROSIVE	B2, N1, N11, N26, N35, T8.	154	202	242	1 L	30 L	1,3	1,3	21, 40, 77
	Acetone	3	UN1090	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	5	
	Acetone cyanohydrin	6.1	UN1541	I	POISON	B14, B32, N1, N16, N34, 10.	None	227	244	Forbidden	Forbidden	1	5	25, 26, 27, 40, 95
	Acetone oils	3	UN1091	II	FLAMMABLE LIQUID.	T7, T30	150	202	242	5 L	60 L	1,3	1	
	Acetonitrile, see Methyl cyanide													
	Acetyl acetone peroxide (3,5-Dimethyl-3,5-dihydroxydioxolane-1,2), *not more than 40 per cent in solution and not more than 9% by weight active oxygen.*	5.2	UN2080	II	ORGANIC PEROXIDE.		152	225	None	5 L	10 L	1	5	12, 40
	Acetyl acetone peroxide, (3,5-dimethyl-3,5-dihydroxydioxonale-1,2), *not more than 32% as a paste with not less than 44% solvent, not less than 9% water and not less than 11% inert solid.*	5.2	UN3061	II	ORGANIC PEROXIDE.		None	225	None	5 kg	10 kg	1	5	2

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Acetyl acetone peroxide with more than 9% by weight active oxygen.	Forbidden												
	Acetyl benzoyl peroxide, *not more than 45 per cent in solution.*	5.2	UN2081	II	ORGANIC PEROXIDE.		None	225	None	5 L	10 L	1	5	12, 40
	Acetyl benzoyl peroxide, solid, or more than 40% in solution.	Forbidden												
	Acetyl bromide	8	UN1716	II	CORROSIVE	B2, T12, T26.	154	202	242	1 L	30 L	1	1	80, 40
	Acetyl chloride	3	UN1717	II	FLAMMABLE LIQUID, CORROSIVE.	N1, N11, N16, N26, N34, T18, T26.	None	202	243	1 L	5 L	1,3	1	40
	Acetyl cyclohexanesulfonyl peroxide, more than 82 per cent wetted with less than 12 per cent water.	Forbidden												
	Acetyl cyclohexanesulfonyl peroxide, *not more than 32 per cent in solution.*	5.2	UN2083	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Acetyl cyclohexanesulfonyl peroxide, *not more than 82 per cent, wetted with not less than 12 per cent water.*	5.2	UN2082	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Acetylene, dissolved	2.1	UN1001		FLAMMABLE GAS.		None	303	None	Forbidden	15 kg	1	1	25, 40, 57, 93
	Acetylene (liquefied)	Forbidden												
	Acetylene silver nitrate	Forbidden												
	Acetylene tetrabromide, see Tetrabromoethane.													
	Acetyl iodide	8	UN1898	II	CORROSIVE	B2, T9	154	202	242	1 L	30 L	1	1	8, 40
	Acetyl methyl carbinol	3	UN2621	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Acetyl peroxide, *see* Diacetyl peroxide, *etc.*													
	Acid butyl phosphate, see Butyl acid phosphate.													
D	Acid, liquid, n.o.s.	8	JA1760	II	CORROSIVE	B2	154	202	242	1 L	5 L	1,2	1	
	Acid, sludge, *see* Sludge acid													
	Acridine	6.1	UN2713	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1	34
	Acrolein dimer, stabilized	3	UN2607	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1,3	
	Acrolein, inhibited	3	UN1092	I	FLAMMABLE HIQUID, POISON.	10, B12, B14, B30, B42, B43.	None	226	244	Forbidden	Forbidden	1,3	5	12, 40
	Acrylamide	6.1	UN2074	III	KEEP AWAY FROM FOOD.	T8	153	213	240	100 kg	200 kg	1,2	1,2	12, 25, 34

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Acrylic acid, inhibited	8	UN2218	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	1	1	8, 12, 21, 25, 40
	Acrylonitrile, inhibited	3	UN1093	I	FLAMMABLE LIQUID, POISON.	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1,3	5	12, 40
	Actuating cartridge, explosive, see Cartridges, power device.													
	Adhesives, *containing flammable liquid*	3	UN1133	II	FLAMMABLE LIQUID.	T7, T30	150	173	242	5 L	60 L	1,3	1	12
				III	FLAMMABLE LIQUID.	B1, T7, T30.	150	173	242	60 L	220 L	1,3	1,3	12
	Adiponitrile	6.1	UN2205	III	KEEP AWAY FROM FOOD.	T1	153	203	241	60 L	220 L	1,2	1,2	25, 34
	Aerosols, corrosive, n.o.s., *each not exceeding 1L capacity.*	2.2	UN1950		NONFLAMMABLE GAS, CORROSIVE.		None	302, 304, 305	None	75 kg	150 kg	1,3	1,3	40, 48, 85
	Aerosols, flammable, n.o.s. (*each not exceeding 1 L capacity*).	2.1	UN1950		FLAMMABLE GAS.		306	302, 304, 305	None	75 kg	150 kg	1,3	1,3	40, 48, 85
	Aerosols, non-flammable, n.o.s. (*each not exceeding 1 L capacity*).	2.2	UN1950		NONFLAMMABLE GAS.		306, 307	302, 304, 305	None	75 kg	150 kg	1,3	1,3	48, 85
	Aerosols, poison, n.o.s., *each not exceeding 1L capacity.*	2.3	UN1950	II	POISON GAS	10	None	302, 304, 305	None	Forbidden	Forbidden	1,3	1,3	40, 48, 85
	Air, compressed	2.2	UN1002		NONFLAMMABLE GAS.	B13	306	302	244	75 kg	150 kg	1,3	1,3	85
	Aircraft evacuation slides, *see* Life rafts, *etc.*.													
D	Aircraft hydraulic power unit fuel tank (*containing a mixture of anhydrous hydrazine and monomethyl hydrazine*) (*M86 fuel*).	3	NA9302	I	FLAMMABLE LIQUID, POISON, CORROSIVE.		None	172	None	Forbidden	42 L	1,3	5	
	Aircraft survival kits, *see* Life rafts, *etc.*													
	Aircraft thrust device *to assist take-off*	4.1	UN2791	II	FLAMMABLE SOLID.		None	180	None	Forbidden	250 kg	1,3	5	
	Air, refrigerated liquid, *low pressure or pressurized.*	2.2	UN1003		NONFLAMMABLE GAS, OXIDIZER.		320	316	318, 319	Forbidden	150 kg	1,3	1,3	55, 51, 85
	Air, refrigerated liquid, *non-pressurized*	2.2	UN1003		NONFLAMMABLE GAS, OXIDIZER.		320	316	318, 319	Forbidden	Forbidden	1,3	1,3	85
	Alcoholic beverages	3	UN3065	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60	220 L	1,3	1,3	
	Alcohols, n.o.s	3	UN1987	II	FLAMMABLE LIQUID.	T8, T31	150	202	242	5 L	60 L	1,3	1	12
				III	FLAMMABLE LIQUID.	T7, T30	150	203	242	60 L	220 L	1,3	1,3	12

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Alcohols, toxic, n.o.s.	3	UN1986	II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	1,3	1	12, 40
	Aldehydes, n.o.s.	3	UN1989	I	FLAMMABLE LIQUID.	T8, T31	None	201	243	1 L	30 L	1,3	1	12
				II	FLAMMABLE LIQUID.	T8, T31	150	202	242	5 L	60 L	1,3	1	12
				III	FLAMMABLE LIQUID.	T7, T30	150	203	242	60 L	220 L	1,3	1,3	12
	Aldehydes, toxic, n.o.s.	3	UN1988	II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	1,3	5	12, 40
	Aldol	6.1	UN2839	II	POISON	T8	None	202	243	5 L	60 L	1,3	1,3	12, 25, 95
D	Aldrin, *liquid*	6.1	NA2762	II	POISON		None	202	243	5 L	60 L	1,3	1,3	
D	Aldrin, *solid*	6.1	NA2761	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Alkali metal alloys, liquid	4.3	UN1421	I	DANGEROUS WHEN WET.	A2, N1, N15, N34.	None	201	244	Forbidden	1 L	1	5	
	Alkali metal amalgams, n.o.s., *liquid*	4.3	UN1389	I	DANGEROUS WHEN WET.	A2, N1, N15, N34.	None	201	244	Forbidden	1 L	1,3	1,3	
	Alkali metal amalgams, n.o.s., *solid*	4.3	UN1389	I	DANGEROUS WHEN WET.	A2, N1, N15, N34.	None	211	242	Forbidden	15 kg	1,3	1,3	
	Alkali metal amides, n.o.s.	4.3	UN1390	II	DANGEROUS WHEN WET.	A19, A20, N2, N11, N26.	None	212	241	15 kg	50 kg	1,3	5	40
	Alkali metal dispersions, n.o.s. *or* Alkali earth metal dispersions, n.o.s.	4.3	UN1391	I	DANGEROUS WHEN WET.	A2, N1, N15, N34.	None	201	244	Forbidden	1 L	1	5	
	Alkaline corrosive liquids, n.o.s., see Caustic alkali liquids, n.o.s.													
	Alkaline earth metal alloys, n.o.s.	4.3	UN1393	II	DANGEROUS WHEN WET.	A19	None	212	241	15 kg	50 kg	1,3	5	
	Alkaline earth metal amalgams, n.o.s.	4.3	UN1392	I	DANGEROUS WHEN WET.	A19, N34	None	211	242	Forbidden	15 kg	1,3	1,3	
	Alkaloids, n.o.s., *or* Alkaloid salts, n.o.s., *poisonous liquid.*	6.1	UN1544	I	POISON		None	201	243	1 L	30 L	1,2	1,2	95
				II	POISON		None	202	243	5 L	60 L	1,2	1,2	95
				III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,2	1,2	
	Alkaloids, n.o.s., *or* Alkaloid salts, n.o.s., *poisnous solid.*	6.1	UN1544	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	
				II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Alkylamines, n.o.s. *or* Polyalkylamines, n.o.s., *corrosive, flammable.*	8	UN2734	I	CORROSIVE, FLAMMABLE LIQUID.	N1, N11, N34, T8, T31.	None	201	243	0.5 L	2.5 L	1,3	1,3	22
	.....	.....	.....	II	CORROSIVE, FLAMMABLE LIQUID.	T8, T31	None	202	243	1 L	30 L	1,3	1,3	22
	Alkylamines, n.o.s. *or* Polyalkylamines, n.o.s., *flammable, corrosive.*	3	UN2733	I	FLAMMABLE LIQUID, CORROSIVE.	T42	None	201	243	0.5 L	2.5 L	1,3	1	40
	.....	.....	.....	II	FLAMMABLE LIQUID, CORROSIVE.	T8, T31	None	202	243	1 L	5 L	1,3	1	40
	.....	.....	.....	III	FLAMMABLE LIQUID, CORROSIVE.	B1, T8, T31.	None	203	242	5 L	60 L	1,3	1,3	
	Alkylamines, n.o.s, *or* Polyalkylamines, n.o.s., *corrosive.*	8	UN2735	I	CORROSIVE	B4, N1, N11, N34, T42.	None	201	242	0.5 L	2.5 L	1,2	1	
	.....	.....	.....	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	1,2	1,2	
	.....	.....	.....	III	CORROSIVE	T8	154	203	241	5 L	60 L	1,2	1,2	
	Alkyl, Aryl *or* Toluene sulfonic acid, liquid, *with more than 5 per cent free sulfuric acid.*	8	UN2584	II	CORROSIVE	B2, T8, T27.	154	202	242	1 L	30 L	1,2	1	9
	Alkyl, Aryl *or* Toluene sulfonic acid, liquid, *with not more than 5 per cent free sulfuric acid.*	8	UN2586	III	CORROSIVE	T8	154	203	241	5 L	60 L	1,2	1	9
	Alkyl, Aryl *or* Toluene sulfonic acid, solid, *with more than 5 per cent free sulfuric acid.*	8	UN2583	II	CORROSIVE	.....	154	212	240	15 kg	50 kg	1,2	1,2	
	Alkyl, Aryl *or* Toluene sulfonic acid, solid, *with not more than 5 per cent free sulfuric acid.*	8	UN2585	III	CORROSIVE	.....	154	213	240	25 kg	100 kg	1,2	1,2	
	Alkyl phenols, n.o.s. (*including C2-C8 homologues*) *liquid.*	6.1	UN2430	III	KEEP AWAY FROM FOOD.	.....	153	203	241	60 L	220 L	1,2	1,2	34
	Alkyl phenols, n.o.s. (*including C2-C8 homologues*) *solid.*	6.1	UN2430	III	KEEP AWAY FROM FOOD.	.....	153	213	240	100 kg	200 kg	1,2	1,2	34
	Allethrin, see Pesticides, liquid, toxic, n.o.s.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Allyl acetate	3	UN2333	II	FLAMMABLE LIQUID, POISON.	T8	None	202	243	1 L	60 L	1,3	5	12, 40, 94
	Allyl alcohol	3	UN1098	I	FLAMMABLE LIQUID, POISON.	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1,3	5	40
	Allylamine	3	UN2334	I	FLAMMABLE LIQUID, POISON.	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1,3	5	12, 40
	Allyl bromide	3	UN1099	I	FLAMMABLE LIQUID, POISON.	T18	None	201	243	Forbidden	30 L	1,3	5	40

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Allyl chloride	3	UN1100	I	FLAMMABLE LIQUID, POISON.	T18, T26	None	201	243	Forbidden	30 L	1,3	5	12, 40
	Allyl chlorocarbonate, see Allyl chloroformate.													
	Allyl chloroformate	8	UN1722	I	CORROSIVE, POISON.	10, B14, B32, N1, N34, N41.	None	227	244	Forbidden	Forbidden	1	5	21, 40, 77, 95
	Allyl ethyl ether	3	UN2335	II	FLAMMABLE LIQUID, POISON.	T8	None	202	243	1 L	60 L	1,3	5	12, 40
	Allyl formate	3	UN2336	I	FLAMMABLE LIQUID, POISON.	T18, T26	None	201	243	Forbidden	30 L	1,3	5	12, 40
	Allyl glycidyl ether	3	UN2219	III	FLAMMABLE LIQUID.	B1, T7	150	203	242	60 L	220 L	1,3	1,3	
	Allyl iodide	3	UN1723	I	FLAMMABLE LIQUID, CORROSIVE.	N1, N11, N34, T18.	None	201	243	0.5 L	2.5 L	1,3	5	40
	Allyl isothiocyanate, inhibited	6.1	UN1545	II	POISON	N1, N15, N16, N17, N26, T17.	None	202	243	Forbidden	60 L	1	5	21, 25, 40, 95
	Allyltrichlorosilane, stabilized	8	UN1724	II	CORROSIVE	B2, B6, N16, N26, N34, T8, T26.	None	202	242	Forbidden	30 L	1	1	21, 40, 77
	Aluminum alkyl halides	4.2	UN3052	I	SPONTANEOUSLY COMBUSTIBLE, DANGEROUS WHEN WET.	B9, B11, B14, T28, T29, T40.	None	181	244	Forbidden	Forbidden	1	5	
	Aluminum alkyls	4.2	UN3051	I	SPONTANEOUSLY COMBUSTIBLE, DANGEROUS WHEN WET.	B9, B11, B14, T28, T29, T40.	None	181	244	Forbidden	Forbidden	1	5	
	Aluminum borohydride *or* Aluminum borohydride in devices.	4.2	UN2870	I	SPONTANEOUSLY COMBUSTIBLE, DANGEROUS WHEN WET.	B11	None	181	244	Forbidden	Forbidden	1	5	
	Aluminum bromide, anhydrous	8	UN1725	II	CORROSIVE		154	212	240	15 kg	50 kg	1,2	1,2	40

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Aluminum bromide, solution	8	UN2580	III	CORROSIVE	T8	154	203	241	5 L	60 L	1,2	1,2	
	Aluminum carbide	4.3	UN1394	II	DANGEROUS WHEN WET.	A20, N34, N41.	None	212	242	15 kg	50 kg	1,3	1,3	
	Aluminum chloride, anhydrous	8	UN1726	II	CORROSIVE		154	212	240	15 kg	50 kg	1,2	1,2	40
	Aluminum chloride, solution	8	UN2581	III	CORROSIVE	T8	154	203	241	5 L	60 L	1,2	1,2	
	Aluminum dross, wet or hot	Forbidden												
	Aluminum ferrosilicon powder	4.3	UN1395	II	DANGEROUS WHEN WET, POISON.	A19	None	212	242	15 kg	50 kg	1,3	1,3	40
	Aluminum hydride	4.3	UN2463	I	DANGEROUS WHEN WET.	A19	None	211	242	Forbidden	15 kg	1,3	5	
	Aluminum nitrate	5.1	UN1438	III	KXIDIZER	A1, A29	152	213	240	25 kg	100 kg	1,2	1,2	
	Aluminum phosphate solution, see Corrosive liquids, n.o.s..													
	Aluminum phosphide	4.3	UN1397	I	DANGEROUS WHEN WET, POISON.	A19, N2	None	211	242	Forbidden	15 kg	1,3	5	40, 85
	Aluminum phosphide pesticides	6.1	UN3048	I	POISON	N2	None	211	242	Forbidden	15 kg	1,2	1,2	95
	Aluminum powder, coated, *not less than 20 per cent aluminum powder, particle size less than 250 microns.*	4.1	UN1309	II	FLAMMABLE SOLID.		151	212	240	15 kg	50 kg	1,3	1,3	13, 39
	Aluminum powder, uncoated	4.3	UN1396	II	DANGEROUS WHEN WET.	A19, A20	None	212	240	15 kg	50 kg	1,3	1,3	39
	Aluminum resinate	4.1	UN2715	III	FLAMMABLE SOLID.		151	213	240	25 kg	100 kg	1,3	1,3	
	Aluminum silicon powder, uncoated	4.3	UN1398	III	DANGEROUS WHEN WET.	A1, A19	None	213	241	25 kg	100 kg	1,3	1,3	40
	Amatols, see Explosives, blasting, type B													
	2-Amino-4-chlorophenol	6.1	UN2673	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	2-Amino-5-diethylaminopentane	6.1	UN2946	III	KEEP AWAY FROM FOOD.	T1	153	203	240	60 L	220 L	1,2	1,2	34
	2-(2-Aminoethoxy) ethanol	8	UN3055	III	CORROSIVE	T2	154	203	241	5 L	60 L	1,2	1,2	
	N-Aminoethylpiperazine	8	UN2815	III	CORROSIVE	T7	154	203	241	5 L	60 L	1,3	1,3	12
	Aminophenols (*o-,m-,p-*)	6.1	UN2512	III	KEEP AWAY FROM FOOD.	T1	153	213	240	100 kg	200 kg	1,2	1,2	34
	Aminopropyldiethanolamine, see Alkylamines, n.o.s..													
	n-Aminopropylmorpholine, see Alkylamines, n.o.s..													
	Aminopyridines (*o-,m-,p-*)	6.1	UN2671	II	POISON	T7	None	212	242	25 kg	100 kg	1,3	1	12, 40, 95
	Ammonia, anhydrous, liquefied	2.3	UN1005	III	POISON GAS	10	None	304	314, 315	Forbidden	Forbidden	1.2	5	40, 57
	Ammonia solutions, *density (specific gravity) between 0.880 and 0.957 at 15 degrees C in water, with more than 10 per cent but not more than 35 percent ammonia.*	8	UN2672	III	CORROSIVE	T14	154	203	241	5 L	60 L	1,2	1,2	40, 85

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Ammonia solutions, *density (specific gravity) less than 0.880 at 15 degrees C in water, with more than 50 percent ammonia.*	2.2	UN1005		NONFLAMMABLE GAS.	B13	306	304	314, 315	Forbidden	25 kg	1,3	5	40, 57, 85, 95
	Ammonia solutions, *density (specific gravity) less than 0.880 at 15 degrees C in water, with more than 35 per cent but not more than 50 per cent ammonia.*	2.2	UN2073		NONFLAMMABLE GAS.		306	304	314, 315	Forbidden	150 kg	1,3	5	40, 57, 85
	Ammonium arsenate	6.1	UN1546	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	27, 95
	Ammonium azide	Forbidden												
	Ammonium bifluoride, solid, see Ammonium hydrogen fluoride, solid.													
	Ammonium bifluoride solution, see Ammonium hydrogen fluoride, solution.													
	Ammonium bromate	Forbidden												
	Ammonium chlorate	Forbidden												
	Ammonium dichromate (*ammonium bichromate*) *solid.*	5.1	UN1439	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,2	1,2	34
D	Ammonium dichromate (*ammonium bichromate*) *solution.*	5.1	UN1439	II	OXIDIZER		152	202	241	5 L	60 L	1,2	1,2	
	Ammonium dinitro-o-cresolate	6.1	UN1843	II	POISON	T8	None	212	242	25 kg	100 kg	1,2	1	36, 65, 66, 77
	Ammonium fluoride	6.1	UN2505	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	26, 34
	Ammonium fluorosilicate	6.1	UN2854	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	26, 34
	Ammonium fulminate	Forbidden												
	Ammonium hydrogen fluoride, solid	8	UN1727	II	CORROSIVE	N34	154	212	240	15 kg	50 kg	1,2	1,2	26, 40
	Ammonium hydrogen fluoride, solution	8	UN2817	II	CORROSIVE, POISON.	N34, T15	None	202	243	1 L	30 L	1,2	1,2	40
	Ammonium hydrogen sulfate	8	UN2506	II	CORROSIVE		154	212	240	15 kg	50 kg	1,2	1,2	27, 40
	Ammonium hydrosulfide, solution, see Ammonium sulfide solution.													
D	Ammonium hydroxide, *see* Ammonia solutions, *etc.*.													
	Ammonium metavanadate	6.1	UN2859	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Ammonium nitrate fertilizers, n.o.s.	5.1	UN2072	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,3	1,3	31, 48, 59, 60
	Ammonium nitrate fertilizers: *uniform nonsegregating mixtures of ammonium nitrate/ ammonium sulfate, with more than 45 per cent but not more than 70 per cent ammonium nitrate and not more than 0.4 per cent of total combustible material.*	5.1	UN2069	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	1,3	1,3	31, 48, 59, 60

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Ammonium nitrate fertilizers: *uniform non-segregating mixtures of ammonium nitrate with added matter which is inorganic and chemically inert towards ammonium nitrite, with not less than 90 per cent ammonium nitrate and not more than 0.2 per cent combustible material (including organic material calculated as carbon), or with more than 70 per cent but less than 90 per cent ammonium nitrate and not more than 0.4 per cent total combustible material.*	5.1	UN2067	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	1,3	1,3	31, 48, 59, 60
	Ammonium nitrate fertilizers: *uniform non-segregating mixtures of ammonium nitrate with calcium carbonate and/or dolomite, with more than 80 per cent but less than 90 per cent ammonium nitrate and not more than 0.4 per cent total combustible material.*	5.1	UN2068	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	1,3	1,3	31, 48, 59, 60
	Ammonium nitrate fertilizers: *ujifkrm non-segregating mixtures of nitrogen/phosphate or nitrogen/potash types or complete fertilizers of nitrogen/phosphate/potash type(with more than 70 per cent but less than 90 per cent ammonium nitrate and not more than 0.4 per cent total combustible material.*	5.1	UN2070	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	1,3	1,3	31, 48, 59, 60
AW	Ammonium nitrate fertilizers: *ujiform non-segregating mixtures of nitrogej/phosphate or jitrogen/potash types or complete fertilizers of nitrogen/ phosphate/ potash type, with not more than 70 per cent ammonium nitrate and not more than 0.4 per cent total added combustible material or with not more than 45 per cent ammonium nitrate with unrestricted combustible material.*	9	UN2071	III	CLASS 9		155	213	240	200 kg	200 kg	1,2	1,2	
D	Ammonium nitrate fertilizers *with not more than 0.2 percent carbon; which meet the definition in the Fertilizer Institute publication 'Definition and Test Procedures for Ammonium Nitrate Fertilizer', dated May 8, 1971.*	5.1	NA1942	III	KXIDIZER	A1, A29	152	213	240	25 kg	100 kg	1,3	1,3	31, 48, 60
	Ammonium nitrate fertilizer: *which is more liable to explode than ammonium nitrate with 0.2 per cent combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance.*	1:1D	UN0223											

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Ammonium nitrate, liquid (*hot concentrated solution*).	5.1	UN2426	II	OXIDIZER	B5, B17, T25.	None	None	243	Forbidden	Forbidden	5	5	
	Ammonium nitrate, *with more than 0.2 per cent combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance.*	1.1D	UN0222											
	Ammonium nitrate, *with not more than 0.2 per cent combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance.*	5.1	UN1942	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	1,3	1,3	31, 48, 59, 60
	Ammonium nitrite	Forbidden												
	Ammonium perchlorate	5.1	UN1442	II	OXIDIZER	N13, N34	152	212	240	5 kg	25 kg	1,2	5	46
	Ammonium perchlorate	1.1D	UN0402											
	Ammonium permanganate, see Permanganates, inorganic, n.o.s.													
	Ammonium persulfate	5.1	UN1444	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	1,2	1,2	
	Ammonium picrate, *dry or wetted with less than 10 per cent water, by weight.*	1.1D	UN0004											
	Ammonium picrate, wetted *with not less than 10 per cent water, by weight.*	4.1	UN1310	I	FLAMMABLE SOLID.	A2, N15, N34, N41.	None	211	None	0.5 kg	0.5 kg	1	5	36
	Ammonium polysulfide, solution	8	UN2818	II	CORROSIVE, POISON.	T14	None	202	243	1 L	30 L	1,3	1	12, 26, 40
	Ammonium polyvanadate	6.1	UN2861	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Ammonium silicofluoride, see Ammonium fluorosilicate.													
	Ammonium sulfide solution	8	UN2683	II	CORROSIVE, POISON, FLAMMABLE LIQUID.	T14	None	202	243	1 L	30 L	1,3	1	12, 22, 49
	Ammunition, blank, see Cartridges for weapons, blank.													
	Ammunition, illuminating *with or without burster, expelling charge or propelling charge.*	1.2G	UN0171											
	Ammunition, illuminating *with or without burster, expelling charge or propelling charge.*	1.3G	UN0254											
	Ammunition, illuminating *with or without burster, expelling charge or propelling charge.*	1.4G	UN0297											
	Ammunition, incendiary *liquid or gel, with burster, expelling charge or propelling charge.*	1.3J	UN0247											

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Ammunition, incendiary (*other than water-activated ammunition*), *without white phosphorus or phosphides, with or without burster, expelling charge or propelling charge.*	1.2G	UN0009											
	Ammunition, incendiary (*other than water-activated ammunition*), *without white phosphorus or phosphides, with or without burster, expelling charge or propelling charge.*	1.3G	UN0010											
	Ammunition, incendiary (*other than water-activated ammunition*), *without white phosphorus or phosphides, with or without burster, expelling charge or propelling charge.*	1.4G	UN0300											
	Ammunition, incendiary (water-activated contrivances) with burster, expelling charge or propelling charge, see Contrivances, water-activated, etc..	.....	.....											
	Ammunition, incendiary, white phosphorus, *with burster, expelling charge or propelling charge.*	1.2H	UN0243											
	Ammunition, incendiary, white phosphorus, *with burster, expelling charge or propelling charge.*	1.3H	UN0244											
	Ammunition, practice	1.4G	UN0362											
	Ammunition, proof	1.4G	UN0363											
	Ammunition, rocket, see Warheads, rocket *etc.*.	.....	.....											
	Ammunition, SA (small arms), see Cartridges for weapons, *etc.*.	.....	.....											
	Ammunition, smoke (*other than water-activated ammunition*), *without white phosphorus or phosphides, with or without burster, expelling charge or propelling charge.*	1.3G	UN0016											
	Ammunition, smoke (*other than water-activated ammunition*), *without white phosphorus or phosphides, with or without burster, expelling charge or propelling charge.*	1.4G	UN0303											
	Ammunition, smoke (*other than water-activated ammunition*), *without white phosphorus or phosphides with or without burster, expelling charge or propelling charge.*	1.2G	UN0015											

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Ammunition, smoke (water-activated contrivances), white phosphorus, with burster, expelling charge or propelling charge, see Contrivances, water-activated, *etc. (UN 0248).*													
	Ammunition, smoke (water-activated contrivances), without white phosphorus or phosphides, with burster, expelling charge or propelling charge, see Contrivances, water-activated, *etc. (UN 0249).*													
	Ammunition, smoke, white phosphorus *(other than water-activated ammunition), with burster, expelling charge or propelling charge.*	1.3H	UN0246											
	Ammunition smoke, white phosphorus *(other than water-activated ammunition), with burster, expelling charge or propelling charge.*	1.2H	UN0245											
	Ammunition, sporting, see Cartridges for weapons, *etc. (UN 0012; 0328; 0339).*													
	Ammunition, tear-producing, non-explosive, *without burster or expelling charge, non-fuzed.*	6.1	UN2017	II	POISON, CORROSIVE.		None	212	None	Forbidden	50 kg	1,2	5	13, 20, 40, 95
	Ammunition, tear-producing *with burster, expelling charge or propelling charge.*	1.2G	UN0018											
	Ammunition, tear-producing *with burster, expelling charge or propelling charge.*	1.3G	UN0019											
	Ammunition, tear-producing *with burster, expelling charge or propelling charge.*	1.4G	UN0301											
	Ammunition, toxic, nonexplosive, *without burster or expelling charge, non-fuzed.*	6.1	UN2016	II	POISON		None	212	None	Forbidden	100 kg	1,2	5	13, 40, 95
	Ammunition, toxic *(other than water-activated ammunition), with burster, expelling charge or propelling charge.*	1.2K	UN0020											
	Ammunition, toxic *(other than water-activated ammunition), with burster, expelling charge or propelling charge.*	1.3K	UN0021											
	Ammunition, toxic (water-activated contrivances), with burster, expelling charge or propelling charge, see Contrivances, water-activated, *etc..*													
	Amorces, see Caps, toy													
	Amyl acetates	3	UN1104	III	FLAMMABLE LIQUID.	T1	150	203	241	60 L	220 L	1,3	1	
	Amyl acid phosphate	8	UN2819	III	CORROSIVE	T7	154	203	241	5 L	60 L	1,2	1,2	
	Amyl alcohols	3	UN1105	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B2, T1	150	203	242	60 L	220 L	1,3	1,3	

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Amylamine	3	UN1106	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Amyl butyrates	3	UN2620	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Amyl chloride	3	UN1107	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	n-Amylene	3	UN1108	I	FLAMMABLE LIQUID.	T14	150	201	243	1 L	30 L	1,3	5	12
	Amyl formates	3	UN1109	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	tert - Amyl hydroperoxide *not more than 88% in solution with not less than 6% water.*	5.2	UN3067	I	ORGANIC PEROXIDE.		None	225	None	1 L	5 L	1	5	
	Amyl mercaptan	3	UN1111	II	FLAMMABLE LIQUID.	N1, N15, T8.	None	202	242	5 L	60 L	1,3	1	
	Amyl methyl ketone	3	UN1110	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Amyl nitrate	3	UN1112	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Amyl nitrite	3	UN1113	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	5	12, 40
	tert-Amylperoxybenzoate, *not more than 92 per cent in solution.*	5.2	UN3044	II	ORGANIC PEROXIDE.		None	225	None	5 L	10 L	1	5	12, 40
	tert-Amyl peroxy-2-ethylhexanoate, *technically pure.*	5.2	UN2898	II	ORGANIC PEROXIDE.		152	225	None	Forbidden	Forbidden	1	5	2, 40
	tert-Amyl peroxyneodecanoate, *not more than 75 per cent with phlegmatiser.*	5.2	UN2891	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	tert-Amyl peroxypivalate, *not more than 77 per cent in solution.*	5.2	UN2957	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Amyltrichlorosilane	8	UN1728	II	CORROSIVE	B2, B6, N16, N26, N34, T8, T26.	None	202	242	Forbidden	30 L	1	1	40, 77
	Anhydrous hydrofluoric acid, see Hydrogen fluoride, anhydrous.													
	Aniline	6.1	UN1547	II	POISON	T8	None	202	243	5 L	60 L	1,2	1,2	26, 40, 44, 95
	Aniline hydrochloride	6.1	UN1548	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	27, 34
	Aniline oil, see Aniline													
	Anisidines *liquid*	6.1	UN2431	III	KEEP AWAY FROM FOOD.	T1	153	203	241	60 L	220 L	1,2	1,2	34
	Anisidines *solid*	6.1	UN2431	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Anisole	3	UN2222	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,2	1,2	
	Anisoyl chloride	8	UN1729	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	1	1	8, 13, 40

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Anti-freeze liquid, see Flammable liquids, n.o.s..													
	Antimonous chloride, see Antimony trichloride.													
	Antimony compounds, inorganic, n.o.s., *liquid.*	6.1	UN1549	I	POISON		None	201	243	1 L	30 L	1,2	1,2	95
				II	POISON		None	202	243	5 L	60 L	1,2	1,2	95
				III	KEEP AWAY FROM FOOD.		153	203	240	60 L	220 L	1,2	1,2	34
	Antimony compounds, inorganic, n.o.s., *solid.*	6.1	UN1549	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	95
				II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Antimony lactate	6.1	UN1550	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Antimony pentachloride, liquid	8	UN1730	II	CORROSIVE	B2, T8, T26.	None	202	242	1 L	30 L	1	1	8, 13, 40
	Antimony pentachloride, solution	8	UN1731	II	CORROSIVE	B2, T8, T27.	154	202	242	1 L	30 L	1	1	8, 40
	Antimony pentafluoride	8	UN1732	II	CORROSIVE, POISON.	N1, N3, N11, N16, N26, N35, T12, T26.	None	202	243	Forbidden	30 L	1	5	40
	Antimony potassium tartrate	6.1	UN1551	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Antimony powder	6.1	UN2871	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Antimony sulfide and a chlorate, mixtures of.	Forbidden												
	Antimony sulfide, solid, see Antimony compounds, inorganic, n.o.s..													
D	Antimony tribromide, solid	8	NA1549	II	CORROSIVE		154	212	240	25 kg	100 kg	1,2	1,2	
D	Antimony tribromide, solution	8	NA1549	II	CORROSIVE	B2	154	202	242	1 L	30 L	1	1	
	Antimony trichloride, *liquid*	8	UN1733	II	CORROSIVE	B2	154	202	242	1 L	30 L	1	1	
	Antimony trichloride, *solid*	8	UN1733	II	CORROSIVE		154	212	240	15 kg	50 kg	1,2	1,2	40
D	Antimony trifluoride, solid	8	NA1549	II	CORROSIVE		154	212	240	25 kg	25 kg	1,2	1,2	
D	Antimony trifluoride solution	8	NA1549	II	CORROSIVE	B2	154	202	242	1 L	30 L	1	1	
	Aqua ammonia, see Ammonia solution, *etc.*													
	Argon, compressed	2.2	UN1006		NONFLAMMABLE GAS.		306	302	314, 315	75 kg	150 kg	1,3	1,3	85
	Argon, refrigerated liquid (*cryogenic liquid*)	2.2	UN1951		NONFLAMMABLE GAS.		320	316	318	50 kg	500 kg	1,3	1	85
	Arsenic	6.1	UN1558	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Arsenic acid, liquid	6.1	UN1553	I	POISON	T18, T27	None	201	243	1 L	30 L	1,2	1,2	95
	Arsenic acid, solid	6.1	UN1554	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Arsenical dust	6.1	UN1562	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Arsenical pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23 degrees C.*	3	UN2760	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	1,3	5	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	1,3	1	
	Arsenical pesticides, liquid, toxic, flammable, n.o.s., *flash point not less than 23 degrees C.*	6.1	UN2993	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	1	1	21, 95
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	1,2	1	21, 95
				III	KEEP AWAY FROM FOOD.	B1, T14	153	203	241	60 L	220 L	1,2	1,2	21, 34
	Arsenical pesticides, liquid, toxic, n.o.s.	6.1	UN2994	I	POISON	T42	None	201	243	1 L	30 L	1	1	95
				II	POISON	T14	None	202	243	5 L	60 L	1,2	1	95
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	1,2	1,2	34
	Arsenical pesticides, solid, toxic, n.o.s.	6.1	UN2759	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	95
				II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Arsenic bromide	6.1	UN1555	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	12, 40, 95
	Arsenic chloride, see Arsenic trichloride													
	Arsenic compounds, liquid, n.o.s., *including: Arsenates, n.o.s; Arsenites, n.o.s.; Arsenic sulfides, n.o.s.; Organic compounds of arsenic, n.o.s.; and Arsenic mixtures, n.o.s.*	6.1	UN1556	I	POISON		None	201	243	1 L	30 L	1,2	1	40, 95
				II	POISON		None	202	243	5 L	60 L	1,2	1	40, 95
				III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,2	1	34, 40
	Arsenic compounds, solid, n.o.s., *including. Arsenates, n.o.s.; Arsenites, n.o.s.; Arsenic sulfides, n.o.s.; Organic compounds of arsenic, n.o.s.; and Arsenic mixtures, n.o.s.*	6.1	UN1557	I	POISON		None	211	242	5 kg	50 kg	1,2	1	95
				II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Arsenic pentoxide	6.1	UN1559	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
D	Arsenic sulfide	6.1	NA1557	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Arsenic sulfide and a chlorate, mixtures of	Forbidden												
	Arsenic trichloride	6.1	UN1560	I	POISON	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1,2	1,2	40, 95
	Arsenic trioxide	6.1	UN1561	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
D	Arsenic trisulfide	6.1	NA1557	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Arsenic, white, solid, see Arsenic trioxide													

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Arsenious acid, solid, see Arsenic trioxide													
	Arsenious and mercuric iodide solution, see Arsenic compounds, liquid, n.o.s.													
	Arsine	2.3	UN2188	I	POISON GAS, FLAMMABLE GAS.	10	None	192	245	Forbidden	Forbidden	1	5	40, 95
	Articles, explosive, n.o.s.	1.4S	UN0349											
	Articles, explosive, n.o.s.	1.4B	UN0350											
	Articles, explosive, n.o.s.	1.4C	UN0351											
	Articles, explosive, n.o.s.	1.4D	UN0352											
	Articles, explosive, n.o.s.	1.4G	UN0353											
	Articles, explosive, n.o.s.	1.1L	UN0354											
	Articles, explosive, n.o.s.	1.2L	UN0355											
	Articles, explosive, n.o.s.	1.3L	UN0356											
	Articles, pyrophoric	1.2L	UN0380											
	Articles, pyrotechnic *for technical purposes*	1.1G	UN0428											
	Articles, pyrotechnic *for technical purposes*	1.2G	UN0429											
	Articles, pyrotechnic *for technical purposes*	1.3G	UN0430											
	Articles, pyrotechnic *for technical purposes*	1.4G	UN0431											
	Articles, pyrotechnic *for technical purposes*	1.4S	UN0432											
	Asbestos, blue—(*crocidolite*) *or* brown *amosite, mysorite*).	9	UN2212	II	CLASS 9		155	216	240	Forbidden	Forbidden	1,2	1,2	
	Asbestos, white (*chrysolite, actinolite, anthophyllite, tremolite*).	9	UN2590	III	CLASS 9		155	216	240	200 kg	200 kg	1,2	1,2	
	Ascaridole (*organic peroxide*)	Forbidden												
D	Asphalt, *at or above its flashpoint*	3	NA1999	III	None		150	203	242	Forbidden	Forbidden	1	5	
D	Asphalt, cut back, *see* Tars, liquid, *etc.*													
	Auto alarms, see Alarm devices, explosive													
	Automobile, motorcycle, tractor, or other self-propelled vehicle, engine, or other mechanical apparatus. See Vehicles, self-propelled.													
	Azaurolic acid (*salt of*) (*dry*)	Forbidden												
	Azidodithiocarbonic acid	Forbidden												
	Azidoethyl nitrate	Forbidden												
	Azido guanidine picrate (*dry*)	Forbidden												
	5-Azido-1-hydroxy tetrazole	Forbidden												
	Azido hydroxy tetrazole (*mercury and silver salts*).	Forbidden												
	3-Azido-1,2-Propylene glycol dinitrate	Forbidden												
D	Azinphos methyl *liquid*	6.1	NA2783	II	POISON		None	202	243	1 L	30 L	1,2	1,2	
D	Azinphos methyl *solid*	6.1	NA2783	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	1-Aziridinyl phosphine oxide-(tris), see Tri-(1-aziridinyl) phosphine oxide, solution.													
	2,2'-Azodi-(2,4-dimethyl-4-methoxyvaleronitrile).	4.1	UN2955	II	FLAMMABLE SOLID.		None	214	None	Forbidden	Forbidden	1	5	2
	2,2'-Azodi-(2,4 dimethylvaleronitrile)	4.1	UN2953	II	FLAMMABLE SOLID.		None	214	None	Forbidden	Forbidden	1	5	2
	1,1'-Azodi-(hexahydrobenzonitrile)	4.1	UN2954	II	FLAMMABLE SOLID.		None	214	None	15 kg	50 kg	1,3	5	25
	Azodiisobutyronitrile	4.1	UN2952	II	FLAMMABLE SOLID.		None	214	None	Forbidden	Forbidden	1	5	2
	2,2'-Azodi (2-methyl-butyronitrile)	4.1	UN3030	II	FLAMMABLE SOLID.		None	214	None	Forbidden	Forbidden	1	5	2, 52, 53
	Azotetrazole (dry)	Forbidden												
	Bags, having contained sodium nitrate, empty, unwashed.	4.1	UN1359	III	FLAMMABLE SOLID.		None	204	246	Forbidden	100 kg	1,3	5	
	Barium	4.3	UN1400	II	DANGEROUS WHEN WET.	A19	None	212	241	15 kg	50 kg	1,3	5	
	Barium alloys	4.3	UN1399	II	DANGEROUS WHEN WET.	A19	None	212	241	15 kg	50 kg	1,3	5	
	Barium alloys, pyrophoric	4.2	UN1854	II	SPONTANEOUSLY COMBUSTIBLE.		None	181	None	Forbidden	Forbidden	1	5	
	Barium azide, *dry or wetted with less than 50 per cent water, by weight.*	1.1A	UN0224											
	Barium azide, wetted *with not less than 50 per cent water, by weight.*	4.1	UN1571	I	FLAMMABLE SOLID, POISON.	A2	None	182	None	Forbidden	0.5 kg	1	5	36
	Barium bromate	5.1	UN2719	II	OXIDIZER, POISON.		None	212	242	5 kg	25 kg	1,2	1,2	34, 46, 56
	Barium chlorate	5.1	UN1445	II	OXIDIZER, POISON.	N13, N34, T8.	None	212	242	5 kg	25 kg	1,2	1,2	46, 56, 95
	Barium compounds, n.o.s., *except Barium sulfate.*	6.1	UN1564	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	95
				II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Barium cyanide	6.1	UN1565	I	POISON	N74, N75	None	211	242	5 kg	50 kg	1,2	1,2	26, 40, 95
	Barium hypochlorite *with more than 22 per cent available chlorine.*	5.1	UN2741	II	OXIDIZER	N13, N26, N34.	152	212	None	5 kg	25 kg	1,2	1,2	34
	Barium nitrate	5.1	UN1446	II	OXIDIZER, POISON.		None	212	242	5 kg	25 kg	1,2	1,2	95
	Barium oxide	6.1	UN1884	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Barium perchlorate	5.1	UN1447	II	OXIDIZER, POISON.	T8	None	212	242	5 kg	25 kg	1,2	1,2	46, 95

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
					Poison.									
	Barium permanganate	5.1	UN1448	II	OXIDIZER, POISON.		None	212	242	5 kg	25 kg	1,2	1,2	56, 69, 95
	Barium peroxide	5.1	UN1449	II	OXIDIZER, POISON.		None	212	2	5 kg	25 kg	1,2	1,2	13, 95
	Barium selenate, *see* Selenates *or* Selenites.													
	Barium selenite, *see* Selenates *or* Selenites.													
	Batteries, dry, containing potassium hydroxide solid, *electric, storage.*	8	UN3028	III	CORROSIVE		159	159	None	25 kg gross.	230 kg gross.	1,2	1,2	
	Batteries, wet, filled with acid, *electric storage.*	8	UN2794	III	CORROSIVE		159	159	None	25 kg gross.	No limit	1,2	1,2	
	Batteries, wet, filled with alkali, *electric storage.*	8	UN2795	III	CORROSIVE		159	159	None	25 kg gross.	No limit	1,2	1,2	
AW	Batteries, wet, non-spillable, *electric storage.*	8	UN2800	III	CORROSIVE		159	159	None	No Limit	No Limit	1,2	1,2	
	Battery fluid, acid	8	UN2796	II	CORROSIVE	B2, B15, N1, N6, N26, N34, T9, T27.	154	202	242	1 L	30 L	1,2	1	33
	Battery fluid, alkali	8	UN2797	II	CORROSIVE	B2, N6, T8.	154	202	242	1 L	30 L	1,2	1,2	
	Battery lithium type, see Lithium batteries													
	Benzene	3	UN1114	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	40
	Benzene diazonium chloride (dry)	Forbidden												
	Benzene diazonium nitrate (dry)	Forbidden												
	Benzene-1,3-disulfohydrazide, *not more than 52 per cent as a paste.*	4.1	UN2971	II	FLAMMABLE SOLID.		None	214	None	15 kg	50 kg	1,3	1,3	12, 25, 48, 52, 53, 85
	Benzene phosphorus dichloride, see Phenyl phosphorus dichloride.													
	Benzene phosphorus thiodichloride, see Phenyl phosphorus thiodichloride.													
	Benzene sulfohydrazide	4.1	UN2970	II	FLAMMABLE SOLID.		None	214	None	15 kg	50 kg	1,3	1,3	12, 25, 48, 52, 53, 85
	Benzene sulfonyl chloride	8	UN2225	III	CORROSIVE	T8	154	203	241	5 L	60 L	1,2	1,2	40
	Benzenethiol, see Phenyl mercaptan													
	Benzene triozonide	Forbidden												
	Benzidine	6.1	UN1885	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Benzoic derivative pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23 degrees C.*	3	UN2770	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	1,3	5	

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	1,3	1	
	Benzoic derivative pesticides, liquid, toxic, flammable, n.o.s., *flash point not less than 23 degrees C.*	6.1	UN3003	I	POISON	T42	None	201	243	1 L	30 L	1	1	21, 40, 95
				II	POISON	T18	None	202	243	5 L	60 L	1,2	1	21, 40, 95
				III	KEEP AWAY FROM FOOD.	T18	153	203	241	60 L	220 L	1,2	1,2	21, 34, 40
	Benzoic derivative pesticides, liquid, toxic, n.o.s..	6.1	UN3004	I	POISON	T42	None	201	243	1 L	30 L	1	1	40, 95
				II	POISON	T14	None	202	243	5 L	60 L	1,2	1	40, 95
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	1,2	1,2	40, 34
	Benzoic derivative pesticides, solid, toxic, n.o.s..	6.1	UN2769	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	40, 95
				II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	40, 95
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34, 40
	Benzol, see Benzene													
	Benzonitrile	6.1	UN2224	II	POISON	T14	None	202	243	5 L	60 L	1,2	1,2	26, 40, 95
	Benzoquinone	6.1	UN2587	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Benzotrichloride	8	UN2226	II	CORROSIVE	B2, T15	154	202	242	1 L	30 L	1,2	1,2	40
	Benzotrifluoride	3	UN2338	II	FLAMMABLE LIQUID.	T2	150	202	242	5 L	60 L	1,3	1	40
	Benzoxidiazoles (dry)	Forbidden												
	Benzoyl azide	Forbidden												
	Benzoyl chloride	8	UN1736	II	CORROSIVE	B2, T9, T26.	154	202	242	1 L	30 L	1	1	8, 40
	Benzoyl peroxide, see Dibenzoyl peroxide, *etc.*.													
	Benzyl bromide	6.1	UN1737	II	POISON, CORROSIVE.	N1, N26, N33, N34, T12, T26.	None	202	243	1 L	30 L	1	5	40
	Benzyl chloride *stabilized*	6.1	UN1738	II	POISON, CORROSIVE.	B41, N1, N26, N33, T12, T26.	None	202	243	1 L	30 L	1	5	13, 20, 40, 95

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Benzyl chloride *unstabilized*	6.1	UN1738	II	POISON, CORROSIVE.	B8, B11, N1, N26, N33, N34, T12, T26.	None	202	243	1 L	30 L	1	5	13, 20
	Benzyl chloroformate	8	UN1739	I	CORROSIVE	B4, N1, N11, N34, N41, T18, T26.	None	201	242	Forbidden	2.5 L	1	5	40
	Benzyl dimethylamine	8	UN2619	II	CORROSIVE	B2, T1	154	202	242	1 L	30 L	1,3	1,3	21, 40, 48
	4-(Benzyl(ethyl)amino)-3-ethoxybenzenediazonium zinc chloride.	4.1	UN3037	II	FLAMMABLE SOLID.		None	214	None	Forbidden	Forbidden	1	5	2
	Benzylidene chloride	6.1	UN1886	II	POISON	T8	None	202	243	5 L	60 L	1	5	40, 95
	Benzyl iodide	6.1	UN2653	II	POISON	T8	None	202	243	5 L	60 L	1,3	1	12, 40, 95
	4-(Benzyl(methyl)amino)3-ethoxybenzenediazonium zinc chloride.	4.1	UN3038	II	FLAMMABLE SOLID.		None	214	None	Forbidden	Forbidden	1	5	2
	Beryllium compounds, n.o.s.	6.1	UN1566	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Beryllium nitrate	5.1	UN2464	II	OXIDIZER, POISON.		None	212	242	5 kg	25 kg	1,3	1,3	12, 48, 95
	Beryllium, powder	6.1	UN1567	II	POISON, FLAMMABLE SOLID.		None	212	242	15 kg	50 kg	1,2	1,2	24, 95
	Bifluorides, n.o.s., *solid*	8	UN1740	II	CORROSIVE	N3, N34	None	212	240	15 kg	50 kg	1,2	1,2	25, 26, 40
	Bifluorides, n.o.s., *solution*	8	UN1740	II	CORROSIVE	N3, N34	None	202	243	1 L	30 L	1,2	1,2	25, 26, 40
	Biphenyl triozonide	Forbidden												
	Bipyridilium pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23 degrees C.*	3	UN2782	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	1,3	5	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	1,3	1	
	Bipyridilium pesticides, liquid, toxic, flammable, n.o.s., *flash point not less than 23 degrees C.*	6.1	UN3015	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	1	1	21, 40, 95
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	1,3	1	21, 40, 95
				III	KEEP AWAY FROM FOOD.	B1, T14	153	203	242	60 L	220 L	1,3	1,3	21, 34, 40
	Bipyridilium pesticides, liquid, toxic, n.o.s.	6.1	UN3016	I	POISON	T42	None	201	243	1 L	30 L	1	1	40, 95
				II	POISON	T14	None	202	243	5 L	60 L	1,2	1	40, 95

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	.....	.....	.....	III	KEEP AWAY FROM FOOD.	T14.....	153	203	241	60 L.....	220 L.....	1,2.....	1,2.....	34, 40
	Bipyridilium pesticides, solid, toxic, n.o.s.....	6.1	UN2781	I	POISON.....	.....	None	211	242	5 kg.....	50 kg.....	1,2.....	1,2.....	40, 95
	.....	.....	.....	II	POISON.....	.....	None	212	242	25 kg.....	100 kg.....	1,2.....	1,2.....	40, 95
	.....	.....	.....	III	KEEP AWAY FROM FOOD.	.....	153	213	240	100 kg.....	200 kg.....	1,2.....	1,2.....	34, 40
	bis (Aminopropyl) piperazine, see Corrosive liquid, n.o.s..	.....	.....											
	Bisulfites, inorganic, aqueous solutions, n.o.s..	8	UN2693	III	CORROSIVE.....	T8.....	154	203	241	5 L.....	60 L.....	1,2.....	1,2.....	8, 40, 49
	Black powder (Gunpowder), compressed *or* Black powder (Gunpowder), in pellets.	1.1D	UN0028											
	Black powder (Gunpowder), *granular or as a meal.*	1.1D	UN0027											
	Blasting agent, n.o.s., see Explosives, blasting.	.....	.....											
	Blasting cap assemblies, see Detonator assemblies, non-electric, *for blasting.*	.....	.....											
	Blasting caps, electric, see Detonators, electric *for blasting.*	.....	.....											
	Blasting caps, non-electric, see Detonators, non-electric, *for blasting.*	.....	.....											
	Bleaching powder, see Calcium hypochlorite mixtures, *etc.*.	.....	.....											
	Bombs, photo-flash.....	1.1F	UN0037											
	Bombs, photo-flash.....	1.1D	UN0038											
	Bombs, photo-flash.....	1.2G	UN0039											
	Bombs, photo-flash.....	1.3G	UN0299											
	Bombs, smoke, non-explosive, *with corrosive liquid, without initiating device.*	8	UN2028	II	CORROSIVE.....	.....	None	160	None	Forbidden....	50 kg.....	1,2.....	5.....	40
	Bombs, *with bursting charge*.....	1.1F	UN0033											
	Bombs, *with bursting charge*.....	1.1D	UN0034											
	Bombs, *with bursting charge*.....	1.2D	UN0035											
	Bombs, *with bursting charge*.....	1.2F	UN0291											
	Bombs with flammable liquid, *with bursting charge.*	1.1J	UN0399											
	Bombs with flammable liquid, *with bursting charge.*	1.2J	UN0400											
	Boosters, with detonator.....	1.1B	UN0225											
	Boosters, with detonator.....	1.2B	UN0268											
	Boosters, *without detonator*.....	1.1D	UN0042											
	Boosters, *without detonator*.....	1.2D	UN0283											
	Borate and chlorate mixtures, see Chlorate and borate mixtures.	.....	.....											
	Borneol.....	4.1	UN1312	III	FLAMMABLE SOLID.	A1.....	.....	213	240	25 kg.....	100 kg.....	1,3.....	1,3.....	

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Boron tribromide	8	UN2692	I	CORROSIVE AND POISON	N1 N11 N26 N34 T18 T27	None	201	243	Forbidden	2 5 L	1	1	12 34
	Boron trichloride	2 3	UN1741	II	POISON GAS, CORROSIVE	10; B14 B33	None	304	244	Forbidden	Forbidden	1 3	5	25 34, 40 85
	Boron trifluoride	2 3	UN1008	II	POISON GAS	B14, B31 10	None	302	245	Forbidden	Forbidden	1	5	40 95
	Boron trifluoride acetic acid complex	8	UN1742	II	CORROSIVE	B2, B6, T9 T27	154	202	242	1 L	30 L	1 2	1 2	
	Boron trifluoride diethyl etherate	8	UN2604	I	CORROSIVE, FLAMMABLE LIQUID	A19, T8 T26	None	202	243	0 5 L	2 5 L	1	5	40
	Boron trifluoride dihydrate	8	UN2851	II	CORROSIVE	T9 T27	154	212	240	15 kg	50 kg	1 3	1	12 40
	Boron trifluoride dimethyl etherate	4 3	UN2965	II	DANGEROUS WHEN WET, CORROSIVE, FLAMMABLE LIQUID	A19, T8 T26	None	202	243	1 L	5 L	1	5	
	Boron trifluoride propionic acid complex	8	UN1743	II	CORROSIVE	B2, T9 T27	154	202	242	1 L	30 L	1 2	1 2	
	Box toe gum, see Nitrocellulose													
	Brake fluid *hydraulic*	3	UN1118	II	FLAMMABLE LIQUID	T7 T30	150	202	242	5 L	60 L	1 3	1	
				III	FLAMMABLE LIQUID	B1, T7 T30	150	203	242	60 L	220 L	1 3	1 3	
	Bromates inorganic n o s	5 1	UN1450	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1 2	1 2	46 56
	Bromine *or* Bromine solutions	8	UN1744	I	CORROSIVE POISON	10, B12 N1 N11 N34 T18 T41	None	227	249	Forbidden	Forbidden	1	5	12
	Bromine azide	Forbidden												
	Bromine chloride	2 3	UN2901	I	POISON GAS, CORROSIVE OXIDIZER	B12, B14, B31 10	None	304	244	Forbidden	Forbidden	1	5	31, 40 95
	Bromine pentafluoride	5 1	UN1745	I	OXIDIZER POISON, CORROSIVE	B14, B30 10	None	228	244	Forbidden	Forbidden	1	5	13 25, 40, 95
	Bromine trifluoride	5 1	UN1746	I	OXIDIZER POISON, CORROSIVE	B14, B32 10	None	228	244	Forbidden	Forbidden	1	5	13 25, 40 95
	Bromoacetic acid *solid*	8	UN1938	II	CORROSIVE	N26, N34 T9	154	212	240	15 kg	50 kg	1,2	1 2	
	Bromoacetic acid *solution*	8	UN1938	II	CORROSIVE	B2 T9	154	202	242	1 L	30 L	1 2	1 2	13

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173 ***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Bromoacetone	6.1	UN1569	I	POISON	B14, B30 10	None	193	244	Forbidden	Forbidden	1	5	21, 40 95
	Bromoacetyl bromide	8	UN2513	II	CORROSIVE	B2, T9 T26	154	202	242	1 L	30 L	1	1	8
	Bromobenzene	3	UN2514	III	FLAMMABLE LIQUID	B1 T1	150	203	242	60 L	220 L	1 3	1 3	
	Bromobenzyl cyanides *liquid*	6.1	UN1694	I	POISON	T18	None	201	243	Forbidden	30 L	1	5	12, 40 95
	Bromobenzyl cyanides *solid*	6.1	UN1694	I	POISON	T18	None	211	241	Forbidden	50 kg	1	5	12 40
	2 Bromobutane	3	UN2339	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	1 3	1	40
	Bromochloromethane	6.1	UN1887	III	KEEP AWAY FROM FOOD	T7	153	203	241	60 L	220 L	1,2	1 2	34
	4-Bromo-1 2-dinitrobenzene	Forbidden												
	2 Bromoethyl ethyl ether	3	UN2340	II	FLAMMABLE LIQUID	T7	150	202	242	5 L	60 L	1 3	1	
	Bromoform	6.1	UN2515	III	KEEP AWAY FROM FOOD	T7	153	203	241	60 L	220 L	1 3	1 3	12 34 40
	1-Bromo-3-methylbutane	3	UN2341	III	FLAMMABLE LIQUID	T7 T30	150	203	242	60 L	220 L	1 3	1 3	
	Bromomethylpropanes	3	UN2342	II	FLAMMABLE LIQUID.	T7 T30	150	202	242	5 L	60 L	1 3	1	
				III	FLAMMABLE LIQUID	B1, T7 T30.	150	203	242	60 L	220 L	1 3	1 3	
	1 Bromo-3-nitrobenzene (unstable at 56 deg C)	Forbidden												
	2 Bromopentane	3	UN2343	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	1 3	1	
	2 Bromopropane	3	UN2344	II	FLAMMABLE LIQUID	T7	150	202	242	5 L	60 L	1 3	1	40
	3 Bromopropyne	3	UN2345	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	1 3	1	40
	Bromosilane	Forbidden												
	Bromotoluene-alpha see Benzyl bromide													
	Bromotrifluoroethylene	2.1	UN2419		FLAMMABLE GAS.	B13	None	304	244	Forbidden	150 kg	1 3	5	40 85
	Bromotrifluoromethane (*R-13B1 or H-1301*)	2.1	UN1009		NONFLAMMABLE GAS		306	304	314, 315	75 kg	150 kg	1 3	1 3	85
	Brucine	6.1	UN1570	I	POISON		None	212	242	5 kg	50 kg	1 2	1,2	95
	Bursters *explosive*	1.1D	UN0043											
	Butadienes inhibited	2.1	UN1010		FLAMMABLE GAS		306	304	314, 315	Forbidden	150 kg	1 3	1	40 85
	Butane *or* Butane mixtures *see also* Petroleum gases liquefied	2.1	UN1011		FLAMMABLE GAS.		306	304	314, 315	Forbidden	150 kg	1 3	1	40 85
	Butane, butane mixtures and mixtures having similar properties in cartridges each not exceeding 500 grams, see Receptacles *etc*													

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							Exceptions	Non bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Butanedione	3	UN2346	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	1 3	1	
				III	FLAMMABLE LIQUID	B1 T1	150	203	242	60 L	220 L	1 3	1 3	
	1,2,4 Butanetriol trinitrate	Forbidden												
	Butanols	3	UN1120	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID	B1 T1	150	203	242	60 L	220 L	1 3	1 3	
	tert-Butoxycarbonyl azide	Forbidden												
	Butoxyl	3	UN2708	III	FLAMMABLE LIQUID	T1	150	203	241	60 L	220 L	1 3	1 3	
	Butyl acetates	3	UN1123	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	1 3	1	
				III	FLAMMABLE LIQUID	B1 T1	150	202	241	60 L	220 L	1 3	1 3	
	Butyl acid phosphate	8	UN1718	III	CORROSIVE	T7	154	203	241	5 L	60 L	1 2	1 2	
	Butylacrylate	3	UN2348	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	1 3	1 3	
				III	FLAMMABLE LIQUID	B1, T7 T30	150	202	241	60 L	220 L	1,3	1 3	
	Butyl alcohols, see Butanols													
	n Butylamine	3	UN1125	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	1 3	1	40
	N Butylaniline	6 1	UN2738	II	POISON	T8	None	202	243	5 L	60 L	1 2	1 2	40 95
	Butyl benzenes	3	UN2709	III	FLAMMABLE LIQUID	B1 T1	150	203	242	60 L	220 L	1 3	1 3	
	n Butyl bromide	3	UN1126	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	1 3	1	
	n-Butyl chloride, see Chlorobutanes													
	sec Butylchloroformate	6 1	NA2743	I	POISON CORROSIVE	B14, B32 10	None	227	244	Forbidden	Forbidden	1 3	1 3	12, 40 95
	n Butylchloroformate	6 1	UN2743	I	POISON CORROSIVE	10 T18	None	201	243	Forbidden	Forbidden	1 3	1 3	12, 13, 21 25 40 95
	tert Butyl cumyl peroxide *technically pure*	5 2	UN2091	II	ORGANIC PEROXIDE		152	225	None	5 L	10 L	1	5	12 40
	tert Butylcyclohexylchloroformate	6 1	UN2747	III	KEEP AWAY FROM FOOD	T8	153	203	241	60 L	220 L	1 3	1 3	12, 13, 25 34
	n Butyl 4,4-di (tertbutylperoxy) valerate *not more than 52 per cent with inert solid*	5 2	UN2141	II	ORGANIC PEROXIDE		None	225	None	5 kg	10 kg	1	5	12 40
	n Butyl 4 4 di (tertbutylperoxy) valerate *technically pure*	5 2	UN2140	II	ORGANIC PEROXIDE		152	225	None	5 L	10 L	1	5	12 40
	Butylene	2 1	UN1012		FLAMMABLE GAS		None	304	314, 315	Forbidden	150 kg	1 3	1	40, 85
	1 2 Butylene oxide stabilized	3	UN3022	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	1,3	1	
	Butyl ethers, see Dibutyl ethers													

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Butyl ethyl ether, see Ethyl butyl ether													
	n-Butyl formate	3	UN1128	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	tert-Butyl hydroperoxide, more than 90 per cent with water.	Forbidden												
	tert-Butyl hydroperoxide, *more than 72 per cent but not more than 90 per cent with water.*	5.2	UN2094	I	ORGANIC PEROXIDE.		None	225	None	1 L	5 L	1	5	12, 40
	tert-Butyl hydroperoxide, *not more than 80 per cent in di-tert-butyl peroxide, or* tert-Butyl hydroperoxide, *not more than 80 per cent in di-tert-butyl peroxide and solvent or* tert-Butyl hydroperoxide, *not more than 80 per cent in solvent.*	5.2	UN2092	I	ORGANIC PEROXIDE, FLAMMABLE LIQUID.		None	225	None	1 L	5 L	1	5	12, 40
	tert-Butyl hydroperoxide, *not more than 72 per cent with water.*	5.2	UN2093	I	ORGANIC PEROXIDE.	T9, T37	None	225	None	1 L	5 L	1	5	12, 40
	N,n-Butyl imidazole	6.1	UN2690	II	POISON	T8	None	202	243	5 L	60 L	1,2	1,2	40, 95
	tert-Butyl isocyanate	3	UN2484	I	FLAMMABLE LIQUID, POISON.	10, B14, B30, N26.	None	227	244	Forbidden	Forbidden	1	5	12, 40, 48
	n-Butyl isocyanate	3	UN2485	I	FLAMMABLE LIQUID, POISON.	10, B14, B30, N26.	None	227	244	Forbidden	Forbidden	1	5	12, 40, 48
	Butyl mercaptan	3	UN2347	II	FLAMMABLE LIQUID.	N1, N15, T8.	150	202	242	5 L	60 L	1,3	1	
	n-Butyl methacrylate	3	UN2227	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Butyl methyl ether	3	UN2350	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	tert-Butyl monoperoxymaleate, *not more than 55 per cent as a paste.*	5.2	UN2101	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40
	tert-Butyl monoperoxymaleate, *not more than 55 per cent in solution.*	5.2	UN2100	II	ORGANIC PEROXIDE.		152	225	None	5 L	10 L	1	5	12, 40
	tert-Butyl monoperoxymaleate, *technically pure.*	5.2	UN2099	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	tert-Butyl monoperoxyphthalate, *technically pure.*	5.2	UN2105	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40
	Butyl nitrites	3	UN2351	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	40
	tert-Butyl peroxyacetate, more than 76 per cent in solution.	Forbidden												
	tert-Butyl peroxyacetate, *not more than 76 per cent in solution.*	5.2	UN2095	II	ORGANIC PEROXIDE.		152	225	None	Forbidden	Forbidden	1	5	12, 40
	tert-Butyl peroxyacetate, *not more than 52 per cent in solution.*	5.2	UN2096	II	ORGANIC PEROXIDE.		152	225	None	5 L	10 L	1	5	12, 40
	tert-Butyl peroxybenzoate, *not more than 50 per cent with inert inorganic solid.*	5.2	UN2890	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40
	tert-Butyl peroxybenzoate, *not more than 75 per cent in solution.*	5.2	UN2098	II	ORGANIC PEROXIDE.		152	225	None	5 L	10 L	1	5	12, 40

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	tert-Butyl peroxybenzoate, *technically pure or* tert-Butyl peroxybenzoate, *more than 75 per cent in solution.*	5.2	UN2097	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	tert-Butyl peroxycrotonate, *not more than 76 per cent in solution.*	5.2	UN2183	II	ORGANIC PEROXIDE.		152	225	None	5 L	10 L	1	5	12, 40
	n-Butyl peroxydicarbonate, see Di-n-butyl peroxidicarbonate, *etc.*.													
	tert-Butyl peroxydiethylacetate, *not more than 33 per cent,* with tert-Butyl peroxybenzoate, *not more than 33 per cent, and solvent.*	5.2	UN2551	II	ORGANIC PEROXIDE.		152	225	None	5 L	10 L	1	5	12, 40
	tert-Butyl peroxydiethylacetate, *technically pure.*	5.2	UN2144	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	tert-Butyl peroxy-2-ethylhexanoate, *not more than 30 per cent* with 2,2-Di(tert-butyl-peroxy) butane, *not more than 35 per cent, with not less than 35 per cent phlegmatizer.*	5.2	UN2886	II	ORGANIC PEROXIDE.		152	225	None	Forbidden	Forbidden	1	5	2, 40
	tert-Butyl peroxy-2-ethylhexanoate, *not more than 50 per cent with phlegmatizer.*	5.2	UN2888	II	ORGANIC PEROXIDE.		152	225	None	Forbidden	Forbidden	1	5	2, 40
	tert-Butyl peroxy-2-ethylhexanoate, *not more than 12 per cent* with 2,2-Di-(tert-butyl-peroxy) butane, *not more than 14 per cent, with not less than 14 per cent phlegmatizer and 60 per cent inert organic solid.*	5.2	UN2887	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40
	tert-Butyl peroxy-2-ethylhexanoate, *technically pure.*	5.2	UN2143	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	tert-Butyl peroxyisobutyrate, *more than 52 per cent but not more than 77 per cent in solution.*	5.2	UN2142	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	tert-Butyl peroxyisobutyrate, more than 77 per cent in solution.	Forbidden												
	tert-Butyl peroxyisobutyrate, *not more than 52 per cent in solution.*	5.2	UN2562	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	tert-Butylperoxy isopropyl carbonate, *technically pure.*	5.2	UN2103	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	tert-Butyl peroxyneodecanoate, *not more than 77 per cent in solution.*	5.2	UN2177	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	tert-Butyl peroxyneodecanoate, *technically pure.*	5.2	UN2594	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	3-tert-Butylperoxy-3-phenylphthalide, *technically pure.*	5.2	UN2596	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40
	tert-Butyl peroxypivalate, *not more than 77 per cent in solution.*	5.2	UN2110	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	tert-Butyl peroxypivalate, *not more than 72 per cent in solution.*	5.2	UN3047	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	tert-Butylperoxy stearyl carbonate, *technically pure.*	5.2	UN3062	II	ORGANIC PEROXIDE.		None	225	None	5 kg	10 kg	1	5	

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	tert-Butyl peroxy-3,5,5-trimethylhexanoate, *technically pure.*	5.2	UN2104	II	ORGANIC PEROXIDE.		152	225	None	5 L	10 L	1	5	12, 40
	Butylphenols, liquid	6.1	UN2228	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	1,2	1,2	34
	Butylphenols, solid	6.1	UN2229	III	KEEP AWAY FROM FOOD.	T7, T38	153	213	240	100 kg	200 kg	1,2	1,2	34
	Butyl phosphoric acid, see Butyl acid phosphate.													
	Butylpropionate	3	UN1914	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1	
	Butyl toluenes	6.1	UN2667	III	KEEP AWAY FROM FOOD.	T2	153	203	241	60 L	220 L	1,2	1,2	22, 25, 34
	Butyltrichlorosilane	8	UN1747	II	CORROSIVE	B2, B6, N16, N26, N34, T8, T26.	None	202	242	Forbidden	30 L	1	1	21, 40, 77
	5-tert-Butyl-2,4,6-trinitro-m-xylene (Musk xylene).	4.1	UN2956	III	FLAMMABLE SOLID.		None	214	None	Forbidden	Forbidden	1	5	12, 25, 48
	Butyl vinyl ether, inhibited	3	UN2352	II	FLAMMABLE LIQUID.	T7	150	202	242	5 L	60 L	1,3	1	40
	1,4-Butynediol	6.1	UN2716	III	FLAMMABLE SOLID.	A1	None	213	240	100 kg	200 kg	1,2	1	52, 53, 67, 70
	Butyraldehyde	3	UN1129	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	Butyraldoxime	3	UN2840	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Butyric acid	8	UN2820	III	CORROSIVE	T1	154	203	241	5 L	60 L	1,3	1,3	12
	Butyric anhydride	8	UN2739	III	CORROSIVE	T2	154	203	241	5 L	60 L	1,2	1,2	
	Butyronitrile	3	UN2411	II	FLAMMABLE LIQUID, POISON.	T14	None	202	243	1 L	60 L	1,3	5	12, 40
	Butyryl chloride	3	UN2353	II	FLAMMABLE LIQUID, CORROSIVE.	T9, T26	None	202	243	1 L	5 L	1	1	13, 25, 40
	Cabazide	Forbidden												
	Cacodylic acid	6.1	UN1572	II	POISON		None	212	242	25 kg	100 kg	1,2	5	26, 95
	Cadmium compounds, *except Cadmium selenide and Cadmium sulfide.*	6.1	UN2570	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	95
				II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Calcium *or* Calcium alloys	4.3	UN1401	II	DANGEROUS WHEN WET.		None	212	241	15 kg	50 kg	1,3	5	
	Calcium arsenate	6.1	UN1573	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Calcium arsenate and calcium arsenite, mixtures, solid.	6.1	UN1574	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
D	Calcium arsenite, solid	6.1	NA1574	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Calcium bisulfite solution, see Bisulfites, inorganic, aqueous solutions, n.o.s..													
	Calcium carbide	4.3	UN1402	II	DANGEROUS WHEN WET.	A1, N2, N34.	None	212	241	15 kg	50 kg	1,3	1,3	32
	Calcium chlorate	5.1	UN1452	II	OXIDIZER	B10, N16, N34.	152	212	240	5 kg	25 kg	1,2	1,2	46, 56
	Calcium chlorate solution	5.1	UN2429	II	OXIDIZER	A2, N34, N41, T8.	152	202	242	1 L	5 L	1,2	1	46, 56
	Calcium chlorite	5.1	UN1453	II	OXIDIZER	B10, N13, N34.	152	212	240	5 kg	25 kg	1,2	1,2	46, 56
	Calcium cyanamide *with more than 0.1 per cent of calcium carbide.*	4.3	UN1403	III	DANGEROUS WHEN WET.	A1, A19	None	213	241	25 kg	100 kg	1,3	1,3	
	Calcium cyanide	6.1	UN1575	I	POISON	N79, N80	None	211	242	5 kg	50 kg	1,2	1,2	26, 40, 95
	Calcium dithionite *or* Calcium hydrosulfite	4.2	UN1923	II	SPONTANEOUSLY COMBUSTIBLE.	A19, A20	None	212	241	15 kg	50 kg	1,3	5	13
	Calcium hydride	4.3	UN1404	I	DANGEROUS WHEN WET.	A19	None	211	242	Forbidden	15 kg	1,3	5	
	Calcium hydrosulfite, *see* Calcium dithionite..													
	Calcium hypochlorite, dry *or* Calcium hypochlorite mixtures *with more than 39 per cent available chlorine (8.8 per cent available oxygen).*	5.1	UN1748	II	OXIDIZER	N13, N26, N34.	152	212	None	5 kg	25 kg	1,3	5	48, 56
	Calcium hypochlorite, hydrated *or* Calcium hypochlorite, hydrated mixtures, *with not less than 5.5 per cent but not more than 10 per cent water.*	5.1	UN2880	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,2	1,2	50
	Calcium hypochlorite mixtures, dry, *with more than 10 per cent but not more than 39 per cent available chlorine.*	5.1	UN2208	III	OXIDIZER	A1, A29, N34.	152	213	240	25 kg	100 kg	1,2	1,2	
	Calcium manganese silicon	4.3	UN2844	III	DANGEROUS WHEN WET.	A1, A19	None	213	241	25 kg	100 kg	1,3	1,3	
	Calcium nitrate	5.1	UN1454	III	OXIDIZER	T2	152	213	240	25 kg	100 kg	1,2	1,2	
	Calcium oxide	8	UN1910	III	CORROSIVE		154	213	240	25 kg	100 kg	1,2	1,2	
	Calcium perchlorate	5.1	UN1455	II	OXIDIZER	B10, T8	152	212	240	5 kg	25 kg	1,2	1,2	46
	Calcium permanganate	5.1	UN1456	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,2	1,2	56, 69
	Calcium peroxide	5.1	UN1457	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,2	1,2	13
	Calcium phosphide	4.3	UN1360	I	DANGEROUS WHEN WET.	A19, N2	None	211	242	Forbidden	15 kg	1,2	5	40, 85
	Calcium, pyrophoric *or* Calcium alloys, pyrophoric.	4.2	UN1855	II	SPONTANEOUSLY COMBUSTIBLE.		None	187	None	Forbidden	Forbidden	1	5	
	Calcium resinate	4.1	UN1313	III	FLAMMABLE SOLID.	A1, A19		213	240	25 kg	100 kg	1,3	1,3	
	Calcium resinate, fused	4.1	UN1314	III	FLAMMABLE SOLID.	A1, A19		213	240	25 kg	100 kg	1,3	1,3	

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Calcium selenate, *see* Selenates *or* selenites.													
	Calcium silicide	4.3	UN1405	II	DANGEROUS WHEN WET.	A19	None	212	241	15 kg	50 kg	1,3	1,3	
	Calcium silicon	4.3	UN1406	III	DANGEROUS WHEN WET.	A1, A19	None	213	241	25 kg	100 kg	1,3	1,3	
	Camphor oil	3	UN1130	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Camphor, *synthetic*	4.1	UN2717	III	FLAMMABLE SOLID.	A1		213	240	25 kg	100 kg	1,3	1,3	
	Cannon primers, see Primers, tubular													
	Caproic acid	8	UN2829	III	CORROSIVE	T1	154	203	241	5 L	60 L	1,2	1,2	
	Capryloyl peroxide, see n-Octanoyl peroxide.													
	Caps, blasting, see Detonators, *etc.*													
	Caps, toy (*Amorces*)	1.4S												
	Carbamate pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23 degrees C.*	3	UN2758	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	1,3	5	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	1,3	1	
	Carbamate pesticides, liquid, toxic, flammable, n.o.s., *flash point not less than 23 degrees C.*	6.1	UN2991	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	1	1	21, 40, 95
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	1,2	1	21, 40, 95
				III	KEEP AWAY FROM FOOD.	B1, T14	153	203	242	60 L	220 L	1,2	1,2	21, 34, 40
	Carbamate pesticides, liquid, toxic, n.o.s.	6.1	UN2992	I	POISON	T42	None	201	243	1 L	30 L	1	1	40, 95
				II	POISON	T14	None	202	243	5 L	60 L	1,2	1	40, 95
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	1,2	1,2	34, 40
	Carbamate pesticides, solid, toxic, n.o.s.	6.1	UN2757	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	40, 95
				II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	40, 95
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34, 40
	Carbolic acid, see Phenol, solid *or* Phenol, molten.													
	Carbolic acid solutions, see Phenol solutions.													
I	Carbon, activated	4.2	UN1362	III	SPONTANEOUSLY COMBUSTIBLE.		None	213	241	Forbidden	Forbidden	1,3	1,3	12
I	Carbon, *animal or vegetable origin*	4.2	UN1361	III	SPONTANEOUSLY COMBUSTIBLE.		None	213	241	Forbidden	Forbidden	1,3	1,3	12

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Carbon bisulfide, see Carbon disulfide													
	Carbon dioxide	2.2	UN1013		NONFLAMMABLE GAS.	B13	306	302, 304	244	75 kg	150 kg	1,3	1,3	85
	Carbon dioxide and ethylene oxide mixtures *with more than 6 per cent ethylene oxide.*	2.3	UN1041	III	POISON GAS, FLAMMABLE GAS.	B13, B14, B33, 10.	306	304	244	Forbidden	Forbidden	1,3	1	40, 85, 95
	Carbon dioxide and ethylene oxide mixtures *with not more than 6 per cent ethylene oxide.*	2.2	UN1952		NONFLAMMABLE GAS.	B13	None	304	244	75 kg	150 kg	1,3	1	85
	Carbon dioxide and nitrous oxide mixtures	2.2	UN1015		NONFLAMMABLE GAS.	B13	306	304	244	75 kg	150 kg	1,3	1,3	85
	Carbon dioxide and oxygen mixtures	2.2	UN1014		NONFLAMMABLE GAS.	B13	306	304	244	75 kg	150 kg	1,3	1,3	85
	Carbon dioxide, refrigerated liquid	2.2	UN2187		NONFLAMMABLE GAS.	B43	306	None	314, 315	50 kg	500 kg	1,3	1,3	85
AW	Carbon dioxide, solid (Dry ice)	9	UN1845	III	CLASS 9	B12	217	217	240	200 kg	200 kg	1	1	40
	Carbon disulfide	3	UN1131	I	FLAMMABLE LIQUID, POISON.	B16, T18, T26, T29.	None	201	243	Forbidden	Forbidden	1	5	12, 18, 40
	Carbon monoxide	2.3	UN1016	III	POISON GAS, FLAMMABLE GAS.	B13, B14, B33, 10.	None	302	244	Forbidden	Forbidden	1	5	40, 95
	Carbon monoxide and hydrogen mixture	2.3	UN2600	III	POISON GAS, FLAMMABLE GAS.	B13, B14, B33, 10.	None	302	244	Forbidden	Forbidden	1	5	40, 95
D	Carbon monoxide, cryogenic liquid	2.3	NA9202	III	POISON GAS, FLAMMABLE GAS.	10	None	316	318	Forbidden	Forbidden	1	5	
	Carbon tetrabromide	6.1	UN2516	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	25, 34
	Carbon tetrachloride	6.1	UN1846	II	POISON	N36, T8	None	202	243	5 L	60 L	1,2	1,2	40, 95
	Carbonyl chloride, see Phosgene													
	Carbonyl fluoride	2.3	UN2417	I	POISON GAS	B13, B14, B31, 10.	None	302	244	Forbidden	Forbidden	1	5	40, 95
	Carbonyl sulfide	2.3	UN2204	II	POISON GAS, FLAMMABLE GAS.	B13, B14, B31, 10.	None	304	244	Forbidden	Forbidden	1	5	40, 95
	Cartridge cases, empty primed, see Cases, cartridge, empty, with primer.													
	Cartridges, actuating, for aircraft ejector seat catapult, fire extinguisher, canopy removal or apparatus, see Cartridges, power device.													
	Cartridges, explosive, see Charges, demolition.													
	Cartridges, flash	1.1G	UN0049											
	Cartridges, flash	1.3G	UN0050											
	Cartridges for weapons, blank	1.1C	UN0326											
	Cartridges for weapons, blank	1.3C	UN0327											
	Cartridges for weapons, blank	1.4C	UN0338											

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173 ***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Cartridges for weapons blank	1.2C	UN0413											
	Cartridges for weapons, blank (Cartridges, safety blank)	1.4S	UN0014											
	Cartridges for weapons (Cartridges safety) *other than blank*	1.4S	UN0012											
	Cartridges for weapons inert projectile	1.2C	UN0328											
	Cartridges for weapons inert projectile	1.4C	UN0339											
	Cartridges for weapons inert projectile	1.3C	UN0417											
	Cartridges for weapons, *with bursting charge.*	1.1F	UN0005											
	Cartridges for weapons, *with bursting charge.*	1.2F	UN0007											
	Cartridges for weapons *with bursting charge*	1.4F	UN0348											
	Cartridges for weapons *with bursting charge.*	1.4E	UN0412											
	Cartridges for weapons *with bursting charge (projectiles with propelling charge)*	1.1E	UN0006											
	Cartridges for weapons *with bursting charge (projectiles with propelling charge)*	1.2E	UN0321											
	Cartridges oil well	1.3C	UN0277											
	Cartridges oil well	1.4C	UN0278											
	Cartridges, power device	1.3C	UN0275											
	Cartridges, power device	1.4C	UN0276											
	Cartridges power device	1.2C	UN0381											
	Cartridges power device (Cartridges safety)	1.4S	UN0323											
	Cartridges, safety *see* Cartridges for weapons, *other than blank or* Cartridges power device (*UN 0323*)													
	Cartridges, safety blank, *see* Cartridges for weapons, blank (*UN 0014*)													
	Cartridges signal	1.3G	UN0054											
	Cartridges signal	1.4G	UN0312											
	Cartridges signal	1.4S	UN0405											
	Cartridges, sporting, see Cartridges for weapons, *other than blank*													
	Cartridges, starter, jet engine, see Cartridges power device													
	Cases, cartridge empty with primer	1.4S	UN0055											
	Cases cartridges empty with primer	1.4C	UN0379											
	Cases combustible, empty without primer	1.3	UN0447											
	Cases combustible empty, without primer	1.4	UN0446											
	Casinghead gasoline see Natural gasoline													
AW	Castor beans *or* Castor meal *or* Castor pomace *or* Castor flake.	9	UN2969	II	CLASS 9		155	204	240	No limit.	No limit.	1,2	5	34 40 44
	Caustic alkali liquids n o s	8	UN1719	II	CORROSIVE	B2, T14	154	202	242	1 L	30 L	1,2	1,2	

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173 * * *)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Caustic potash, see Potassium hydroxide *etc.*													
	Caustic soda, (etc.) see Sodium hydroxide *etc.*													
	Celluloid *in blocks, rods, rolls, sheets tubes, etc. (except scrap)*	4 1	UN2000	III	FLAMMABLE SOLID		None	213	240	25 kg	100 kg	1 3	1 3	
	Celluloid scrap	4 2	UN2002	III	SPONTANEOUSLY COMBUSTIBLE		None	213	241	Forbidden	Forbidden	1	5	
	Cement see Adhesives *containing flammable liquid*													
	Cerium crude	4 1	UN1333	II	FLAMMABLE SOLID	N34	None	212	240	15 kg	50 kg	1 3	5	65 74
	Cerium crude *compact form*	4 1	UN1333	III	FLAMMABLE SOLID	A1	None	213	240	25 kg	100 kg	1 3	1 3	65 74
	Cesium	4 3	UN1407	I	DANGEROUS WHEN WET	A19, A22 N34	None	211	242	Forbidden	15 kg	1	5	
	Cesium hydroxide	8	UN2682	II	CORROSIVE		154	212	240	15 kg	50 kg	1 2	1 2	
	Cesium hydroxide solution	8	UN2681	II	CORROSIVE	B2 T8	154	202	242	1 L	30 L	1,2	1 2	
	Cesium nitrate	5 1	UN1451	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	1,2	1 2	
D	Charcoal *briquettes, shell, screenings, wood, etc.*	4 2	NA1361	III	FLAMMABLE SOLID	B10	151	213	240	25 kg	100 kg	1 3	1 3	
D	Charged well casing jet perforating gun (*total explosive contents in guns 20 pounds or more per motor vehicle*)	1 1D	NA0059											
D	Charged well casing jet perforating gun (*total explosive contents in guns not exceeding 20 pounds per motor vehicle or special offshore down hole tool pallet*)	1 4D	NA0440											
	Charges, demolition	1 1D	UN0048											
	Charges depth	1 1D	UN0056											
	Charges, expelling, explosive, for fire extinguishers, see Cartridges, power device													
	Charges explosive, commercial *without detonator*	1,1D	UN0442											
	Charges explosive commercial *without detonator*	1 2D	UN0443											
	Charges explosive, commercial *without detonator*	1 4D	UN0444											
	Charges explosive commercial *without detonator*	1 4S	UN0445											
	Charges, propelling for cannon	1 2C	UN0414											
	Charges, propelling for cannon	1 3C	UN0242											
	Charges, propelling for cannon	1 1C	UN0279											
	Charges propelling for rocket motors	1 1C	UN0271											
	Charges propelling for rocket motors	1 3C	UN0272											
	Charges, propelling for rocket motors	1 2C	UN0415											
	Charges, propelling for rocket motors, *composite mixture*	1 1C	UN0273											

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Charges, propelling, for rocket motors, *composite mixture.*	1.3C	UN0274											
	Charges, propelling, for rocket motors, *composite mixture.*	1.2C	UN0416											
	Charges, shaped, commercial *without detonator.*	1.2D	UN0439											
	Charges, shaped, commercial *without detonator.*	1.4D	UN0440											
	Charges, shaped, commercial *without detonator.*	1.4S	UN0441											
	Charges, shaped, commercial *without detonator.*	1.2D	UN0439											
	Charges, shaped, commercial, *without detonator.*	1.1D	UN0059											
	Charges, shaped, flexible, linear, *metal clad.*	1.4D	UN0237											
	Charges, shaped, flexible, linear, *metal clad.*	1.1D	UN0288											
	Charges, supplementary explosive	1.1D	UN0060											
D	Chemical kit	8	NA1760	II	CORROSIVE		154	161	None	1 L	1 L	1,3	1,3	
	Chemical kits (*must be classified and labelled according to the hazard class of the constituent(s)*).													
	Chloracetophenone (*CN*), *solid*	6.1	UN1697	II	POISON	10, N1, N12, N16, N17, N32, N33, N34.	None	212	None	Forbidden	100 kg	1	5	12, 40, 95
	Chloral, anhydrous, inhibited	6.1	UN2075	II	POISON	T14	None	212	243	25 kg	100 kg	1	5	40, 95
	Chlorate and borate mixtures	5.1	UN1458	II	OXIDIZER	B10, N13, N34.	152	212	240	5 kg	25 kg	1,2	1,2	46, 56
	Chlorate and magnesium chloride mixtures	5.1	UN1459	II	OXIDIZER	B10, N13, N34, T8.	152	212	240	5 kg	25 kg	1,2	1,2	46, 56
	Chlorate of potash, see Potassium chlorate													
	Chlorate of soda, see Sodium chlorate													
	Chlorates, inorganic, n.o.s.	5.1	UN1461	II	OXIDIZER	B10, N13, N34.	152	212	240	5 kg	25 kg	1,2	1,2	46, 56
	Chloric acid solution, *with not more than 10 per cent chloric acid.*	5.1	UN2626	I	OXIDIZER	T25	None	229	243	Forbidden	Forbidden	1	5	46, 56
	Chloride of phosphorus, see Phosphorus trichloride.													
	Chloride of sulfur, see Sulfur chloride													
	Chlorinated lime, see Calcium hypochlorite mixtures, *etc.*.													
	Chlorine	2.3	UN1017	I	POISON GAS	10, B14,	None	304	314, 315	Forbidden	Forbidden	1	5	40, 51, 55, 62, 68, 95

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Chlorine azide	Forbidden												
D	Chlorine dioxide hydrate, frozen	5.1	NA9191	II	OXIDIZER, POISON.		None	229	None	Forbidden	Forbidden	5	5	
	Chlorine dioxide (not hydrate)	Forbidden												
	Chlorine pentafluoride	2.3	UN2548	I	POISON GAS, OXIDIZER, CORROSIVE.	10	None	304	245	Forbidden	Forbidden	1	5	31, 40, 95
	Chlorine trifluoride	2.3	UN1749	I	POISON GAS, OXIDIZER, CORROSIVE.	10, B7	None	304	245	Forbidden	Forbidden	1,3	5	34, 40, 95
	Chlorites, inorganic, n.o.s.	5.1	UN1462	II	OXIDIZER	N26, N34, T8.	152	212	240	5 kg	25 kg	1,2	1,2	46, 56
	Chloroacetaldehyde	6.1	UN2232	II	POISON	T17	None	202	243	5 L	60 L	1	5	40, 95
	Chloroacetic acid, liquid	8	UN1750	I	CORROSIVE, POISON.	B8, B14, B32, N26, N34, 10.	None	227	244	Forbidden	Forbidden	1,2	1,2	40
	Chloroacetic acid, solid	8	UN1751	II	CORROSIVE	N1, N26, N34.	None	212	242	15 kg	50 kg	1,2	1,2	40
	Chloroacetone, stabilized	6.1	UN1695	I	POISON	10, B14, B30, N12, N32, N34.	None	227	244	Forbidden	Forbidden	1	5	40, 95
	Chloroacetone (unstabilized)	Forbidden												
	Chloroacetonitrile	6.1	UN2668	I	POISON	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1,3	1,3	12, 21, 25, 26, 40, 95
	Chloroacetophenone (*CN*), *liquid*	6.1	UN1697	I	POISON	B14, B30, N1, N12, N16, N17, N32, N33, 10.	None	226	244	Forbidden	Forbidden	1	5	12, 40, 95
	Chloroacetyl chloride	8	UN1752	II	CORROSIVE	B2, B8, N1, N11, N26, N34, T9, T26.	None	202	242	Forbidden	Forbidden	1	5	40
	Chloroanilines, liquid	6.1	UN2019	II	POISON	T14	None	202	243	5 L	60 L	1,2	1,2	95
	Chloroanilines, solid	6.1	UN2018	II	POISON	T14, T38	None	212	242	25 kg	100 kg	1,2	1,2	95

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Chloroanisidines	6.1	UN2233	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Chlorobenzene	3	UN1134	III	FLAMMABLE LIQUID.	T1	150	203	241	60 L	220 L	1,3	1	
	Chlorobenzol, see Chlorobenzene													
	Chlorobenzotrifluorides	3	UN2234	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	40
	p-Chlorobenzoyl peroxide, *see* Di-4-chlorobenzoyl peroxide, *etc.*.													
	Chlorobenzylchlorides	6.1	UN2235	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	1,2	1,2	34
	1-Chloro-3-bromopropane	6.1	UN2688	III	KEEP AWAY FROM FOOD.	T2	153	203	241	60 L	220 L	1,2	1,2	34
	Chlorobutanes	3	UN1127	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	Chlorocresols (*liquids*)	6.1	UN2669	II	POISON	T8	None	202	243	5 L	60 L	1,3	1,3	12, 95
	Chlorocresols (*solid*)	6.1	UN2669	II	POISON		None	212	242	25 kg	100 kg	1,3	1,3	12, 40, 95
	3-Chloro-4-diethylaminobenzenediazonium zinc chloride.	4.1	UN3033	II	FLAMMABLE SOLID.		None	214	None	15 kg	50 kg	1	1	25
	Chlorodifluorobromomethane	2.2	UN1974		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	1,3	1,3	85
	1-Chloro-1,1-difluoroethane, see Chlorodifluoroethanes.													
	Chlorodifluoroethanes *or* Difluorochloroethanes.	2.1	UN2517		FLAMMABLE GAS.	B51	306	304	314, 315	Forbidden	150 kg	1,3	1	40, 85
	Chlorodifluoromethane (*R-22*)	2.2	UN1018		NONFLAMMABLE GAS.	B51	306	304	314, 315	75 kg	150 kg	1,3	1,3	85
	Chlorodifluoromethane and chloropentafluoroethane mixture *with fixed boiling point, with approximately 49 per cent chlorodifluoromethane.*	2.2	UN1973		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	1,3	1,3	85
	Chlorodinitrobenzene	6.1	UN1577	II	POISON	T14	None	212	242	25 kg	100 kg	1,2	1,2	95
	Chloroform	6.1	UN1888	II	POISON	N36, T14	None	202	243	5 L	60 L	1,2	1,2	40, 95
	Chloroformates, n.o.s., *flash point not less than 23 degrees C.*	6.1	UN2742	II	POISON, CORROSIVE, FLAMMABLE LIQUID.		None	202	243	1 L	30 L	1,3	1,3	12, 13, 22, 25, 40, 95
	Chloromethylchloroformate	6.1	UN2745	II	POISON, CORROSIVE.	T18	None	202	243	1 L	30 L	1,3	1,3	12, 13, 23, 25, 40, 95
	Chloromethyl ethyl ether	3	UN2354	II	FLAMMABLE LIQUID, POISON.	T8	None	202	243	1 L	60 L	1,3	5	12, 40
	3-Chloro-4-methylphenylisocyanate	6.1	UN2236	II	POISON		None	202	243	5 L	60 L	1,2	1,2	25, 40, 95
	Chloronitroanilines	6.1	UN2237	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	26, 34
	Chloronitrobenzene, *ortho, liquid*	6.1	UN1578	II	POISON	T14	None	202	243	5 L	60 L	1,2	1,2	95
	Chloronitrobenzenes *meta or para, solid*	6.1	UN1578	II	POISON	T14	None	212	242	25 kg	100 kg	1,2	1,2	95

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Chloronitrotoluenes, *liquid*	6.1	UN2433	III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,2	1,2	34
	Chloronitrotoluenes, *solid*	6.1	UN2433	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Chloropentafluoroethane (*R-115*)	2.2	UN1020		NONFLAMMABLE GAS.	B51	306	304	314, 315	75 kg	150 kg	1,3	1,3	85
	3-Chloroperoxybenzoic acid, *not more than 86 per cent with 3-chlorobenzoic acid.*	5.2	UN2755	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	3-Chloroperoxybenzoic acid, *not more than 57 per cent with water and 3-Chlorobenzoic acid.*	5.2	UN3081	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	Chlorophenates, liquid	8	UN2904	III	CORROSIVE		154	203	241	5 L	60 L	1,2	1,2	
	Chlorophenates, solid	8	UN2905	III	CORROSIVE		154	213	240	25 kg	100 kg	1,2	1,2	
	Chlorophenols, liquid	6.1	UN2021	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	1,2	1,2	34
	Chlorophenols, solid	6.1	UN2020	III	KEEP AWAY FROM FOOD.	T7	153	213	240	100 kg	200 kg	1,2	1,2	34
	Chlorophenyl trichlorosilane	8	UN1753	II	CORROSIVE	B2, B6, N16, N26, N34, T8, T26.	None	202	242	Forbidden	30 L	1	1	40
	Chloropicrin	6.1	UN1580	I	POISON	10, B7, B14, B32, B46.	None	227	244	Forbidden	Forbidden	1	5	40, 95
	Chloropicrin and methyl bromide mixtures	2.3	UN1581	I	POISON GAS	B13, B14, B31, 10.	None	193	244	Forbidden	Forbidden	1	5	25, 40, 95
	Chloropicrin and methyl chloride mixtures	2.3	UN1582	I	POISON GAS	B13, B14, B31, 10.	None	193	244	Forbidden	Forbidden	1	5	25, 40, 95
	Chloropicrin mixture, flammable (pressure not exceeding 14.7 psia at 115 degrees F flash point below 100 deg F) see Poisonous liquids, flammable, n.o.s.													
	Chloropicrin mixtures, n.o.s.	6.1	UN1583	I	POISON	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1	1	40, 95
				II	POISON		None	201	243	Forbidden	Forbidden	1	1	40, 95
	Chloropivaloyl chloride	6.1	NA2810	I	POISON	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1,2	1	20, 40, 95
	Chloroplatinic acid, solid	8	UN2507	III	CORROSIVE		154	213	240	25 kg	100 kg	1,2	1,2	
	Chloroprene, inhibited	3	UN1991	I	FLAMMABLE HIQUID, POISON.	T15	None	201	243	Forbidden	30 L	1,3	1	12, 40
	Chloroprene, uninhibited	Forbidden												
	2-Chloropropane	3	UN2356	I	FLAMMABLE LIQUID.	N15, N36, T14.	150	201	243	1 L	30 L	1,3	5	12
	3-Chloropropanol-1	6.1	UN2849	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	1,2	1,2	34

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	2-Chloropropene	3	UN2456	I	FLAMMABLE LIQUID.	N1, N15, N36, T14.	150	201	243	1 L	30 L	1,3	5	12
	alpha-Chloropropionic acid	8	UN2511	III	CORROSIVE	T8	154	203	241	5 L	60 L	1,2	1,2	8
	2-Chloropyridine	6.1	UN2822	II	POISON	T14	None	202	243	5 L	60 L	1,2	1,2	40, 95
	Chlorosilanes, n.o.s.	8	UN2987	II	CORROSIVE	B2	154	202	242	1 L	30 L	1	1	40, 77
	Chlorosilanes, n.o.s., *flash point less than 23 degrees C.*	3	UN2985	I	FLAMMABLE LIQUID, CORROSIVE.		None	201	243	0.5 L	2.5 L	1,3	5	40
	Chlorosilanes, n.o.s., *flash point not less than 23 degrees C.*	8	UN2986	II	CORROSIVE, FLAMMABLE LIQUID.		None	202	243	1 L	30 L	1	1	23, 40
	Chlorosilanes, n.o.s., *which in contact with water emit flammable gas.*	4.3	UN2988	I	DANGEROUS WHEN WET, FLAMMABLE LIQUID, CORROSIVE.	A2	None	201	244	Forbidden	1 L	1	5	40
	Chlorosulfonic acid (*with or without sulfur trioxide*).	8	UN1754	I	CORROSIVE	B4, N1, N11, N35, T12, T27.	None	201	242	.5 L	2.5 L	1	1	80, 33, 40
	Chlorotetrafluoroethane (*R-124*)	2.2	UN1021		NONFLAMMABLE GAS.	B51	306	304	314, 315	75 kg	150 kg	1,3	1,3	85
	Chlorotoluenes	3	UN2238	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	4-Chloro-o-toluidine hydrochloride	6.1	UN1579	III	KEEP AWAY FROM FOOD.		153	213	241	100 kg	200 kg	1,2	1,2	34
	Chlorotoluidines *liquid*	6.1	UN2239	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	1,2	1,2	34
	Chlorotoluidines *solid*	6.1	UN2239	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Chlorotrifluoroethane	2.2	UN1983		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	1,3	1,3	85
	Chlorotrifluoromethane (*R-13*)	2.2	UN1022		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	1,3	1,3	85
	Chlorotrifluoromethane and trifluoromethane azeotropic mixture *with approximately 60 per cent chlorotrifluoromethane.*	2.2	UN2599		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	1,3	1,3	85
D	Chromic acid, solid	5.1	NA1463	II	OXIDIZER, CORROSIVE.	B10	None	212	240	5 kg	25 kg	1,2	1,2	
	Chromic acid solution	8	UN1755	II	CORROSIVE	B2, T9, T27.	154	202	242	1 L	30 L	1	1	40
	Chromic anhydride, see Chromium trioxide, anhydrous.													
	Chromic fluoride, solid	8	UN1756	II	CORROSIVE		154	212	240	15 kg	50 kg	1,2	1,2	
	Chromic fluoride, solution	8	UN1757	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	1,2	1,2	
	Chromium nitrate	5.1	UN2720	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	1,2	1,2	

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Chromium oxychloride	8	UN1758	I	CORROSIVE	B4, N1, N11, N26, N34, T12, T26.	None	201	242	0.5 L	2.5 L	1	1	80, 40
	Chromium trioxide, anhydrous	5.1	UN1463	II	OXIDIZER, CORROSIVE.	B10	None	212	240	5 kg	25 kg	1,2	1,2	34, 65
	Chromosulfuric acid	8	UN2240	I	CORROSIVE	B4, B6, N1, N11, N26, N34, T12, T27.	None	201	242	0.5 L	2.5 L	1,2	1	80, 9, 40
	Chromyl chloride, see Chromium oxychloride.													
	Cigar and cigarette lighter fluid, see Lighter fluids.													
	Cigar and cigarette lighters, charged with fuel, see Lighters for cigars, cigarettes, *etc.*.													
	Cigarettes, self-lighting	4.1	UN1867	III	FLAMMABLE SOLID.		None	213	None	Forbidden	Forbidden	1,3	1,3	13
	Coal briquettes, hot	Forbidden												
	Coal gas	2.3	UN1023	II	POISON GAS, FLAMMABLE GAS.	B38, 10	None	302	245	Forbidden	Forbidden	1	5	40, 95
	Coal tar distillates, flammable	3	UN1136	I	FLAMMABLE LIQUID.	T8	150	201	243	1 L	30 L	1,3	5	
				II	FLAMMABLE LIQUID.	T7, T30	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T7, T30.	150	203	242	60 L	220 L	1,3	1,3	
	Coal tar dye, corrosive, liquid, n.o.s, see Dyes, n.o.s. *or* Dye intermediates, n.o.s., *corrosive.*													
	Coating solution	3	UN1139	II	FLAMMABLE LIQUID.	T7, T30	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T7, T30.	150	203	242	60 L	220 L	1,3	1,3	
	Cobalt naphthenates, powder	4.1	UN2001	III	FLAMMABLE SOLID.	A19	151	213	240	25 kg	100 kg	1,3	1,3	
	Cobalt resinate, precipitated	4.1	UN1318	III	FLAMMABLE SOLID.	A1, A19	151	213	240	25 kg	100 kg	1,3	1,3	
	Cocculus	6.1	UN1584	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Coke, hot	Forbidden												
	Collodion, see Nitrocellulose *etc.*													

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
D	Combustible liquid, n.o.s.	3	NA1993	III	None		150	203	241	60 L	220 L	1,3	1,3	
	Components, explosive train, n.o.s.	1.2B	UN0382											
	Components, explosive train, n.o.s.	1.4B	UN0383											
	Components, explosive train, n.o.s.	1.4S	UN0384											
	Composition B, see Hexolite, *etc.*													
	Compounds, cleaning liquid, corrosive, see Corrosive liquids, n.o.s.													
	Compounds, cleaning liquid, flammable, see Flammable liquid preparations, *etc.*													
	Compressed *or* Liquefied gases, flammable, n.o.s.	2.1	UN1954		FLAMMABLE GAS.	B13	306	302, 304, 305	244	Forbidden	150 kg	1	5	40
	Compressed *or* Liquefied gases, flammable, toxic, n.o.s. *LC50 less than or equal to 1000 ppm.*	2.3	UN1953	I	POISON GAS, FLAMMABLE GAS.	10	None	302, 304, 305	245	Forbidden	Forbidden	1	5	40, 95
	Compressed *or* Liquefied gases, n.o.s.	2.2	UN1956		NONFLAMMABLE GAS.	B13	306, 307	302, 304, 305	244	75 kg	150 kg	1,3	1,3	85
	Compressed *or* Liquefied gases, toxic, n.o.s. *LC50 less than or equal to 200 ppm.*	2.3	UN1955	I	POISON GAS	10	None	302, 304, 305	245	Forbidden	Forbidden	1	5	40, 95
	Compressed *or* liquefied gases, flammable, toxic, n.o.s. *LC50 over 1000 up to 5000 ppm.*	2.3	UN1953	II	POISON GAS, FLAMMABLE GAS.	B14, B38, 10.	None	302, 304, 305	244	Forbidden	Forbidden	1	5	40
	Compressed *or* liquefied gases, toxic, n.o.s. *LC50 over 200 up to 5000 ppm.*	2.3	UN1955	II	POISON GAS	B14, B35. 10.	None	302, 304, 305	244	Forbidden	Forbidden	1	5	40
D	Consumer commodity	ORM-D	None	III	None		156, 306	156, 306	None	65 lb gross	65 lb gross	1,2	1,2	
	Contrivances, water-activated, *with burster, expelling charge or propelling charge.*	1.2L	UN0248											
	Contrivances, water-activated, *with burster, expelling charge or propelling charge.*	1.3L	UN0249											
	Copper acetoarsenite	6.1	UN1585	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Copper acetylide	Forbidden												
	Copper amine azide	Forbidden												
	Copper arsenite	6.1	UN1586	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Copper based pesticides, liquid, flammable, toxic n.o.s., *flash point less than 23 degrees C.*	3	UN2776	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	1,3	1	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	1,3	1	
	Copper based pesticides, liquid, toxic, flammable, n.o.s., *flash point not less than 23 degrees C.*	6.1	UN3009	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	1	1	21, 40. 95

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	.....	.....	.....	II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	1,2	1	21, 40, 95
	.....	.....	.....	III	KEEP AWAY FROM FOOD, FLAMMABLE LIQUID.	B1	153	203	241	60 L	220 L	1,2	1,2	21, 34, 40
	Copper based pesticides, liquid, toxic, n.o.s..	6.1	UN3010	I	POISON	T42	None	201	243	1 L	30 L	1	1	40, 95
	.....	.....	.....	II	POISON	T14	None	202	243	5 L	60 L	1,2	1	40, 95
	.....	.....	.....	III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	1,2	1,2	34, 40
	Copper based pesticides, solid, toxic, n.o.s...	6.1	UN2775	I	POISON	.....	None	211	242	5 kg	50 kg	1,2	1,2	40, 95
	.....	.....	.....	II	POISON	.....	None	212	242	25 kg	100 kg	1,2	1,2	40, 95
	.....	.....	.....	III	KEEP AWAY FROM FOOD.	.....	153	213	240	100 kg	200 kg	1,2	1,2	34, 40
	Copper chlorate	5.1	UN2721	II	OXIDIZER	A1, B10	152	212	240	5 kg	25 kg	1,2	1,2	46, 56
	Copper chloride	8	UN2802	III	CORROSIVE	.....	154	213	240	25 kg	100 kg	1,2	1,2	
	Copper cyanide	6.1	UN1587	II	POISON	.....	None	204	242	25 kg	100 kg	1,2	1,2	26, 95
	Copper selenate, *see* Selenates *or* Selenites.	.....	.....											
	Copper selenite, *see* Selenates *or* Selenites.	.....	.....											
	Copper tetramine nitrate	Forbidden	.....											
AW	Copra	4.2	UN1363	III	None	.....	None	213	241	Forbidden	Forbidden	1,3	1,3	13, 19
	Cord, detonating, *flexible*	1.1D	UN0065											
	Cord, detonating, *flexible*	1.4D	UN0289											
	Cordeau detonant fuse, see Cord (Fuse), detonating, *etc.;* Cord, detonating, *flexible.*	.....	.....											
	Cord (Fuse), detonating, *metal clad*	1.2D	UN0102											
	Cord (Fuse), detonating, *metal clad*	1.1D	UN0290											
	Cord (Fuse), detonating, mild effect *metal clad.*	1.4D	UN0104											
	Cord, igniter	1.4G	UN0066											
	Cordite, see Powder, smokeless	.....	.....											
	Corrosive liquids, flammable, n.o.s.	8	UN2920	I	CORROSIVE, FLAMMABLE LIQUID.	B4, N1, N11, N34, T42.	None	201	243	0.5 L	2.5 L	1	1	12, 21, 25
	.....	.....	.....	II	CORROSIVE, FLAMMABLE LIQUID.	B2, T15, T26.	None	202	243	1 L	30 L	1	1	12, 21, 25
	Corrosive liquids, n.o.s.	8	UN1760	I	CORROSIVE	B4, N1, N11, N26, N34, T42.	None	201	242	0.5 L	2.5 L	1,2	1	40
	.....	.....	.....	II	CORROSIVE	B2, T14	154	202	242	1 L	30 L	1,2	1	40

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
				III	CORROSIVE	T7	154	203	240	5 L	60 L	1,2	1,2	40
	Corrosive liquids, poisonous, n.o.s.	8	UN2922	I	CORROSIVE, POISON.	N1, N11, N34.	None	201	243	0.5 L	2.5 L	1,2	1	40
				II	CORROSIVE, POISON.		None	202	243	1 L	30 L	1,2	1,2	40
				III	CORROSIVE		154	203	241	5 L	60 L	1,2	1,2	40
	Corrosive solids, flammable, n.o.s.	8	UN2921	I	CORROSIVE, FLAMMABLE SOLID.		None	211	242	1 kg	25 kg	1,3	1	12, 25
				II	CORROSIVE, FLAMMABLE SOLID.		None	212	242	15 kg	50 kg	1,3	1	12, 25
	Corrosive solids, n.o.s.	8	UN1759	I	CORROSIVE		None	211	240	1 kg	25 kg	1,2	1	
				II	CORROSIVE		154	212	240	15 kg	50 kg	1,2	1,2	
				III	CORROSIVE		154	213	240	25 kg	100 kg	1,2	1,2	
	Corrosive solids, oxidizing, n.o.s.	8	UN3084	I	CORROSIVE, OXIDIZER.		None	211	240	1 kg	25 kg	1,2	1	
				II	CORROSIVE, OXIDIZER.		None	212	240	15 kg	50 kg	1,2	1	
	Corrosive solids, poisonous, n.o.s.	8	UN2923	I	CORROSIVE, POISON.		None	211	242	1 kg	25 kg	1,2	1	13, 40
				II	CORROSIVE, POISON.		None	212	240	15 kg	50 kg	1,2	1	40
				III	CORROSIVE		154	213	240	25 kg	100 kg	1,2	1	40
DW	Cotton	9	NA1365	III	CLASS 9		155	None	240	No limit	No limit	1,2	1,2	
I	Cotton waste, oily	4.2	UN1364	III	SPONTANEOUSLY COMBUSTIBLE.		None	213	None	Forbidden	Forbidden	1,3	1,3	13, 54, 64
AIW	Cotton, wet	4.2	UN1365	III	SPONTANEOUSLY COMBUSTIBLE.		None	213	241	Forbidden	Forbidden	1,3	1,3	13
	Coumarin derivative pesticides, liquid, flammable, toxic, n.o.s., *flashpoint less than 23 deg C.*	3	UN3024	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	1,3	5	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	1,3	1	
	Coumarin derivative pesticides, liquid, toxic, flammable, n.o.s. *flashpoint not less than 23 deg C.*	6.1	UN3025	I	POISON, FLAMMABLE LIQUID.		None	201	243	1 L	30 L	1	1	21, 40, 95
				II	POISON, FLAMMABLE LIQUID.		None	202	243	5 L	60 L	1,2	1	21, 40, 95
				III	KEEP AWAY FROM FOOD, FLAMMABLE LIQUID.	B1	153	203	241	60 L	220 L	1,2	1,2	21, 34, 40

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173 ***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Coumarin derivative pesticides, liquid, toxic, n.o.s..	6.1	UN3026	I	POISON		None	201	243	1 L	30 L	1	1	40, 95
				II	POISON		None	202	243	5 L	60 L	1,2	1	40, 95
				III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,2	1,2	34, 40
	Coumarin derivative pesticides, solid, toxic, n.o.s..	6.1	UN3027	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	
				II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	
D	Creosote, coal tar	3	NA1993	III	FLAMMABLE LIQUID.		150	203	241	60 L	220 L	1,3	1,3	
	Cresols (*o-,m-,p-*)	6.1	UN2076	II	POISON	T8	None	202	243	5 L	60 L	1,2	1,2	95
	Cresylic acid	6.1	UN2022	II	POISON	T8	None	202	243	5 L	60 L	1,2	1,2	
	Crotonaldehyde, stabilized	3	UN1143	I	FLAMMABLE LIQUID, POISON.	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1,3	1	
	Crotonic acid, *liquid*	8	UN2823	III	CORROSIVE		154	203	240	5 L	60 L	1,3	1,3	12
	Crotonic acid, *solid*	8	UN2823	III	CORROSIVE		154	213	240	25 kg	100 kg	1,3	1,3	12
	Crotonylene	3	UN1144	I	FLAMMABLE LIQUID.	T20	150	201	243	1 L	30 L	1,3	5	12
	Cumene hydroperoxide, *see* Cumyl hydroperoxide.													
	Cumyl hydroperoxide (Cumene hydroperoxide), *technically pure.*	5.2	UN2116	I	ORGANIC PEROXIDE.	B17, B22, T25.	None	225	243	1 L	5 L	1	5	12, 40
	Cumyl peroxyneodecanoate, *not more than 77 per cent in solution.*	5.2	UN2963	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Cumyl peroxypivalate, *not more than 77 per cent in solution.*	5.2	UN2964	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Cupriethylenediamine solution	8	UN1761	II	CORROSIVE, POISON.	T8, T26	154	202	243	1 L	30 L	1,2	1,2	
	Cutters, cable, explosive	1.4S	UN0070											
	Cyanide or cyanide mixtures, dry, see Cyanides, inorganic, n.o.s..													
	Cyanides, inorganic, n.o.s.	6.1	UN1588	I	POISON	N74, N75	None	211	242	5 kg	50 kg	1,2	1,2	26, 95
				II	POISON	N74, N75	None	212	242	25 kg	100 kg	1,2	1,2	26, 95
	Cyanide solutions	6.1	UN1935	I	POISON	B37, T18, T26.	None	201	243	1 L	30 L	1,2	1,2	26, 40, 95
				II	POISON	T18, T26	None	202	243	5 L	60 L	1,2	1,2	26, 40
				III	KEEP AWAY FROM FOOD.	T18, T26	153	203	241	60 L	220 L	1,2	1,2	26, 40
	Cyanogen bromide	6.1	UN1889	I	POISON, CORROSIVE.	B14, B30, N2, N11, 10.	None	211	244	Forbidden	Forbidden	1	5	20, 25, 40, 95
	Cyanogen chloride	2.3	UN1589	I	POISON GAS, FLAMMABLE GAS.	10	None	192	245	Forbidden	Forbidden	1	5	40, 95

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Cyanogen, liquefied	2.3	UN1026	I	POISON GAS, FLAMMABLE GAS.	10	None	192	245	Forbidden	Forbidden	1	5	34, 40
	Cyanuric chloride	8	UN2670	III	CORROSIVE		None	213	240	25 kg	100 kg	1,3	1,3	12, 40
	Cyanuric triazide	Forbidden												
	Cyclobutane	2.1	UN2601		FLAMMABLE GAS.		306	304	314, 315	Forbidden	150 kg	1,3	1	40, 85
	Cyclobutylchloroformate	6.1	UN2744	II	POISON, CORROSIVE.	T18	None	202	243	1 L	30 L	1,3	1,3	12, 13, 23, 25, 40, 95
	1,5,9-Cyclododecatriene	6.1	UN2518	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	1,2	5	34, 40
	Cycloheptane	3	UN2241	II	FLAMMABLE LIQUID.	T1	None	202	242	5 L	60 L	1,3	1	40
	Cycloheptatriene	3	UN2603	II	FLAMMABLE LIQUID, POISON.	T14	None	202	243	1 L	60 L	1,3	5	12, 40
	Cycloheptene	3	UN2242	II	FLAMMABLE LIQUID.	T7	150	202	241	5 L	60 L	1,3	1	
	Cyclohexane	3	UN1145	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	5	12
	Cyclohexanone	3	UN1915	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Cyclohexanone peroxide(s) (*1-Hydroxy-1'-hydroperoxy dicyclohexyl peroxide, technically pure, or 1-Hydroxy-1'-hydroperoxy dicyclohexyl peroxide and Di-(1-hydroxy cyclohexyl) peroxide mixtures), more than 90 per cent with water with not more than 9 percent available oxygen.*	5.2	UN2117	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	Cyclohexanone peroxide(s) (*1-Hydroxy-1')hydroperoxy dicyclohexyl peroxide, technically pure, or 1-Hydroxy-1'-hydroperoxy dicyclohexyl peroxide and Di-(1-hydroxy cyclohexyl) peroxide mixtures), not more than 90 per cent with water with not more than 9 percent available oxygen.*	5.2	UN2119	I	ORGANIC PEROXIDE.		None	225	None	1 kg	5 kg	1	5	12, 40
	Cyclohexanone peroxide(s), *not more than 72 per cent as a paste with not more than 9 per cent available oxygen.*	5.2	UN2896	II	ORGANIC PEROXIDE.		152	225	None	1 kg	5 kg	1	5	12, 40
	Cyclohexanone peroxide(s), *not more than 72 per cent in solution wih not more than 9 per cent available oxygen.*	5.2	UN2118	I	ORGANIC PEROXIDE.		None	225	None	1 kg	5 kg	1	5	12, 40
	Cyclohexene	3	UN2256	II	FLAMMABLE LIQUID.	T7	150	202	242	5 L	60 L	1,3	1	12

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Cyclohexenyltrichlorosilane	8	UN1762	II	CORROSIVE	B2, N16, N26, N34, T8, T26.	None	202	242	Forbidden	30 L	1	1	40
	Cyclohexyl acetate	3	UN2243	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Cyclohexylamine	8	UN2357	II	CORROSIVE, FLAMMABLE LIQUID.	T8, T26	None	202	243	1 L	30 L	1,3	1,3	
	Cyclohexyl isocyanate	6.1	UN2488	I	POISON	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1	5	21, 25, 40, 95
	Cyclohexyl mercaptan	3	UN3054	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Cyclohexyltrichlorosilane	8	UN1763	II	CORROSIVE	B2, N16, N26, N34, T8, T26.	None	202	242	Forbidden	30 L	1	1	40
	Cyclonite, *see* Cyclotrimethylenetrinitramine, *etc.*.													
	Cyclooctadiene phosphines, *see* 9-Phosphabicyclononanes.													
	Cyclooctadienes	3	UN2520	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1,3	
	Cyclooctatetraene	3	UN2358	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	Cyclopentane	3	UN1146	II	FLAMMABLE LIQUID.	T14	150	202	242	5 L	60 L	1,3	5	12
	Cyclopentane, methyl, see Methyl cyclopentane.													
	Cyclopentanol	3	UN2244	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Cyclopentanone	3	UN2245	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1,3	
	Cyclopentene	3	UN2246	II	FLAMMABLE LIQUID.	T13	150	202	242	5 L	60 L	1,3	5	12
	Cyclopropane, liquified	2.1	UN1027		FLAMMABLE GAS.	B13	306	304	244	Forbidden	150 kg	1,3	1	40, 85
	Cyclotetramethylene tetranitramine (dry or unphlegmatized) (HMX).	Forbidden												
	Cyclotetramethylenetetranitramine (HMX; Octogen), wetted *with not less than 15 per cent water, by weight, or* Cyclotetramethylenetetranitramine (HMX; Octogen) desensitized *with not less than 10 per cent phlegmatizer, by weight.*	1.1D	UN0226											

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Cyclotrimethylenetrinitramine (Cyclonite; Hexogen; RDX), and Cyclotetramethylenetetranitramine (HMX; Octogen) mixtures, wetted *with not less than 15 per cent water, by weight, or* Cyclotrimethylenetrinitramine (Cyclonite; Hexogen; RDX) and Cyclotetramethylenetetranitramine (HMX; Octogen) mixtures desensitized *with not less than 10 per cent phlegmatizer, by weight.*	1.1D	UN0391											
	Cyclotrimethylenetrinitramine (Cyclonite; Hexogen; RDX) wetted *with not less than 15 per cent water, by weight, or* Cyclotrimethylenetrinitramine (Cyclonite; Hexogen; RDX) desensitized *with not less than 10 per cent phlegmatizer, by weight.*	1.1D	UN0072											
	Cymenes	3	UN2046	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Decaborane	4.1	UN1868	II	FLAMMABLE SOLID, POISON.	A19, A20	None	212	None	Forbidden	50 kg	1,3	1,3	
	Decahydronaphthalene	3	UN1147	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1,3	40
	n-Decane	3	UN2247	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Decanoyl peroxide, *see* Didecanoyl peroxide, *technically pure.*													
	Deflagrating metal salts of aromatic nitroderivatives, n.o.s.	1.3C	UN0132											
	Delay electric igniter, see Igniters													
D	Denatured alcohol	3	NA1986	II	FLAMMABLE LIQUID.		150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1	150	203	242	60 L	220 L	1,3	1,3	
	Depth charges, see Charges, depth													
	Detonating relays, see Detonators, *etc.*													
	Detonator assemblies, non-electric *for blasting.*	1.1B	UN0360											
	Detonator assemblies, non-electric, *for blasting.*	1.4B	UN0361											
	Detonators, electric, *for blasting*	1.1B	UN0030											
	Detonators, electric, *for blasting*	1.4B	UN0255											
	Detonators for ammunition	1.1B	UN0073											
	Detonators for ammunition	1.2B	UN0364											
	Detonators for ammunition	1.4B	UN0365											
	Detonators for ammunition	1.4S	UN0366											
	Detonators, non-electric, *for blasting*	1.1B	UN0029											
	Detonators, non-electric, *for blasting*	1.4B	UN0267											

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Deuterium	2.1	UN1957		FLAMMABLE GAS.	B13	306	302	244	Forbidden	150 kg	1,3	5	40, 85
	Diacetone alcohol	3	UN1148	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Diacetone alcohol peroxides, more than 57% in solution with more than 9% hydrogen peroxide, less than 26% diacetone alcohol and less than 9% water; total active oxygen content more than 9% by weight.	Forbidden												
	Diacetone alcohol peroxides, *not more than 57 per cent in solution with not more than 9 per cent hydrogen peroxide, not less than 26 per cent diacetone alcohol and not less than 9 per cent water, total active oxygen content not more than 9 per cent.*	5.2	UN2163	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Diacetyl, see Butanedione													
	Diacetyl peroxide (Acetyl peroxide), *not more than 27 per cent in solution (dimethyl phthalate or other approved phlegmatizer).*	5.2	UN2084	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Diacetyl peroxide, solid, or more than 25% in solution.	Forbidden												
	Diallylamine	3	UN2359	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	40
	Diallylether	3	UN2360	II	FLAMMABLE LIQUID, POISON.	N12, T8	None	202	243	1 L	60 L	1,3	5	12, 40
	4,4'-Diaminodiphenyl methane	6.1	UN2651	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Di-n-amylamine	6.1	UN2841	III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1	1,3	12, 40, 95
	p-Diazidobenzene	Forbidden												
	1,2-Diazidoethane	Forbidden												
	1,1'-Diazoaminonaphthalene	Forbidden												
	Diazoaminotetrazole (dry)	Forbidden												
	Diazodinitrophenol (dry)	Forbidden												
	Diazodinitrophenol, wetted *with not less than 40 per cent water, by weight, or mixture of alcohol and water.*	1.1A	UN0074											
	Diazodiphenylmethane	Forbidden												

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	2-Diazo-1-naphthol-4-sulpho-chloride	4.1	UN3042	II	FLAMMABLE SOLID.		None	212	None	Forbidden	Forbidden	1	5	25
	2-Diazo-1-naphthol-5-sulpho-chloride	4.1	UN3043	II	FLAMMABLE SOLID.		None	212	None	Forbidden	Forbidden	1	5	25
	Diazonium nitrates (dry)	Forbidden												
	Diazonium perchlorates (dry)	Forbidden												
	1,3-Diazopropane	Forbidden												
	Dibenzoyl peroxide (Benzoyl peroxide), *more than 77 per cent but less than 95 per cent with water.*	5.2	UN2088	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	Dibenzoyl peroxide (Benzoyl peroxide), *not less than 30 per cent but not more than 52 per cent with inert solid.*	5.2	UN2089	II	ORGANIC PEROXIDE.		152	225	None	10 kg	25 kg	1	5	12, 40
	Dibenzoyl peroxide (Benzoyl peroxide), *not more than 72 per cent as a paste.*	5.2	UN2087	II	ORGANIC PEROXIDE.		152	225	None	10 kg	25 kg	1	5	12, 40
	Dibenzoyl peroxide (Benzoyl peroxide),*not more than 77 per cent with water.*	5.2	UN2090	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40
	Dibenzoyl peroxide (Benzoyl peroxide), *technically pure, or* Dibenzoyl peroxide (Benzoyl peroxide), *more than 52 per cent with inert solid.*	5.2	UN2085	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	Dibenzyldichlorosilane	8	UN2434	II	CORROSIVE	B2, T8, T26.	154	202	242	1 L	30 L	1	1	40
	Dibenzyl peroxydicarbonate, more than 87 per cent with water.	Forbidden												
	Dibenzyl peroxydicarbonate, *not more than 87 per cent with water.*	5.2	UN2149	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Diborane	2.3	UN1911	I	POISON GAS, FLAMMABLE GAS.	10	None	302	245	Forbidden	Forbidden	1	5	40, 57, 74, 95
D	Diborane mixtures	2.3	NA1911	I	POISON GAS, FLAMMABLE GAS.	B35, 10	None	302	245	Forbidden	Forbidden	1	5	40, 57, 74, 95
	Dibromoacetylene	Forbidden												
	Dibromobenzene	3	UN2711	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	1,2-Dibromobutan-3-one	6.1	UN2648	II	POISON		None	202	243	5 L	60 L	1,2	1	40, 95
	Dibromochloropropane	6.1	UN2872	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	1,2	1,2	34
A	Dibromodifluoromethane	9	UN1941	III	CLASS 9	T13	155	203	241	100 L	220 L	1,2	1,2	25, 34
	1,2-Dibromoethane, see Ethylene dibromide.													
	Dibromomethane	6.1	UN2664	III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,2	1,2	34

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or *railcar*	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Di-(n-butyl)amine	8	UN2248	II	CORROSIVE, FLAMMABLE LIQUID.		None	202	243	1 L	30 L	1,2	1,2	21
	Dibutylaminoethanol	6.1	UN2873	III	KEEP AWAY FROM FOOD.	T1	153	203	241	60 L	220 L	1,2	1,2	34
	Di-(4-tert-butylcyclohexyl) peroxydicarbonate, *not more than 42 per cent, stable dispersion, in water.*	5.2	UN2894	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Di-(4-tert-butylcyclohexyl) peroxydicarbonate, *technically pure.*	5.2	UN2154	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2,40
	Dibutyl ethers	3	UN1149	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Di-tert-butyl peroxide (tert-Butyl-peroxide), *technically pure.*	5.2	UN2102	II	ORGANIC PEROXIDE, FLAMMABLE LIQUID.		152	225	None	1 L	5 L	1	5	12, 40
	2,2-Di-(tert-butylperoxy) butane, more than 55 per cent in solution.	Forbidden												
	2,2-Di-(tert-butylperoxy) butane, *not more than 55 per cent in solution.*	5.2	UN2111	II	ORGANIC PEROXIDE.		152	225	None	5 L	10 L	1	5	12, 40
	1,1-Di-(tert-butylperoxy) cyclohexane, *not more than 40 per cent with inert inorganic solid with not less than 13 per cent in phlegmatizer.*	5.2	UN2885	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40
	1,1-Di-(tert-butylperoxy) cyclohexane, *not more than 50 per cent with phlegmatizer.*	5.2	UN2897	II	ORGANIC PEROXIDE.		152	225	None	5 L	10 L	1	5	12, 40
	1,1-Di-(tertbutyl peroxy) cyclohexane *not more than 27% in solution with not less than 36% diluent type A and not less than 36% diluent type B.*	5.2	UN3069	II	ORGANIC PEROXIDE.		None	225	None	5 L	10 L	1	5	2
	1,1-Di-(tert-butylperoxy) cyclohexane, *not more than 77 per cent in solution.*	5.2	UN2180	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	1,1-Di-(tert-butylperoxy) cyclohexane, *technically pure.*	5.2	UN2179	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	Di-n-butyl peroxydicarbonate, more than 52 per cent in solution.	Forbidden												
	Di-n-butyl peroxydicarbonate, *not more than 52 per cent in solution.*	5.2	UN2169	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Di-n-butyl peroxydicarbonate, *not more than 27 per cent in solution.*	5.2	UN2170	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Di-sec-butyl peroxydicarbonate, *not more than 52 per cent in solution.*	5.2	UN2151	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Di-sec-butyl peroxydicarbonate, *technically pure.*	5.2	UN2150	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	1,4-Di-(2-*tert*-butylperoxyisopropyl) benzene, *technically pure or more than 40 percent with inert solid or* 1,3-Di-(2-*tert*-butylperoxyisopropyl)benzene and 1,3-Di-(2-*tert*-butylperoxyisopropyl) benzene mixtures, *technically pure or more than 40 percent with inert solid.*	5.2	UN2112	II	ORGANIC PEROXIDE.		152	225	None	10 kg	25 kg	1	5	12, 40
	Di-(tert-butylperoxy) phthalate, more than 55 per cent in solution.	Forbidden												
	Di-(tert-butylperoxy) phthalate, *not more than 55 per cent as a paste.*	5.2	UN2108	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40
	Di-(tert-butylperoxy) phthalate, *not more than 55 per cent in solution.*	5.2	UN2107	II	ORGANIC PEROXIDE.		152	225	None	5 L	10 L	1	5	12, 40
	Di-(tert-butylperoxy) phthalate, *technically pure.*	5.2	UN2106	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	2,2-Di-(tert-butylperoxy) propane, *not more than 40 per cent with inorganic inert solid with not less than 13 per cent phlegmatizer.*	5.2	UN2884	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40
	2,2-Di-(tert-butylperoxy) propane, *not more than 50 per cent with phlegmatizer.*	5.2	UN2883	II	ORGANIC PEROXIDE.		152	225	None	5 L	10 L	1	5	12, 40
	1,1-Di-(tert-butylperoxy)3,3,5-trimethyl cyclohexane, *not more than 57 per cent in solvent.*	5.2	UN2146	II	ORGANIC PEROXIDE.		152	225	None	5 L	10 L	1	5	12, 40
	1,1-Di-(tert-butylperoxy)3,3,5-trimethyl cyclohexane, *not more than 58 per cent with inert solid.*	5.2	UN2147	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40
	1,1-Di-(tert-butylperoxy)3,3,5-trimethyl cyclohexane, *technically pure.*	5.2	UN2145	II	ORGANIC PEROXIDE.		152	225	None	Forbidden	Forbidden	1	5	12, 40
	Dicetyl peroxydicarbonate, *not more than 42 per cent stable dispersion, in water.*	5.2	UN2895	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Dicetyl peroxydicarbonate, *technically pure*	5.2	UN2164	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	N,N'-Dichlorazodicarbonamidine (salts of) (dry).	Forbidden												
	Dichloroacetic acid	8	UN1764	II	CORROSIVE	B2, N1, N11, N26, N34, T9, T27.	154	202	242	1 L	30 L	1,2	1,2	
	1,3-Dichloroacetone	6.1	UN2649	II	POISON		None	212	243	25 kg	100 kg	1,3	1	12, 40, 95
	Dichloroacetyl chloride	8	UN1765	II	CORROSIVE	B2, B6, N1, N11, N26, N34, T8, T26.	154	202	242	1 L	30 L	1	5	40
	Dichloroacetylene	Forbidden												

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Dichloroanilines	6.1	UN1590	II	POISON	T14	None	202	242	5 L	60 L	1,2	1,2	26, 40, 95
	o-Dichlorobenzene	6.1	UN1591	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	1,2	1,2	34
	p-Dichlorobenzene	6.1	UN1592	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Di-4-chlorobenzoyl peroxide (p-Chlorobenzoyl peroxide), *not more than 52 per cent as a paste.*	5.2	UN2114	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40
	Di-4-chlorobenzoyl peroxide (p-Chlorobenzoyl peroxide), *not more than 52 per cent in solution.*	5.2	UN2115	II	ORGANIC PEROXIDE.		152	225	None	5 L	10 L	1	5	12, 40
	Di-4-chlorobenzoyl peroxide (p-Chlorobenzoyl peroxide), *not more than 75 per cent with water.*	5.2	UN2113	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40
D	Dichlorobutene	8	NA2920	I	CORROSIVE, FLAMMABLE LIQUID.		None	201	243	0.5 L	2.5 L	1,2	1	
	Dichlorodifluoromethane (*R-12*)	2.2	UN1028		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	1,3	1,3	85
	Dichlorodifluoromethane and difluoroethane azeotropic mixture (*R500*) *with approximately 74 per cent dichlorodifluoromethane.*	2.2	UN2602		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	1,3	1,3	85
	Dichlorodifluoromethane and ethylene oxide mixture, *with not more than 12% ethylene oxide.*	2.3	UN3070	III	POISON GAS, FLAMMABLE GAS.	B14, B33, 10.	None	304	244	Forbidden	Forbidden	1	5	40
	Dichlorodimethyl ether, symmetrical	6.1	UN2249	I	POISON	T25	None	201	243	Forbidden	Forbidden	1	5	23, 40, 95
	1,1-Dichloroethane	3	UN2362	II	FLAMMABLE LIQUID.	T7	150	202	242	5 L	60 L	1,3	1	40
	1,2-Dichloroethane, see Ethylene dichloride.													
	Dichloroethylene	3	UN1150	II	FLAMMABLE LIQUID.	T14	150	202	242	5 L	60 L	1,3	1	
	Dichloroethyl ether	6.1	UN1916	II	PKISON	N33, N34, T8.	None	202	243	5 L	60 L	1,2	1,2	95
	Dichloroethyl sulfide	Forbidden												
	Dichlorofluoromethane	2.2	UN1029		NONFLAMMABLE GAS.	B51	306	304	314, 315	75 kg	150 kg	1,3	1,3	85
	Dichloroisocyanuric acid, dry *or* Dichloroisocyanuric acid salts.	5.1	UN2465	II	OXIDIZER	B10, 28	152	212	240	5 kg	25 kg	1,2	1,2	
	Dichloroisopropyl ether	6.1	UN2490	II	POISON	T8	None	202	243	5 L	60 L	1,2	1	95
	Dichloromethane	6.1	UN1593	III	KEEP AWAY FROM FOOD.	N36, T13	153	203	241	60 L	220 L	1,2	1,2	25, 34
	1,1-Dichloro-1-nitroethane	6.1	UN2650	II	POISON	T8	None	202	243	5 L	60 L	1,3	1,3	12, 40, 95

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Dichloropentanes	3	UN1152	III	FLAMMABLE LIQUID.	B1, T1	150	202	241	60 L	220 L	1,3	1,3	
	Dichlorophenyl isocyanates	6.1	UN2250	II	POISON		None	212	242	25 kg	100 kg	1,3	1,3	25, 40, 95
	Dichlorophenyltrichlorosilane	8	UN1766	II	CORROSIVE	B2, B6, N16, N26, N34, T8, T26.	None	202	242	Forbidden	30 L	1	1	40
	Dichloropropane, see Propylene dichloride													
	1,3-Dichloropropanol-2	6.1	UN2750	II	POISON	T8	None	202	243	5 L	60 L	1,3	1,3	12, 40, 95
	Dichloropropene	3	UN2047	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1,3	
	Dichloropropene and propylene dichloride mixture, see Propylene dichloride.													
	Dichlorosilane	2.3	UN2189	II	POISON GAS, FLAMMABLE GAS.	B13, B14, B31, 10.	None	304	244	Forbidden	Forbidden	1	5	40, 95
	Dichlorotetrafluoroethane	2.2	UN1958		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	1,3	1,3	85
	3,5 Dichloro-2,4,6 trifluoropyridine	6.1	NA2810	I	POISON	B14, B32, 10.		227	244	Forbidden	Forbidden	1	1,3	40, 95
	Dichlorovinylchloroarsine	Forbidden												
	Dicumyl peroxide, *technically pure, or* Dicumyl peroxide *with inert solid.*	5.2	UN2121	II	ORGANIC PEROXIDE.	B9, B20	152	225	243	10 kg	25 kg	1	5	12, 40
	Dicycloheptadiene *see* Norbornadiene													
	Dicyclohexylamine	8	UN2565	III	CORROSIVE	T8	154	203	241	5 L	60 L	1,2	1,2	
	Dicyclohexylammonium nitrite	6.1	UN2687	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Dicyclohexyl peroxydicarbonate, *not more than 91 per cent with water.*	5.2	UN2153	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Dicyclohexyl peroxydicarbonate, *technically pure.*	5.2	UN2152	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Dicyclopentadiene	3	UN2048	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1,3	
	Didecanoyl peroxide, *technically pure*	5.2	UN2120	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	2,2-Di-(4,4-di-tert-butylperoxycyclohexyl) propane, more than 42 per cent with inert solid.	Forbidden												
	2,2-Di-(4,4-di-tert-butylperoxycyclohexyl) propane, *not more than 42 per cent with inert solid.*	5.2	UN2168	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40
	Di-2,4-dichlorobenzoyl peroxide, more than 75 per cent with water.	Forbidden												
	Di-2,4-dichlorobenzoyl peroxide, *not more than 52 per cent as a paste.*	5.2	UN2138	II	ORGANIC PEROXIDE.		152	225	None	10 kg	25 kg	1	5	12, 40

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Di-2,4-dichlorobenzoyl peroxide, *not more than 52 per cent in solution.*	5.2	UN2139	II	ORGANIC PEROXIDE.		152	225	None	5 L	10 L	1	5	12, 40
	Di-2,4-dichlorobenzoyl peroxide, *not more than 75 per cent with watr.*	5.2	UN2137	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40
	1,2-Di-(dimethylamino) ethane	3	UN2372	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	Didymium nitrate	5.1	UN1465	III	OXIDIZER	A1	152	213	240	25 kg	100 kg	1,2	1,2	
D	Dieldrin	6.1	NA2761	II	POISON		None	212	242	0.5 kg	5 kg	1,2	1,2	
D	Diesel fuel	3	NA1202	III	None		150	203	241	60 L	220 L	1,3	1,3	
	Diethanol nitrosamine dinitrate (dry)	Forbidden												
	Diethoxymethane	3	UN2373	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	5	12
	2,5-Diethoxy-4-morpholinobenzenediazonium zinc chloride.	4.1	UN3036	II	FLAMMABLE SOLID.		None	212	None	15 kg	50 kg	1	5	25
	3,3-Diethoxypropene	3	UN2374	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Diethylamine	3	UN1154	II	FLAMMABLE LIQUID.	N34, T8	150	202	242	5 L	60 L	1,3	5	12, 40
	Diethylaminoethanol	3	UN2686	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
AW	Diethylaminopropylamine	8	UN2684	III	CORROSIVE, FLAMMABLE LIQUID.	B1, B2, T8.	154	203	243	5 L	60 L	1,2	1,2	
	N,N-Diethyl aniline	6.1	UN2432	III	KEEP AWAY FROM FOOD.	T2	153	203	241	60 L	220 L	1,2	1,2	34
	Diethylbenzene	3	UN2049	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1,3	40
	Diethyl carbonate	3	UN2366	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1,3	
	Diethyl cellosolve, see Ethylene glycol diethyl ether.													
	Diethyldichlorosilane	8	UN1767	II	CORROSIVE, FLAMMABLE LIQUID.	B6, N16, N26, N34, T8, T26.	None	202	243	Forbidden	30 L	1	1	21, 40, 77
	Diethylene glycol dinitrate	Forbidden												
	Diethylene glycol dinitrate, desensitized *with not less than 25 percent non-volatile water-insoluble phlegmatizer, by weight.*	1.1D	UN0075											
	Diethylenetriamine	8	UN2079	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	1,2	1,2	26, 32, 40, 71
	Diethyl ether	3	UN1155	I	FLAMMABLE LIQUID.	T21	150	201	243	1 L	30 L	1,3	5	12, 40
	N,N-Diethylethylene diamine	8	UN2685	II	CORROSIVE, FLAMMABLE LIQUID.	T8	None	202	243	1 L	30 L	1,3	1,3	12, 21

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Diethylgold bromide	Forbidden												
	Di-2-ethylhexyl peroxydicarbonate, *not more than 77 per cent in solution.*	5.2	UN2123	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Di-2-ethylhexyl peroxydicarbonate, *not more than 32 per cent, stable dispersion in water.*	5.2	UN2960	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Di-2-ethylhexyl peroxydicarbonate, *technically pure.*	5.2	UN2122	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Di-2-ethylhexyl phosphoric acid, see Diisooctyl acid phosphate.													
	Diethyl ketone	3	UN1156	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Diethyl peroxydicarbonate, more than 27 per cent in solution.	Forbidden												
	Diethyl peroxydicarbonate, *not more than 27 per cent in solution.*	5.2	UN2175	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Diethyl sulfate	6.1	UN1594	II	POISON	T14	None	202	243	5 L	60 L	1	1	95
	Diethyl sulfide	3	UN2375	II	FLAMMABLE LIQUID, POISON.	T14	None	202	243	1 L	60 L	1,3	5	12, 13, 95
	Diethylthiophosphoryl chloride	8	UN2751	II	CORROSIVE	B2, T8	None	202	242	1 L	30 L	1	5	12, 21, 40
	Diethylzinc	4.2	UN1366	I	SPONTANEOUSLY COMBUSTIBLE, DANGEROUS WHEN WET.	B11, T28, T40.	None	181	244	Forbidden	Forbidden	1	5	18
	Difluorochloroethanes, *see* Chlorodifluoroethanes.													
	Difluoroethane (*R-152a*)	2.1	UN1030		FLAMMABLE GAS.	B51	306	304	314, 315	Forbidden	150 kg	1,3	1	40, 85
	1,1-Difluoroethylene	2.1	UN1959		FLAMMABLE GAS.	B13	306	304	244	Forbidden	150 kg	1,3	5	40, 85
	Difluorophosphoric acid, anhydrous	8	UN1768	II	CORROSIVE	B2, N5, N11, N16, N26, N34, T9, T27.	None	202	242	1 L	30 L	1,2	1,2	40
	2,2-Dihydroperoxy propane, *not more than 25 per cent with inert organic solid.*	5.2	UN2178	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	2,3-Dihydropyran	3	UN2376	II	FLAMMABLE LIQUID.	T7	150	202	242	5 L	60 L	1,3	1	
	Di-(1-hydroxycyclohexyl) peroxide, *technically pure.*	5.2	UN2148	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40
	1,8-Dihydroxy-2,4,5,7-tetranitroanthraquinone (chrysamminic acid).	Forbidden												

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Di-(1-hydroxytetrazole) (dry)	Forbidden												
	Diiodoacetylene	Forbidden												
	Diisobutylamine	3	UN2361	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1,3	
	Diisobutylene, isomeric compounds	3	UN2050	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Diisobutyl ketone	3	UN1157	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Diisobutyryl peroxide, *not more than 52 per cent in solution.*	5.2	UN2182	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	Diisooctyl acid phosphate	8	UN1902	III	CORROSIVE	T7	154	203	241	5 L	60 L	1,2	1,2	
	Diisopropylamine	3	UN1158	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	Diisopropylbenzene hydroperoxide, *see* Isopropylcumyl hydroperoxide, *etc.*.													
	Diisopropyl ether	3	UN1159	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	5	12, 40
	Diisopropyl peroxydicarbonate *or* Isopropyl peroxydicarbonate, *technically pure.*	5.2	UN2133	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Diisopropyl peroxydicarbonate *or* Isopropyl peroxydicarbonate, *not more than 52 per cent in solution.*	5.2	UN2134	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Diisotridecyl peroxydicarbonate, *technically pure.*	5.2	UN2889	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Diketene, inhibited	3	UN2521	I	FLAMMABLE HIQUID, PKISON.	10, B14, B32.	None	227	244	Forbidden	Forbidden	1	5	21, 40, 95
	Dilauroyl peroxide (Lauroyl peroxide), *not more than 42 per cent, stable dispersion, in water.*	5.2	UN2893	II	ORGANIC PEROXIDE.		152	225	None	10 L	25 L	1	5	12, 40
	Dilauroyl peroxide (Lauroyl peroxide), *technically pure.*	5.2	UN2124	II	ORGANIC PEROXIDE.		152	225	None	10 kg	25 kg	1	5	12, 40
	1,1-Dimethoxyethane	3	UN2377	II	FLAMMABLE LIQUID.	T7	150	202	242	5 L	60 L	1,3	1	12
	1,2-Dimethoxyethane	3	UN2252	II	FLAMMABLE LIQUID.	T7	150	202	242	5 L	60 L	1,3	1	
	Dimethylamine, anhydrous	2.3	UN1032	II	POISON GAS, FLAMMABLE GAS.	B14, B33, 10.	None	304	314, 315	Forbidden	Forbidden	1,3	5	40, 85
	Dimethylamine solution	3	UN1160	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	12
	2-Dimethylaiinoacetonitrile	3	UN2378	II	FLAMMABLE LIQUID(POISON.	T8	None	202	243	1 L	60 L	1,3	1	40
	4-Dimethylamino-6-(2-dimethylaminoethoxy) toluene-2-diazonium zinc chloride.	4.1	UN3039	II	FLAMMABLE SOLID.		None	212	None	Forbidden	Forbidden	1	5	2
	Dimethylaminoethyl methacrylate	6.1	UN2522	II	POISON	T8	None	202	243	5 L	60 L	1,2	1	40, 95

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	N,N-Dimethylaniline	6.1	UN2253	II	POISON	T8	None	202	243	5 L	60 L	1,3	1,3	95
	Di-(2-methylbenzoyl) peroxide, *not more than 85 per cent with water.*	5.2	UN2593	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	2,3-Dimethylbutane	3	UN2457	II	FLAMMABLE LIQUID.	T13	150	202	242	5 L	60 L	1,3	5	12
	1,3-Dimethylbutylamine	3	UN2379	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	Dimethylcarbamoyl chloride	8	UN2262	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	1,2	1,2	40
	Dimethyl carbonate	3	UN1161	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	Dimethyl chlorothiophosphate, see Corrosive liquid, poisonous, n.o.s..													
	Dimethylcyclohexanes	3	UN2263	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Dimethylcyclohexylamine	8	UN2264	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	1,3	1,3	12, 21, 40
	2,5-Dimethyl-2,5-di-(benzoylperoxy) hexane, *not more than 82 per cent with inert solid.*	5.2	UN2173	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	2,5-Dimethyl-2,5-di-(benzoylperoxy) hexane, *not more than 82 per cent with water.*	5.2	UN2959	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40
	2,5-Dimethyl-2,5-di-(benzoylperoxy) hexane, *technically pure.*	5.2	UN2172	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	2,5-Dimethyl-2,5-di(tert-butylperoxy) hexane, *not more than 52 per cent with inert solid.*	5.2	UN2156	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40
	2,5-Dimethyl-2,5-di-3 (tert-butylperoxy) hexane, *technically pure.*	5.2	UN2155	II	ORGANIC PEROXIDE.		152	225	None	5 L	10 L	1	5	12, 40
	2,5-Dimethyl-2,5-di(tert-butylperoxy) hexyne-3, *not more than 52 per cent with inert solid.*	5.2	UN2159	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40
	2,5-Dimethyl-2,5-di(tert-butylperoxy)*technically pure.*	5.2	UN2158	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	Dimethyldichlorosilane	3	UN1162	I	FLAMMABLE LIQUID, POISON, CORROSIVE.	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1,3	1	40
	Dimethyldiethoxysilane	3	UN2380	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	2,5-Dimethyl-2,5-di(2-ethylhexanoylperoxy) hexane, *technically pure.*	5.2	UN2157	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	20, 40
	2,5-Dimethyl-2,5-dihydroperoxy hexane *or* Dimethylhexane dihydroperoxide, *not more than 82 per cent with water.*	5.2	UN2174	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	2,5-Dimethyl-2,5-dihydroperoxy hexane, more than 82 per cent with water.	Forbidden												
	Dimethyldioxanes	3	UN2707	II	FLAMMABLE LIQUID.	T8, T31	150	202	242	5 L	60 L	1,3	1	

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	.....	.....	.....	III	FLAMMABLE LIQUID.	B1, T7, T30.	150	203	242	60 L.....	220 L.....	1,3.....	1,3.....	
	Dimethyl disulfide	3	UN2381	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L.....	60 L.....	1,3.....	1.....	40
	2,5-Dimethyl-2,5-di-(5,5-trimethyl hexanoyl-peroxy)-hexane, *or*2,5-Dimethyl-2,5-di(isononanoylperoxy)-hexane *not more than 77% in solution* .	5.2	UN3060	II	ORGANIC PEROXIDE.	.....	None	225	None	5 L.....	10 L.....	1.....	5.....	
	Dimethylethanolamine	3	UN2051	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L.....	220 L.....	1,3.....	1.....	
	Dimethyl ether.....	2.1	UN1033	.....	FLAMMABLE GAS.	.....	306	304	314, 315	Forbidden	150 kg.....	1,3.....	1.....	40, 85
	N,N-Dimethylformamide.....	3	UN2265	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L.....	220 L.....	1,3.....	1,3.....	
	Dimethylhexane dihydroperoxide, see 2,5-Dimethyl2,5-dihydroperoxy hexane, *etc.*.	.....	.....											
	Dimethylhydrazine, symmetrical	3	UN2382	I	FLAMMABLE LIQUID, POISON, CORROSIVE.	B14, B32, N15, N26, 10.	None	227	244	Forbidden	Forbidden	1,3.....	5.....	12, 40, 95
	Dimethylhydrazine, unsymmetrical	3	UN1163	I	FLAMMABLE LIQUID, POISON, CORROSIVE.	B14, B32, N15, N26, 10.	None	227	244	Forbidden	Forbidden	1,3.....	5.....	40, 61, 74, 95
D	Dimethyl phosphorochloridothioate.....	6.1	NA2927	I	POISON, CORROSIVE.	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1,2.....	1.....	20, 95
	2,2-Dimethylpropane *other than pentane or isopentane.*	2.1	UN2044	.....	FLAMMABLE GAS.	B13.....	306	304	244	Forbidden	150 kg.....	1,3.....	1.....	40, 85
	Dimethyl-N-propylamine	3	UN2266	II	FLAMMABLE LIQUID, CORROSIVE.	T14, T26 ...	None	202	243	1 L.....	5 L.....	1,3.....	1.....	40
	Dimethyl sulfate.....	6.1	UN1595	I	POISON, CORROSIVE.	T18, T26 ...	None	201	243	Forbidden	30 L.....	1.....	5.....	40, 95
	Dimethyl sulfide	3	UN1164	I	FLAMMABLE LIQUID.	T14	None	201	243	1 L.....	30 L.....	1,3.....	5.....	12
	Dimethyl thiophosphoryl chloride	8	UN2267	I	CORROSIVE, POISON.	10, B14, B32.	None	227	244	Forbidden	Forbidden	1.....	5.....	20, 40, 85, 95
	Dimethylzinc.....	4.2	UN1370	I	SPONTANEOUSLY COMBUSTIBLE, DANGEROUS WHEN WET.	B11, B16, T28, T29, T40.	None	181	244	Forbidden	Forbidden	1.....	5.....	18
	Dimyristyl peroxydicarbonate, *not more than 24 per cent, stable dispersion, in water.*	5.2	UN2892	II	ORGANIC PEROXIDE.	.....	None	225	None	Forbidden	Forbidden	1.....	5.....	2, 40
	Dimyristyl peroxydicarbonate, *technically pure.*	5.2	UN2595	II	ORGANIC PEROXIDE.	.....	None	225	None	Forbidden	Forbidden	1.....	5.....	2, 40
	Di-(1-naphthoyl) peroxide	Forbidden	.....											

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Dinitroanilines	6.1	UN1596	II	POISON	T14	None	212	242	25 kg	100 kg	1,2	1,2	95
	Dinitrobejzenes, *liquid*	6.1	UN1597	II	POISON	T14, 11	None	202	243	5 L	60 L	1,2	1,2	95
	Dinitrobenzenes, *solid*	6.1	UN1597	II	POISON	11	None	212	242	25 kg	100 kg	1,2	1,2	95
	Dinitrochlorobenzene, see Chlorodinitrobenzene.													
	Dinitro-o-cresol, *solid*	6.1	UN1598	II	PKISON	T14	None	212	242	25 kg	100 kg	1,2	1,2	95
	Dinitro-o-cresol, *solution*	6.1	UN1598	II	POISON	T144	None	202	243	5 L	60 L	1,2	1,2	95
	Dinitro-7,8-dimethylglycoluril (dry)	Forbidden												
	1,3-Dinitro-5,5-dimethyl hydantoin	Forbidden												
	1,3-Dinitro-4,5-dinitrosobenzene	Forbidden												
	1,2-Dinitroethane	Forbidden												
	1,1-Dinitroethane (dry)	Forbidden												
	Dinitroglycoluril	Forbidden												
	Dinitromethane	Forbidden												
	Dinitrophenolates (*alkali metals*), *dry or wetted with less than 15 per cent water, by weight.*	1.3C	UN0077											
	Dinitrophenolates, wetted *with not less than 15 per cent water, by weight.*	4.1	UN1321	I	FLAMMABLE SOLID, POISON.	A19, A20, N2, N34, N41.	None	211	None	1 kg	15 kg	1,3	5	36
	Dinitrophenol, *dry or wetted with less than 15 per cent water, by weight.*	1.1D	UN0076											
	Dinitrophenol solutions	6.1	UN1599	II	POISON	T8	None	202	243	5 L	60 L	1,2	5	23, 36, 95
	Dinitrophenol, wetted *with not less than 15 per cent water, by weight.*	4.1	UN1320	I	FLAMMABLE SOLID, POISON.	A19, A20, N2, N34, N41.	None	211	None	1 kg	15 kg	1,3	5	36, 47
	Dinitropropylene glycol	Forbidden												
	Dinitroresorcinol, *dry or wetted with less than 15 per cent water, by weight.*	1.1D	UN0078											
	4,6-Dinitroresorcinol (heavy metal salts of) (dry).	Forbidden												
	2,4-Dinitroresorcinol (heavy metal salts of) (dry).	Forbidden												
	Dinitroresorcinol, wetted *with not less than 15 per cent water, by weight.*	4.1	UN1322	I	FLAMMABLE SOLID.	A19, A20, N2, N34, N41.	None	211	None	1 kg	15 kg	1,3	5	36
	3,5-Dinitrosalicylic acid (lead salt) (dry)	Forbidden												

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Dinitrosobenzene	1.3C	UN0406											
	Dinitrosobenzylamidine and salts of (dry)	Forbidden												
	N,N'-Dinitroso-N,N'-dimethyl terephthalamide *not more than 72% as a paste.*	4.1	UN2973	II	FLAMMABLE SOLID.		None	212	None	Forbidden	Forbidden	1	5	12, 25, 48, 52, 53
	N,N'-Dinitrosopentamethylenetetramine *not more than 82% with phlegmatizer.*	4.1	UN2972	II	FLAMMABLE SOLID.		None	212	None	Forbidden	Forbidden	1	5	12, 25, 48, 52, 53
	2,2-Dinitrostilbene	Forbidden												
	1,4-Dinitro-1,1,4,4-tetramethylolbutanetetranitrate (dry).	Forbidden												
	Dinitrotoluenes, *liquid*	6.1	UN2038	II	POISON	T14, T38	None	202	243	5 L	60 L	1,2	1,2	
				III	KEEP AWAY FROM FOOD.	T14, T38	153	203	241	60 L	220 L	1,2	1,2	
	Dinitrotoluenes, molten	6.1	UN1600	II	POISON	T14, T38	None	202	243	Forbidden	Forbidden	1,2	1,2	95
	Dinitrotoluenes, *solid*	6.1	UN2038	II	POISON	T8, T38	None	212	242	25 kg	100 kg	1,2	1,2	95
	2,4-Dinitro-1,3,5-trimethylbenzene	Forbidden												
	Di-(beta-nitroxyethyl) ammonium nitrate	Forbidden												
	a,a'-Di-(nitroxy) methylether	Forbidden												
	1,9-Dinitroxy pentamethylene-2,4, 6,8-tetramine (dry).	Forbidden												
	Di-n-nonanoyl peroxide, *technically pure*	5.2	UN2130	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Di-n-octanoyl peroxide, *technically pure*	5.2	UN2129	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Dioxane	3	UN1165	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	Dioxolane	3	UN1166	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	40
	Dipentene	3	UN2052	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1	
	Diperoxy azelaic acid *not more than 27 per cent with not less than 13 per cent azelaic acid and not less than 53 per cent sodium sulfate.*	5.2	UN2958	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Diperoxy dodecane diacid, *not more than 42% with not less than 56% sodium sulfate.*	5.2	UN3063	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2
	Di-(2 Phenoxyethyl)-peroxy dicarbonate, *not more than 85% with water.*	5.2	UN3059	II	ORGANIC PEROXIDE.		None	225	None	5 kg	10 kg	1	5	2
	Di-(2 phenoxyethyl)-peroxy dicarbonate, *technically pure.*	5.2	UN3058	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2
	Diphenylamine chloroarsine (*DM*)	6.1	UN1698	I	POISON	10	None	227	None	Forbidden	Forbidden	1	5	40, 95

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Diphenylchloroarsine	6.1	UN1699	I	POISON	B14, B32, N2, N33, N34, 10.	None	211	244	Forbidden	Forbidden	1	5	40, 95
	Diphenyldichlorosilane	8	UN1769	II	CORROSIVE	B2, N16, N26, N34, T8, T26.	None	202	244	Forbidden	30 L	1	1	40
	Diphenylmethane-4,4'diisocyanate	6.1	UN2489	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	1,2	1,2	34, 48
	Diphenylmethyl bromide	8	UN1770	II	CORROSIVE		154	212	240	15 kg	50 kg	1	5	40
	Diphenyloxide-4,4'disulfohydrazide	4.1	UN2951	II	FLAMMABLE SOLID.		None	212	None	15 kg	50 kg	1,3	1	12, 25, 48, 52, 53, 85
	Dipicrylamine, *see* Hexanitrodiphenylamine													
	Dipicryl sulfide, *dry or wetted with less than 10 per cent water, by weight.*	1.1D	UN0401											
	Dipicryl sulfide, wetted *with not less than 10 per cent water, by weight.*	4.1	UN2852	I	FLAMMABLE SOLID.	A2, N15, N34, N41.	None	211	None	Forbidden	0.5 kg	1	5	
	Dipropionyl peroxide *or* Propionyl peroxide, *not more than 28 per cent in solution.*	5.2	UN2132	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Dipropionyl peroxide, more than 28 per cent in solution.	Forbidden												
	Dipropylamine	3	UN2383	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	4-Dipropylaminobenzenediazonium zinc chloride.	4.1	UN3034	II	FLAMMABLE SOLID.		None	212	None	15 kg	50 kg	1	5	25
	Dipropyl ether	3	UN2384	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	5	12
	Dipropylketone	3	UN2710	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Di-n-propyl peroxydicarbonate, *technically pure.*	5.2	UN2176	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Disinfectants, corrosive liquid, n.o.s.	8	UN1903	II	CORROSIVE	B2	154	202	242	1 L	30 L	1,2	1,2	
				III	CORROSIVE		154	203	241	5 L	60 L	1,2	1,2	
	Disinfectants, n.o.s. *poisonous liquid*	6.1	UN1601	I	POISON		None	201	243	1 L	30 L	1,2	1	40, 95
				II	POISON		None	202	243	5 L	60 L	1,2	1,2	40, 95
				III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,2	1,2	34, 40
	Disinfectants, n.o.s. *poisonous solid*	6.1	UN1601	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	95
				II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Dispersant gas, see Compressed *or* liquefied gases, *etc.*.													
	Distearyl peroxydicarbonate, *not more than 85 per cent with stearyl alcohol.*	5.2	UN2592	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Disuccinic acid peroxide *or* Succinic acid peroxide, *technically pure.*	5.2	UN2135	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	Disuccinic acid peroxide, *not more than 72 per cent, wetted with water.*	5.2	UN2962	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	20, 40
	Dithiocarbamate pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23deg C.*	3	UN2772	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	1,3	5	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	1,3	1	
	Dithiocarbamate pesticides, liquid, toxic, flammable, n.o.s., *flash point not less than 23deg C.*	6.1	UN3005	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	1	1	21, 40, 95
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	1,3	1	21, 40, 95
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	1,2	1	21, 34, 40
	Dithiocarbamate pesticides, liquid, toxic, n.o.s..	6.1	UN3006	I	POISON		None	201	243	1 L	30 L	1	1	40, 95
				II	POISON		None	202	243	5 L	60 L	1,2	1	40, 95
				III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,2	1,2	34, 40
	Dithiocarbamate pesticides, solid, toxic, n.o.s..	6.1	UN2771	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	40, 95
				II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	40, 95
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34, 40
	Di-(3,5,5-trimethyl-1,2-dioxolanyl-3) peroxide, *not more than 50 per cent as a paste, with phlegmatizer.*	5.2	UN2597	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	2, 40
	Di-(3,5,5-trimethylhexanoyl) peroxide, *in solution, or* Di-(3,5,5-trimethylhexanoyl) peroxide, *technically pure.*	5.2	UN2128	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	20, 40
	Divinyl ether, inhibited	3	UN1167	II	FLAMMABLE LIQUID.	N15, T14	None	202	241	5 L	60 L	1,3	5	12, 40
D	Dodecylbenzenesulfonic acid	8	NA2584	II	CORROSIVE	B2	154	202	242	1 L	30 L	1,2	1,2	
	Dodecyltrichlorosilane	8	UN1771	II	CORROSIVE	B2, B6, N16, N26, N34, T8, T26.	None	202	242	Forbidden	30 L	1	1	40
	Driers, paint *or* varnish, liquid, n.o.s.	3	UN1168	II	FLAMMABLE LIQUID.	T8, T31	150	173	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T7, T30.	150	173	242	60 L	220 L	1,3	1,3	
	Driers, paint *or* varnish, solid, n.o.s.	4.1	UN1371	III	FLAMMABLE SOLID.	A1, A19, B16.	151	213	242	25 kg	100 kg	1,3	1,3	
	Dry ice, *see* Carbon dioxide, solid													

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Dyes, n.o.s. *or* Dye intermediates, n.o.s., *corrosive liquid.*	8	UN2801	II	CORROSIVE	B2, T14, 11.	154	202	242	1 L	30 L	1,2	1,2	23
				III	CORROSIVE	T14, 11	154	203	241	5 L	60 L	1,2	1,2	23
	Dyes, n.o.s. *or* Dye intermediates, n.o.s. *poisonous liquid.*	6.1	UN1602	I	POISON		None	201	243	1 L	30 L	1,2	1	23, 95
				II	POISON		None	202	243	5 L	60 L	1,2	1,2	23, 95
				III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220	1,2	1,2	34
	Dyes, n.o.s. *or* Dye intermediates, n.o.s. *poisonous solid.*	6.1	UN1602	I	POISON		None	211	242	5 kg	50 kg	1,2	1	95
				II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
				II	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Dyes, n.o.s. *or* Dye intermediates, n.o.s. *corrosive solid.*	8	UN2801	II	CORROSIVE	11	154	212	242	15 kg	50 kg	1,2	1,2	
				III	CORROSIVE	11	154	213	240	25 kg	100 kg	1,2	1,2	
	Dynamite, see Explosive, blasting, type A													
	EDTA. *See* Ethylenediaminetetraacetic acid.													
	Electrolyte (acid or alkali) for batteries, see Battery fluid, acid *or* Battery fluid, alkali.													
	Engines, internal combustion, *see* Vehicle, self-propelled.													
	Engine starting fluid, *with flammable gas*	2.1	UN1960		FLAMMABLE GAS.	B13	306	304	244	Forbidden	150 kg	1,3	5	40, 85
	Epibromohydrin	6.1	UN2558	I	POISON		None	201	243	Forbidden	Forbidden	1	5	23, 25, 40, 95
	Epichlorohydrin	6.1	UN2023	II	POISON		None	202	243	5 L	60 L	1,2	1,2	23, 40, 95
	1,2-Epoxy-3-ethoxypropane	3	UN2752	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Etching acid, liquid, n.o.s. , see Hydrofluoric acid, solution.													
	Ethane, compressed	2.1	UN1035		FLAMMABLE GAS.	B13	306	304	244	Forbidden	150 kg	1,3	5	40, 85
D	Ethane-Propane mixture, refrigerated liquid	2.1	NA1961		FLAMMABLE GAS.	B13	None	316	244	Forbidden	Forbidden	1	5	40
	Ethane, refrigerated liquid	2.1	UN1961		FLAMMABLE GAS.	B13	None	316	244	Forbidden	Forbidden	1	5	40
	Ethanolamine *or* Ethanolamine solutions	8	UN2491	III	CORROSIVE	T7	154	203	241	5 L	60 L	1,2	1,2	
	Ethanol amine dinitrate	Forbidden												
	Ethanol (Ethyl alcohol) *or* Ethanol (Ethyl alcohol) solutions.	3	UN1170	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Ether, see Diethyl ether													
	Ethyl acetate	3	UN1173	II	FLAMMABLE LIQUID.	T2	150	202	242	5 L	60 L	1,3	1	

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Ethyl acetylene, inhibited	2.1	UN2452		FLAMMABLE GAS.	B13	None	304	244	Forbidden	150 kg	1	5	40
	Ethyl acrylate, inhibited	3	UN1917	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	40
	Ethyl alcohol, *see* Ethanol													
	Ethyl aldehyde, see Acetaldehyde													
	Ethylamine	2.1	UN1036		FLAMMABLE GAS.	B13	None	321	244	Forbidden	Forbidden	1,3	5	40, 85
	Ethylamine, aqueous solution *with not less than 50 per cent but not more than 70 per cent ethylamine.*	3	UN2270	II	FLAMMABLE LIQUID.	N15, T14	150	202	242	5 L	60 L	1,3	5	12, 40
	Ethyl amyl ketone	3	UN2271	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	N-Ethylaniline	6.1	UN2272	III	KEEP AWAY FROM FOOD.	T2	153	203	241	60 L	220 L	1,2	1,2	26, 34
	2-Ethylaniline	6.1	UN2273	III	KEEP AWAY FROM FOOD.	T2	153	203	241	60 L	220 L	1,2	1,2	26, 34
	Ethylbenzene	3	UN1175	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	N-Ethyl-N-benzylaniline	6.1	UN2274	III	KEEP AWAY FROM FOOD.	T2	153	203	241	60 L	220 L	1,2	1,2	34
	N-Ethylbenzyltoluidines	6.1	UN2753	III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,3	1,3	12, 34
	Ethyl borate	3	UN1176	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	Ethyl bromide	6.1	UN1891	II	POISON	T17	None	202	243	5 L	60 L	1,3	1	40, 48, 95
	Ethyl bromoacetate	6.1	UN1603	II	POISON	T14	None	202	243	Forbidden	Forbidden	1	5	23, 40, 95
	2-Ethylbutanol	3	UN2275	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Ethylbutyl acetate	3	UN1177	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Ethyl butyl ether	3	UN1179	II	FLAMMABLE LIQUID.	B1, T1	150	202	242	5 L	60 L	1,3	1	
	2-Ethylbutyraldehyde	3	UN1178	II	FLAMMABLE LIQUID.	B1, T1	150	202	242	5 L	60 L	1,3	1	
	Ethyl butyrate	3	UN1180	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1,3	
	Ethyl chloride	2.1	UN1037	I	FLAMMABLE GAS.	B13	None	322	244	Forbidden	150 kg	1,3	5	40, 85
	Ethyl chloroacetate	6.1	UN1181	II	POISON	T14	None	202	243	5 L	60 L	1,2	1,2	23, 40, 48, 95
	Ethyl chloroformate	3	UN1182	I	FLAMMABLE LIQUID, POISON, CORROSIVE.	B14, B32, N1, N11, N26, N34, 10.	None	227	244	Forbidden	Forbidden	1,3	5	40

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Ethyl-2-chloropropionate	3	UN2935	III	FLAMMABLE LIQUID.	B1	150	203	242	60 L	220 L	1,3	1,3	
	Ethyl chlorothioformate	8	UN2826	I	CORROSIVE	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1	1,3	21, 40, 95
	Ethyl crotonate	3	UN1862	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Ethyl cyanoacetate	6.1	UN2666	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	1,2	1,2	26, 34
	Ethyl-3,3-di-(tert-butylperoxy) butyrate, *not more than 50 per cent with inert inorganic solid.*	5.2	UN2598	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40
	Ethyl-3,3-di-(tert-butylperoxy) butyrate, *not more than 77 per cent in solution.*	5.2	UN2185	II	ORGANIC PEROXIDE.		152	225	None	5 L	10 L	1	5	12, 40
	Ethyl-3,3-di-(tert-butylperoxy) *technically pure.*	5.2	UN2184	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	Ethyldichloroarsine	6.1	UN1892	I	POISON	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1	5	40, 95
	Ethyldichlorosilane	4.3	UN1183	I	DANGEROUS WHEN WET, CORROSIVE, FLAMMABLE LIQUID.	A2, N1, N15, N26, N34, T18, T26.	None	201	244	Forbidden	1 L	1	1	40
	Ethylene chlorohydrin	6.1	UN1135	I	POISON	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1,2	1,2	23, 40, 48, 95
	Ethylene, compressed	2.1	UN1962		FLAMMABLE GAS.	B13	306	304	244	Forbidden	150 kg	1,3	5	40, 85
	Ethylenediamine	8	UN1604	II	CORROSIVE, FLAMMABLE LIQUID.	T14	154	202	243	1 L	30 L	1,3	1,3	21, 40
	Ethylene diamine diperchlorate	Forbidden												
	Ethylene dibromide	6.1	UN1605	I	POISON	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1,2	1,2	40, 95
	Ethylene dibromide and methyl bromide liquid mixtures, see Methyl bromide and ethylene dibromide, liquid mixtures.													
	Ethylene dichloride	3	UN1184	II	FLAMMABLE LIQUID, POISON.	T14	None	202	243	1 L	60 L	1,3	1	
	Ethylene glycol diethyl ether	3	UN1153	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Ethylene glycol dinitrate	Forbidden												
	Ethylene glycol monobutyl ether	6.1	UN2369	III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,3	1,3	22, 25, 40, 34
	Ethylene glycol monoethyl ether	3	UN1171	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Ethylene glycol monoethyl ether acetate	3	UN1172	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Ethylene glycol monomethyl ether	3	UN1188	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Ethylene glycol monomethyl ether acetate	3	UN1189	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Ethyleneimine, inhibited	6.1	UN1185	I	POISON, FLAMMABLE LIQUID.	B14, B32, N16, N17, N25, N32, 10.	None	227	244	Forbidden	Forbidden	1,3	1	
	Ethylene oxide and carbon dioxide mixtures, see Carbon dioxide and ethylene oxide mixtures, *etc.*.													
	Ethylene oxide and propylene oxide mixtures, *not more than 30 per cent ethylene oxide.*	3	UN2983	I	FLAMMABLE LIQUID, POISON.	N4, N15, N34, N40.	None	201	243	Forbidden	30 L	1,3	5	12, 40
	Ethylene oxide, *pure or with nitrogen*	2.3	UN1040	II	POISON GAS, FLAMMABLE GAS.	10	None	323	248	Forbidden	Forbidden	1,3	1	40, 85, 95
	Ethylene, refrigerated liquid (*cryogenic liquid*).	2.1	UN1038		FLAMMABLE GAS.		None	316	318, 319	Forbidden	Forbidden	1	5	40, 85
	Ethyl ether, *see* Diethyl ether													
	Ethyl fluoride	2.3	UN2453	II	POISON GAS	B13, B33, 10.	None	304	244	Forbidden	Forbidden	1,3	5	40. 85
	Ethyl formate	3	UN1190	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	5	12
	Ethylhexaldehyde, see Octyl aldehydes *etc.*.													
	2-Ethylhexylamine	8	UN2276	III	CORROSIVE	T2	154	203	241	5 L	60 L	1,3	1,3	21
	2-Ethylhexylchloroformate	6.1	UN2748	II	POISON, CORROSIVE.		None	202	243	1 L	30 L	1,3	1,3	12, 13, 23, 25, 40, 95
	Ethyl hydroperoxide	Forbidden												
	Ethyl isobutyrate	3	UN2385	II	FLAMMABLE LIQUID.		150	202	242	5 L	60 L	1,3	1	
	Ethyl isocyanate	3	UN2481	I	FLAMMABLE LIQUID, POISON.	B13, B14, B30, N15, N26, 10.	None	226	244	Forbidden	Forbidden	1	5	12, 40, 48
	Ethyl lactate	3	UN1192	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Ethyl mercaptan	3	UN2363	I	FLAMMABLE LIQUID.		None	202	243	Forbidden	30 L	1,3	5	12, 13, 34, 35, 40
	Ethyl methacrylate	3	UN2277	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Ethyl methyl ether	2.1	UN1039		FLAMMABLE GAS.	B13	None	324	244	Forbidden	150 kg	1,3	1	25, 40, 85

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Ethyl methyl ketone *or* Methyl ethyl ketone	3	UN1193	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
D	Ethyl nitrate (*nitric ether*)	3	NA1993	II	FLAMMABLE LIQUID.		150	202	None	Forbidden	Forbidden	1,3	1	
	Ethyl nitrite solutions	3	UN1194	I	FLAMMABLE LIQUID, POISON.		None	201	None	Forbidden	Forbidden	1,3	5	12, 40
	Ethyl orthoformate	3	UN2524	III	FLAMMABLE LIQUID.		150	203	242	60 L	220 L	1,3	1,3	
	Ethyl oxalate	6.1	UN2525	III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,2	1,2	34
	Ethyl perchlorate	Forbidden												
	Ethylphenyldichlorosilane	8	UN2435	II	CORROSIVE	B2, N16, N26, N34, T8, T26.	None	202	242	Forbidden	30 L	1	1	
	Ethyl phosphonothioic dichloride, anhydrous, see Poisonous liquids, corrosive, n.o.s., *inhalation hazard, Packing Group I, Zone B.*													
	Ethyl phosphonous dichloride, anhydrous, see Pyrophoric liquids, n.o.s..													
	Ethyl phosphorodichloridate, see Corrosive liquid, n.o.s..													
	1-Ethyl piperidine	3	UN2386	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	1,3	1	
	Ethyl propionate	3	UN1195	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Ethyl propyl ether	3	UN2615	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	5	12
	Ethyl silicate, see Tetraethyl silicate													
	Ethylsulfuric acid	8	UN2571	II	CORROSIVE	B2, T9, T27	154	202	242	1 L	30 L	1,2	1	14
	N-Ethyltoluidines	6.1	UN2754	II	POISON	T14	None	202	243	5 L	60 L	1,3	1,3	12, 22, 25, 95
	Ethyltrichlorosilane	3	UN1196	I	FLAMMABLE LIQUID, CORROSIVE.	N26, N34	None	201	243	Forbidden	2.5 L	1,3	1	
D	Etiologic agent, n.o.s.(*see also* Infectious substances, *etc.*).	6.2	NA2814		ETIOLOGIC AGENT.		196	196	None	50 ml or 50 g.	4 L or 4 kg	5	5	
	Explosive articles, see Articles, explosive													
	Explosive, blasting, type A	1.1D	UN0081											
	Explosive, blasting, type B	1.1D	UN0082											
	Explosive, blasting, type B	1.5D	UN0331											
	Explosive, blasting, type C	1.1D	UN0083											
	Explosive, blasting, type D	1.1D	UN0084											
	Explosive, blasting, type E	1.1D	UN0241											
	Explosive, blasting, type E	1.5D	UN0332											

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Explosive, forbidden. See Sec. 173.51	Forbidden												
	Explosives, slurry, see Explosive, blasting, type E.													
	Explosive substances, see Substances, explosive.													
	Explosives, water gels, see Explosive, blasting, type E.													
	Extracts, aromatic, liquid	3	UN1169	I	FLAMMABLE LIQUID.	T7 T30	150	201	243	1 L	30 L	1,3	5	
				II	FLAMMABLE LIQUID.	T7, T30	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	T7, T30	150	203	242	60 L	220 L	1,3	1,3	
	Extracts, flavouring, liquid	3	UN1197	I	FLAMMABLE LIQUID.	T7, T30	150	201	243	1 L	30 L	1,3	5	
				II	FLAMMABLE LIQUID	T7, T30	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID	T7, T30	150	203	242	60 L	220 L	1,3	1,3	
	Fabric with animal or vegetable oil. See Fibers *or* fabrics, *etc.*.													
	Ferric arsenate	6.1	UN1606	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Ferric arsenite	6.1	UN1607	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Ferric chloride	8	UN1773	III	CORROSIVE		154	213	240	25 kg	100 kg	1,2	1,2	
	Ferric chloride, solution	8	UN2582	III	CORROSIVE	T8	154	203	241	5 L	60 L	1,2	1,2	
	Ferric nitrate	5.1	UN1466	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	1,2	1,2	
	Ferrocerium	4.1	UN1323	II	FLAMMABLE SOLID.	A19	151	212	240	15 kg	50 kg	1,3	1,3	
	Ferrosilicon, *with 30 percent or more but less than 90 percent silicon.*	4.3	UN1408	III	DANGEROUS WHEN WET, KEEP AWAY FROM FOOD.	A1, A19	None	213	242	25 kg	100 kg	1,3	1,3	13, 40, 85
	Ferrous arsenate	6.1	UN1608	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
D	Ferrous chloride, solid	8	NA1759	II	CORROSIVE		154	212	240	15 kg	50 kg	1,2	1,2	
D	Ferrous chloride, solution	8	NA1760	II	CORROSIVE	B2	154	202	242	1 L	30 L	1,2	1,2	
	Ferrous metal borings, shavings, turnings *or* cuttings *in a form liable to self-heating.*	4.2	UN2793	III	SPONTANEOUSLY COMBUSTIBLE.	A1, A19	None	213	241	25 kg	100 kg	1,2	1,2	
	Fertilizer ammoniating solution *with free ammonia.*	2.2	UN1043		NONFLAMMABLE GAS.	B13	306	304	244	Forbidden	150 kg	1,3	5	40, 85
AIW	Fibers *or* Fabrics, animal *or* vegetable, n.o.s. *with animal or vegetable oil.*	4.2	UN1373	III	SPONTANEOUSLY COMBUSTIBLE.		None	213	241	Forbidden	Forbidden	1,3	1,3	
	Films, nitrocellulose base, from which gelatine has been removed; film scrap, see Celluloid scrap.													

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Films, nitrocellulose base, *gelatine coated (except scrap)*.	4.1	UN1324	III	FLAMMABLE SOLID.		None	183	None	25 kg	100 kg	1	5	98
	Fire extinguisher charges, *corrosive liquid*	8	UN1774	II	CORROSIVE	N15, N34, N41.	154	202	None	1 L	30 L	1,2	1,2	
	Fire extinguisher charges, expelling, explosive, see Cartridges, power device.													
	Fire extinguishers *with compressed or liquefied gas*.	2.2	UN1044		NONFLAMMABLE GAS.		306	306	None	75 kg	150 kg	1,3	1,3	85
	Firelighters, solid *with flammable liquid*	4.1	UN2623	II	FLAMMABLE SOLID.	A19	None	212	None	15 kg	50 kg	1,3	1,3	
				III	FLAMMABLE SOLID.	A1, A19	None	213	None	25 kg	100 kg	1,3	1,3	
	Fireworks, type A	1.1G	UN0333											
	Fireworks, type B	1.2G	UN0334											
	Fireworks, type C	1.3G	UN0335											
	Fireworks, type D	1.4G	UN0336											
	Fireworks, type D	1.4S	UN0337											
	Fish meal *or* fish scrap, unstabilized	4.2	UN1374	II	SPONTANEOUSLY COMBUSTIBLE.	A1, A19	None	212	241	15 kg	50 kg	1,3	1,3	
ADW	Fish meal *or* fish scrap containing 6% to 12% water.	9	NA9300	III	CLASS 9	A1	155	213	241	No limit	No limit	1,2	1,2	
	Fissile radioactive materials, see Radioactive material, fissile, n.o.s..													
	Flammable compressed gas, see Compressed *or* Liquefied gas, flammable, *etc.*.													
	Flammable compressed gas (small receptacles not fitted with a dispersion device, not refillable), see Receptacles, *etc.*.													
	Flammable gas in lighters, *see* Lighters for cigars *or* cigarettes, *with flammable gas*.													
	Flammable liquids, corrosive, n.o.s.	3	UN2924	I	FLAMMABLE LIQUID, CORROSIVE.	T42	None	201	243	0.5 L	2.5 L	1,3	5	40
				II	FLAMMABLE LIQUID, CORROSIVE.	T15, T26	None	202	243	1 L	5 L	1,3	1	40
				III	FLAMMABLE LIQUID, CORROSIVE.	B1, T15, T26.	150	203	242	5 L	60 L	1,3	1,3	40
	Flammable liquids, n.o.s.	3	UN1993	I	FLAMMABLE LIQUID.	T42	150	201	243	1 L	30 L	1,3	5	
				II	FLAMMABLE LIQUID.	T8, T31	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T7, T30.	150	203	242	60 L	220 L	1,3	1,3	

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Flammable liquids, poisonous, n.o.s.	3	UN1992	I	FLAMMABLE LIQUID, POISON.	B38, T42	None	201	243	Forbidden	30 L	1,3	5	40
				II	FLAMMABLE LIQUID, POISON.	T18	None	202	243	1 L	60 L	1,3	1	40
				III	FLAMMABLE LIQUID, KEEP AWAY FROM FOOD.	B1, T18	150	203	242	60 L	220 L	1,3	1,3	40
	Flammable solids, corrosive, n.o.s.	4.1	UN2925	I	FLAMMABLE SOLID, CORROSIVE.	A19	None	211	242	1 kg	15 kg	1	5	40, 74
				II	FLAMMABLE SOLID, CORROSIVE.		None	212	242	15 kg	50 kg	1	5	40, 74
				III	FLAMMABLE SOLID, CORROSIVE.	A1	151	213	242	25 kg	100 kg	1	5	
	Flammable solids, n.o.s.	4.1	UN1325	II	FLAMMABLE SOLID.		151	212	240	15 kg	50 kg	1,3	1	
				III	FLAMMABLE SOLID.		151	213	240	25 kg	100 kg	1,3	1	
	Flammable solids, poisonous, n.o.s.	4.1	UN2926	I	FLAMMABLE SOLID, POISON.	A19	None	211	242	1 kg	15 kg	1,3	5	
				II	FLAMMABLE SOLID, POISON.		None	212	242	15 kg	50 kg	1,3	1	
				III	FLAMMABLE SOLID, KEEP AWAY FROM FOOD.	A1	151	213	242	25 kg	100 kg	1,3	1	
	Flares, aerial	1.3G	UN0093											
	Flares, aerial	1.4G	UN0403											
	Flares, aerial	1.4S	UN0404											
	Flares, aerial	1.1G	UN0420											
	Flares, aerial	1.2G	UN0421											
	Flares, airplane, see Flares, aerial													
	Flares, signal, see Cartridges, signal													
	Flares, surface (*other than water activated contrivances*).	1.1G	UN0418											
	Flares, surface (*other than water activated contrivances*).	1.2G	UN0419											
	Flares, surface (*other than water-activated contrivances*).	1.3G	UN0092											
	Flares, water-activated, see Contrivances, water-activated, *etc.*.													
	Flash powder, in units, see Photo-flash powder, in units.													

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Flue dusts, poisonous, see Arsenical dust													
	Fluoboric acid	8	UN1775	II	CORROSIVE	B2, B15, N3, N11, N26, N34, T15, T27.	154	202	242	1 L	30 L	1,2	1,2	
	Fluoric acid, see Hydrofluoric acid, solution, *etc.*													
	Fluorine, compressed	2.3	UN1045	I	POISON GAS, OXIDIZER.	10	None	302	245	Forbidden	Forbidden	1	5	40, 43, 95
	Fluoroacetic acid	6.1	UN2642	I	POISON		None	211	242	1 kg	15 kg	1,3	1,3	12, 95
	Fluoroanilines	6.1	UN2941	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	1,2	1,2	23, 34
	Fluorobenzene	3	UN2387	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	40
	Fluorophosphoric acid anhydrous	8	UN1776	II	CORROSIVE	B2, N3, N11, N26, N34, T9, T27.	None	202	242	1 L	30 L	1,2	1,2	
	Fluorosilicates, n.o.s.	6.1	UN2856	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	26, 34
	Fluorosilicic acid	8	UN1778	II	CORROSIVE	B2, B15, N3, N11, N26, N34, T12, T27.	None	202	242	1 L	30 L	1,2	1,2	
	Fluorosulfonic acid	8	UN1777	I	CORROSIVE	B41, B4, B6, N1, N3, N11, N26, N35, T12, T27.	None	201	242	0.5 L	2.5 L	1	5	33, 40
	Fluorotoluenes	3	UN2388	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	40
				III	FLAMMABLE LIQUID.	B1, T8	150	202	242	60 L	220 L	1,3	1,3	
	Forbidden materials. See 173.21	Forbidden												
	Formaldehyde, solutions, *flammable*	3	UN1198	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1,3	40
				III	FLAMMABLE LIQUID.	B1, T8	150	203	242	60 L	220 L	1,3	1,3	40

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Formaldehyde, solutions(*flashpoint greater than 60.5 degrees C*).	9	UN2209	III	CLASS 9	T1	155	204	240	100 L	220 L	1,2	1,2	34
	Formalin, see Formaldehyde, solutions													
	Formic acid	8	UN1779	II	CORROSIVE	B2, B12, B28, T8.	154	202	242	1 L	30 L	1,2	1,2	40
	Fracturing devices, explosive, *for oil wells*	1.1D	UN0099											
	Fuel, aviation, turbine engine	3	UN1863	II	FLAMMABLE LIQUID.	T7	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
D	Fuel oil(*No. 1, 2, 4, 5 or 6*)	3	NA1202	III	None		150	203	241	60 L	220 L	1,3	1,3	
	Fuel, pyrophoric, n.o.s.	4.2	UN1375	I	SPONTANEOUSLY COMBUSTIBLE.	B11	None	181	244	Forbidden	Forbidden	1	5	18
	Fulminate of mercury (dry)	Forbidden												
	Fulminate of mercury, wet, see Mercury fulminate, *etc.*.													
	Fulminating gold	Forbidden												
	Fulminating mercury	Forbidden												
	Fulminating platinum	Forbidden												
	Fulminating silver	Forbidden												
	Fulminic acid	Forbidden												
	Fumaryl chloride	8	UN1780	II	CORROSIVE	B2, T8, T26.	154	202	242	1 L	30 L	1	1	80, 40
	Furan	3	UN2389	I	FLAMMABLE LIQUID.		None	201	242	1 L	30 L	1	1,3	
	Furfural	3	UN1199	III	FLAMMABLE LIQUID.	T1	150	203	241	60 L	220 L	1,3	1,3	
	Furfuryl alcohol	6.1	UN2874	III	KEEP AWAY FROM FOOD.	T2	153	203	240	60 L	220 L	1,2	1,2	34, 74
	Furfurylamine	3	UN2526	III	FLAMMABLE LIQUID.	T1	150	203	241	60 L	220 L	1,3	1,3	
	Fuse, detonating, *metal clad, see* Cord, detonating, *metal clad*.													
	Fuse, detonating, mild effect, *metal clad, see* Cord, detonating, mild effect, *metal clad*.													
D	Fusee (*railway or highway*)	4.1	NA1325	II	FLAMMABLE SOLID.		None	184	None	15 kg	50 kg	1,3	1	
	Fuse, igniter *tubular metal clad*	1.4G	UN0103											
	Fuse, instantaneous, non-detonating	1.3G	UN0101											

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Fusel oil	3	UN1201	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Fuse, safety	1.4S	UN0105											
	Fuses, tracer, see Tracers for ammunition													
	Fuzes, combination, percussion and time, see Fuzes, detonating (*UN 0257, 0367*); Fuzes, igniting (UN 0317, 0368).													
	Fuzes, detonating	1.1B	UN0106											
	Fuzes, detonating	1.2B	UN0107											
	Fuzes, detonating	1.4B	UN0257											
	Fuzes, detonating	1.4S	UN0367											
	Fuzes, detonating, *with protective features*	1.1D	UN0408											
	Fuzes, detonating, *with protective features*	1.2D	UN0409											
	Fuzes, detonating, *with protective features*	1.4D	UN0410											
	Fuzes, igniting	1.3G	UN0316											
	Fuzes, igniting	1.4G	UN0317											
	Fuzes, igniting	1.4S	UN0368											
	Galactsan trinitrate	Forbidden												
	Gallium	8	UN2803	I	CORROSIVE		None	162	240	20 kg	20 kg	1,3	1	26, 48
	Gas drips, *hydrocarbon*	3	UN1864	II	FLAMMABLE LIQUID.	T7	150	202	242	5 L	60 L	1,3	1	
	Gas generator assemblies (aircraft), *containing a non-flammable non-toxic gas and a propellant cartridge.*	2.2			NONFLAMMABLE GAS.		None	335	None	75 kg	150 kg	1,3	1,3	
D	Gas identification set	2.3	NA9035	II	POISON GAS	10	None	194	None	Forbidden	Forbidden	1	5	
D	Gas identification set	6.1	NA9035	I	POISON		None	194	None	Forbidden	Forbidden	1,2	5	
D	Gasohol (*gasoline mixed with ethyl alcohol, max. 20% alcohol*).	3	NA1203	II	FLAMMABLE LIQUID.		150	202	242	5 L	60 L	1,3	5	12
	Gas oil	3	UN1202	II	FLAMMABLE LIQUID.	T7, T30	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T7, T30.	150	203	242	60 L	220 L	1,3	1,3	
	Gasoline	3	UN1203	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	5	12
	Gasoline, casinghead, see Natural gasoline													
	Gelatine, blasting, see Explosive, blasting, type A.													
	Gelatine dynamites, see Explosive, blasting, type A.													
	Germane	2.3	UN2192	I	POISON GAS, FLAMMABLE GAS.	10	None	192	245	Forbidden	Forbidden	1	5	40, 95
	Glycerol-1,3-dinitrate	Forbidden												
	Glycerol gluconate trinitrate	Forbidden												

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Glycerol lactate trinitrate	Forbidden												
	Glycerol alpha-monochlorohydrin	6.1	UN2689	III	KEEP AWAY FROM FOOD.	T2	153	203	241	60 L	220 L	1,2	1,2	34
	Glyceryl trinitrate, see Nitroglycerin, *etc.*													
	Glycidaldehyde	3	UN2622	II	FLAMMABLE LIQUID, POISON.	T8	150	202	243	1 L	60 L	1,3	1,3	40
	Grenades, *hand or rifle, with bursting charge.*	1.1D	UN0284											
	Grenades, *hand or rifle, with bursting charge.*	1.2D	UN0285											
	Grenades, *hand or rifle, with bursting charge.*	1.1F	UN0292											
	Grenades, *hand or rifle, with bursting charge.*	1.2F	UN0293											
	Grenades, illuminating, see Ammunition, illuminating, *etc.*													
	Grenades practice	1.4G	UN0452											
	Grenades, practice, *hand or rifle*	1.4S	UN0110											
	Grenades, practice, *hand or rifle*	1.3G	UN0318											
	Grenades, practice, *hand or rifle*	1.2G	UN0372											
	Grenades, smoke, see Ammunition, smoke, *etc.*													
	Guanidine nitrate	5.1	UN1467	III	OXIDIZER	A1	152	213	240	25 kg	100 kg	1,2	1,2	73
	Guanyl nitrosaminoguanylidene hydrazine (dry).	Forbidden												
	Guanyl nitrosaminoguanylidene hydrazine, wetted *with not less than 30 per cent water, by weight.*	1.1A	UN0113											
	Guanyl nitrosaminoguanyltetrazene (dry)	Forbidden												
	Guanyl nitrosaminoguanyltetrazene (Tetrazene), wetted *with not less than 30 per cent water by weight, or mixture of alcohol and water.*	1.1A	UN0114											
	Gunpowder, compressed *or* Gunpowder in pellets, *see* Black powder (*UN 0028*).													
	Gunpowder, *granular or as a meal, see* Black powder (*UN 0027*).													
D	Guthion. *See* Azinphos methyl													
	Gutta percha solution	3	UN1205	II	FLAMMABLE LIQUID.	T7, T30	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T7, T30.	150	203	242	60 L	220 L	1,3	1,3	
	Hafnium powder, dry (*a*) *mechanically produced, particle size between 3 and 53 microns; (b) chemically produced, particle size between 10 and 840 microns.*	4.2	UN2545	II	SPONTANEOUSLY COMBUSTIBLE.	A19, A20, N34.	None	212	241	15 kg	50 kg	1	5	

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Hafnium powder, wetted *with not less than 25 per cent water (a visible excess of water must be present) (a) mechanically produced, particle size less than 53 microns; (b) chemically produced, particle size less than 840 microns.*	4.1	UN1326	II	FLAMMABLE SOLID.	A19, A20, N11, N34.	None	212	241	15 kg	50 kg	1,3	5	
	Halogenated irritating liquids, n.o.s.	6.1	UN1610	I	POISON	T42	None	201	243	Forbidden	Forbidden	1	5	23, 40, 95
				II	POISON	T14	None	202	243	5 L	60 L	1	5	23, 40, 95
				III	KEEP AWAY FROM FOOD.	T14	153	202	241	60 L	220 L	1	5	23, 34, 40
	Hand signal device, see Signal devices, hand.													
D	Hazardous substance, liquid, n.o.s., *or* ORM-E, liquid, n.o.s..	ORM-E	NA9188	III	None		156	203	241	No limit	No limit	1,2	1,2	
D	Hazardous substance, solid, n.o.s., *or* ORM-E, solid, n.o.s..	ORM-E	NA9188	III	None		156	213	240	No limit	No limit	1,2	1,2	
D	Hazardous waste, liquid, n.o.s.	ORM-E	NA9189	III	None		156	203	241	No limit	o limit	1,2	1,2	
D	Hazardous waste, solid, n.o.s.	ORM-E	NA9189	III	None		156	213	240	No limit	No limit	1,2	1,2	
	Helium, compressed	2.2	UN1046		NONFLAMMABLE GAS.	B13	306	302	244	75 kg	150 kg	1,3	1,3	85
	Helium-oxygen mixture, see Rare gases and oxygen mixtures.													
	Helium, refrigerated liquid (*cryogenic liquid*)	2.2	UN1963		NONFLAMMABLE GAS.		320	316	318	50 kg	500 kg	1,3	1	85
	n-Heptaldehyde	3	UN3056	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,2	1	
	Heptanes	3	UN1206	II	FLAMMABLE LIQUID.	T2	150	202	242	5 L	60 L	1,3	1	
	n-Heptene	3	UN2278	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	Hexachloroacetone	6.1	UN2661	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	1,2	1,2	12, 34, 40
	Hexachlorobenzene	6.1	UN2729	III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,2	1,2	34
	Hexachlorobutadiene	6.1	UN2279	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	1,2	1,2	34
	Hexachlorocyclopentadiene	6.1	UN2646	I	POISON	10, B14, B32.	None	227	244	Forbidden	Forbidden	1	5	40, 95
	Hexachlorophene	6.1	UN2875	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Hexadecyltrichlorosilane	8	UN1781	II	CORROSIVE	B2, B6, N26, N34, T8.	None	202	242	Forbidden	30 L	1	1	40
	Hexadiene	3	UN2458	II	FLAMMABLE LIQUID.	T7	None	202	242	5 L	60 L	1,3	5	12
	Hexaethyl tetraphosphate and compressed gas mixtures.	2.3	UN1612	I	POISON GAS	B14, B31, 10.	None	334	244	Forbidden	Forbidden	1	5	40, 95

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***) Exceptions	Non-bulk packaging	Bulk packaging	(9) Quantity limitations Passenger aircraft or railcar	Cargo aircraft only	(10) Vessel stowage requirements Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Hexaethyl tetraphosphate, *liquid*	6.1	UN1611	I	POISON	A4	None	201	243	1 L	30 L	1,2	5	40, 95
				II	POISON	N76	None	202	243	5 L	60 L	1,2	5	40, 95
				III	KEEP AWAY FROM FOOD.	N77	None	203	241	60 L	220 L	1,2	5	34, 40
	Hexaethyl tetraphosphate mixture, see Organophosphorous pesticide *etc.*.													
	Hexaethyl tetraphosphate, *solid*	6.1	UN1611	I	POISON		None	211	242	Forbidden	15 kg	1,2	5	95
				II	POISON	N76	None	212	242	25 kg	100 kg	1,2	5	95
				III	KEEP AWAY FROM FOOD.	N77	153	213	240	100 kg	200 kg	1,2	5	34
	Hexafluoroacetone	2.3	UN2420	I	POISON GAS	B14, B31, 10.	None	304	244	Forbidden	Forbidden	1	5	40, 95
	Hexafluoroacetone hydrate	6.1	UN2552	II	POISON		None	202	243	5 L	60 L	1,2	1	40, 95
	Hexafluoroethane	2.2	UN2193		NONFLAMMABLE GAS.	B13	306	304	244	75 kg	150 kg	1,3	1,3	85
	Hexafluorophosphoric acid	8	UN1782	II	CORROSIVE	B2, N3, N11, N26, N34, T9, T27.	None	202	242	1 L	30 L	1,2	1,2	
	Hexafluoropropylene	2.2	UN1858		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	1,3	1,3	85
D	Hexafluoropropylene oxide	2.2	NA1956		NONFLAMMABLE GAS.	B13	306	304	244, 314	75 kg	150 kg	1,3	1,3	85
	Hexaldehyde	3	UN1207	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1,3	
	Hexamethylenediamine, solid	8	UN2280	III	CORROSIVE		154	213	242	25 kg	100 kg	1,3	1,3	12
	Hexamethylenediamine solution	8	UN1783	II	CORROSIVE, POISON.	T8	None	202	243	1 L	30 L	1,2	1,2	
	Hexamethylenediisocyanate	6.1	UN2281	II	POISON	T14	None	202	243	5 L	60 L	1,2	1	13, 40, 95
	Hexamethyleneimine	3	UN2493	II	FLAMMABLE LIQUID, CORROSIVE.	T8	None	202	243	1 L	5 L	1,3	1	40
	Hexamethylene triperoxide diamine (dry)	Forbidden												
	Hexamethylol benzene hexanitrate	Forbidden												
	3,3,6,6,9,9-Hexamethyl-1,2,4,5-tetraoxacyclononane, *not more than 52 per cent in solution.*	5.2	UN2167	II	ORGANIC PEROXIDE.		152	225	None	5 L	10 L	1	5	12, 40
	3,3,6,6,9,9-Hexamethyl-1,2,4,5-tetraoxacyclononane, *not more than 52 per cent with inert solid.*	5.2	UN2166	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	1	5	12, 40
	3,3,6,6,9,9-Hexamethyl-1,2,4,5-tetraoxacyclononane, *technically pure.*	5.2	UN2165	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	Hexamine	4.1	UN1328	III	FLAMMABLE SOLID.	A1	151	213	240	25 kg	100 kg	1,3	1,3	
	Hexanes	3	UN1208	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	5	12

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Hexanitroazoxy benzene	Forbidden												
	2,2',4,4',6,6'-Hexanitro-3,3'-dihydroxyazobenzene (dry).	Forbidden												
	2,2',3',4,4',6-Hexanitrodiphenylamine	Forbidden												
	Hexanitrodiphenylamine (Dipicrylamine; Hexyl).	1.1D	UN0079											
	2,3',4,4',6,6'-Hexanitrodiphenylether	Forbidden												
	N,N'-(hexanitrodiphenyl) ethylene dinitramine (dry).	Forbidden												
	Hexanitrodiphenyl urea	Forbidden												
	Hexanitroethane	Forbidden												
	Hexanitrooxanilide	Forbidden												
	Hexanitrostilbene	1.1D	UN0392											
	Hexanoic acid, see Corrosive liquid, n.o.s.													
	Hexanols	3	UN2282	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Hexatonal, cast	1.1D	UN0393											
	1-Hexene	3	UN2370	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	5	12
	Hexogen, *see* Cyclotrimethylenetrinitramine, *etc.*.													
	Hexolite, *dry or wetted a less than 15 per cent water, by weight.*	1.1D	UN0118											
	Hexyl, *see* Hexanitrodiphenylamine													
	Hexyltrichlorosilane	8	UN1784	II	CORROSIVE	B2, B6, N16, N26, N34, T8, T26.	None	202	242	Forbidden	30 L	1	1	40
	High explosives, see individual explosives' entries.													
	HMX, *see* Cyclotetramethylene-tetranitramine, *etc.*.													
	Hydrazine, anhydrous *or* Hydrazine aqueous solutions *with more than 64 per cent hydrazine, by weight.*	3	UN2029	I	FLAMMABLE LIQUID, POISON, CORROSIVE.	B16, B17, B24, N1, N11, N26, N35, T25.	None	201	243	Forbidden	2.5 L	1	5	40
	Hydrazine azide	Forbidden												
	Hydrazine chlorate	Forbidden												

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Hydrazine dicarbonic acid diazide	Forbidden												
	Hydrazine hydrate *or* Hydrazine aqueous solutions, *with not more than 64 per cent hydrazine, by weight.*	8	UN2030	II	CORROSIVE, POISON.	B16, B17, B24, T15.	None	202	243	Forbidden	30 L	1	5	40, 42, 82
	Hydrazine perchlorate	Forbidden												
	Hydrazine selenate	Forbidden												
	Hydrides, metal, n.o.s.	4.3	UN1409	I	DANGEROUS WHEN WET.	A19, N34	None	211	242	Forbidden	15 kg	1	5	22
	Hydriodic acid, anhydrous, see Hydrogen iodide, anhydrous.													
	Hydriodic acid, solution	8	UN1787	II	CORROSIVE	B2, N1, N11, N16, N34, N41, T9, T27.	154	202	242	1 L	30 L	1	1	8
	Hydrobromic acid, anhydrous, see Hydrogen bromide, anhydrous.													
	Hydrobromic acid solution, *more than 49 per cent strength.*	8	UN1788	I	CORROSIVE	B4, B15, N1, N11, N16, N34, N41.	None	201	242	Forbidden	Forbidden	1	1	83, 33
	Hydrobromic acid solution, *not more than 49 per cent strength.*	8	UN1788	II	CORROSIVE	B2, B15, N1, N11, N16, N34, N41.	154	202	242	1 L	30 L	1	1	
	Hydrocarbon gases, compressed, n.o.s. *or* Hydrocarbon gases mixtures, compressed, n.o.s.	2.1	UN1964		FLAMMABLE GAS.	B13	306	302	244	Forbidden	150 kg	1,3	1	40, 85
	Hydrocarbon gases, liquefied, n.o.s. *or* Hydrocarbon gases mixtures, liquefied, n.o.s.	2.1	UN1965		FLAMMABLE GAS.	B13	306	304	244	Forbidden	150 kg	1,3	1	40, 85
	Hydrochloric acid, anhydrous, see Hydrogen chloride, anhydrous.													
	Hydrochloric acid, solution	8	UN1789	II	CORROSIVE	B2, B8, B15, N1, N11, N34, N41, T9, T27.	154	202	242	1 L	30 L	1	1	83, 33
	Hydrocyanic acid, anhydrous, see Hydrogen cyanide.													

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Hydrocyanic acid, aqueous solutions*less than 5% HCN.*	6.1	UN1613	II	POISON	B12, T18, T26.	None	195	243	Forbidden	5 L	1	5	40
	Hydrocyanic acid, aqueous solutions*not more than 20% HCN.*	6.1	UN1613	I	POISON	B12, B14, B32, 10.	None	195	244	Forbidden	Forbidden	1	5	40, 95
	Hydrocyanic acid, liquefied, see Hydrogen cyanide, *etc.*.													
	Hydrofluoric acid and Sulfuric acid mixtures	8	UN1786	I	CORROSIVE, POISON.	B15, B23, N5, N11, N26, N34, T18, T27.	None	201	243	Forbidden	2.5 L	1	5	33, 40
	Hydrofluoric acid, anhydrous, see Hydrogen fluoride, anhydrous.													
	Hydrofluoric acid, solution, *more than 60 per cent strength.*	8	UN1790	I	CORROSIVE, POISON.	B4, B12, B15, B23, N5, N11, N26, N34, T18, T27.	None	201	243	0.5 L	2.5 L	1	5	12
	Hydrofluoric acid, solution, *not more than 60 per cent strength.*	8	UN1790	II	CORROSIVE, POISON.	B12, B15, N5, N11, N26, N34, T18, T27.	None	202	243	1 L	30 L	1	5	12
	Hydrofluoroboric acid, see Fluoboric acid													
	Hydrofluorosilicic acid, see Fluorosilicic acid.													
	Hydrogen and Methane mixtures, compressed.	2.1	UN2034		FLAMMABLE GAS.	B13	306	302	244	Forbidden	150 kg	1,3	5	40, 85
	Hydrogen bromide, anhydrous	2.3	UN1048	II	POISON GAS, CORROSIVE.	B13, B14, B33, 10.	None	304	244	Forbidden	Forbidden	1	5	40, 95
	Hydrogen chloride, anhydrous	2.3	UN1050	II	POISON GAS, CORROSIVE.	B13, B34, 10.	None	304	244	Forbidden	Forbidden	1	5	34, 40, 95
	Hydrogen chloride, refrigerated liquid	2.3	UN2186	II	POISON GAS, CORROSIVE.	10, B6, B43.	None	None	314, 315	Forbidden	Forbidden	1,3	4	40
	Hydrogen, compressed	2.1	UN1049		FLAMMABLE GAS.	B13	306	302	244	Forbidden	150 kg	1,3	5	40, 57, 85
	Hydrogen cyanide, anhydrous, stabilized	6.1	UN1051	I	POISON, FLAMMABLE LIQUID.	10, B12, B14, B30.	None	195	245	Forbidden	Forbidden	1	5	21, 25, 40, 95
	Hydrogen cyanide, anhydrous, stabilized, *absorbed in a porous inert material.*	6.1	UN1614	I	POISON	B12	None	195	243	Forbidden	Forbidden	1	5	25, 40, 95

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Hydrogen cyanide, unstabilized	Forbidden												
	Hydrogen fluoride, anhydrous	8	UN1052	I	CORROSIVE, POISON.	B12, T24, T27.	None	163	243	Forbidden	Forbidden	1	5	40
	Hydrogen iodide, anhydrous	2.2	UN2197		NONFLAMMABLE GAS, CORROSIVE.	B13	306	304	244	Forbidden	Forbidden	1	5	40, 85
	Hydrogen iodide solution, see Hydriodic acid, solution.													
	Hydrogen peroxide, aqueous solutions *with more than 40 per cent but not more than 60 per cent hydrogen peroxide (stabilized as necessary).*	5.1	UN2014	II	OXIDIZER, CORROSIVE.	B12, B17, B28, N1, N11, N41, T14.	None	202	243	Forbidden	Forbidden	1	5	25, 46, 75
	Hydrogen peroxide, aqueous solutions *with not less than 20 per cent but not more than 40 per cent hydrogen peroxide (stabilized as necessary).*	5.1	UN2014	II	OXIDIZER, CORROSIVE.	A2, B12, B17, B28, N1, N11, N41, T14.	None	202	243	1 L	5 L	1	5	25, 46, 75
	Hydrogen peroxide, aqueous solutions *with not less than 8 per cent but less than 20 per cent hydrogen peroxide (stabilized as necessary).*	5.1	UN2984	III	OXIDIZER	A1, N41, 17.	152	203	241	2.5 L	30 L	1,2	1	25, 46, 75
	Hydrogen peroxide, stabilized *or* Hydrogen peroxide aqueous solutions, stabilized *with more than 60 per cent hydrogen peroxide.*	5.1	UN2015	I	OXIDIZER, CORROSIVE.	B12, B17, B28, N1, N11, N41, T15.	None	201	243	Forbidden	Forbidden	1	5	25, 46, 75
	Hydrogen, refrigerated liquid (*cryogenic liquid*).	2.1	UN1966		FLAMMABLE GAS.		None	316	318, 319	Forbidden	Forbidden	5	5	40, 85
	Hydrogen selenide, anhydrous	2.3	UN2202	I	POISON GAS, FLAMMABLE GAS.	10	None	192	245	Forbidden	Forbidden	1	5	40, 95
	Hydrogen sulfate, see Sulfuric acid													
	Hydrogen sulfide, liquefied	2.3	UN1053	I	POISON GAS, FLAMMABLE GAS.	10	None	304	314	Forbidden	Forbidden	1	5	34, 40, 95
	Hydroquinone	6.1	UN2662	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Hydrosilicofluoric acid, see Fluorosilicic acid.													
	3-(2-Hydroxyethoxy)-4-pyrrolidin-1-ylbenzenediazonium zinc chloride.	4.1	UN3035	II	FLAMMABLE SOLID.		None	214	240	Forbidden	Forbidden	1	5	2
	Hydroxyl amine iodide	Forbidden												
AW	Hydroxylamine sulfate	8	UN2865	III	CORROSIVE		154	213	240	25 kg	100 kg	1,2	1,2	

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Hypochlorite solutions *with more than 5 per cent but less than 16 per cent available chlorine.*	8	UN1791	III	CORROSIVE	N34, T7	154	203	241	5 L	60 L	1,2	1	
	Hypochlorite solutions *with not less than 16 per cent available chlorine.*	8	UN1791	II	CORROSIVE	B2, B15, B37, N26, N34, T7.	154	202	242	1 L	30 L	1,2	1	
	Hyponitrous acid	Forbidden												
	Igniter for aircraft thrust device *for assisted take-off.*	4.1	UN2792	II	FLAMMABLE SOLID.		None	180	None	Forbidden	50 kg	1,3	5	
	Igniter fuse, metal clad, see Fuse, igniter, tubular, metal clad.													
	Igniters	1.1G	UN0121											
	Igniters	1.2G	UN0314											
	Igniters	1.3G	UN0315											
	Igniters *Iminobispropylamine, see* 3,3-Iminodipropylamine.	1.4G	UN0325											
	3,3'-Iminodipropylamine	8	UN2269	III	CORROSIVE	T8	154	203	241	5 L	60 L	1,2	1,2	
I	Infectious substances, affecting animals *only* (*See also* Etiologic agent, n.o.s.).	6.2	UN2900		INFECTIOUS SUBSTANCE.		196	196	None	50 ml or 50 g.	4 L or 4 kg	5	5	
I	Infectious substances, affecting humans (*See also* Etiologic agent, n.o.s.).	6.2	UN2814		INFECTIOUS SUBSTANCE.		196	196	None	50 ml or 50 g.	4 L or 4 kg	5	5	
	Inflammable, see Flammable													
	Initiating explosives (dry)	Forbidden												
	Ink, *printer's, flammable*	3	UN1210	II	FLAMMABLE LIQUID.	T7, T30,	150	173	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T7, T30.	150	173	242	60 L	220 L	1,3	1,3	
	Inositol hexanitrate (dry)	Forbidden												
	Insecticide gases, n.o.s.	2.2	UN1968		NONFLAMMABLE GAS.	B13	306	304	244	75 kg	150 kg	1,3	1,3	85
	Insecticide gases, toxic, n.o.s.	2.3	UN1967	I	POISON GAS	10	None	193, 334	245	Forbidden	Forbidden	1	5	25, 40, 95
	Inulin trinitrate (dry)	Forbidden												
	Iodine azide (dry)	Forbidden												
	Iodine monochloride	8	UN1792	II	CORROSIVE	B6, N16, N34, N41, T8, T26.	None	202	242	Forbidden	50 kg	1	5	40
	Iodine pentafluoride	5.1	UN2495	I	OXIDIZER, POISON.		None	205	243	Forbidden	2.5 L	1	5	13, 40
	2-Iodobutane	3	UN2390	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Iodomethylpropanes	3	UN2391	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	Iodopropanes	3	UN2392	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	40
				III	FLAMMABLE LIQUID.		150	203	241	60 L	220 L	1,2	1,2	
	Iodoxy compounds (dry)	Forbidden												
	Iridium nitratopentamine iridium nitrate	Forbidden												
	Iron chloride, see Ferric chloride													
	Iron oxide, spent, *or* Iron sponge, spent *(obtained from coal gas purification)*.	4.2	UN1376	III	SPONTANEOUSLY COMBUSTIBLE.	B18	None	213	240	Forbidden	Forbidden	1,3	5	
	Iron pentacarbonyl	6.1	UN1994	I	POISON, FLAMMABLE LIQUID.	B14, B30, 10.	None	192	244	Forbidden	Forbidden	1	5	21, 25, 40, 95
	Iron sesquichloride, see Ferric chloride													
	Irritating agents, see Tear gas substances, *etc.*.													
	Isobutane *or* Isobutane mixtures *see also* Petroleum gases, liquified.	2.1	UN1969		FLAMMABLE GAS.		306	304	314, 315	Forbidden	150 kg	1,3	1	40, 85
	Isobutanol *or* Isobutyl alcohol	3	UN1212	III	FLAMMABLE LIQUID.	T1	150	203	241	60 L	220 L	1,3	1	
	Isobutyl acetate	3	UN1213	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Isobutyl acrylate	3	UN2527	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1,3	
	Isobutyl alcohol, *see* Isobutanol													
	Isobutyl aldehyde, *see* Isobutyraldehyde													
	Isobutylamine	3	UN1214	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	40
	Isobutylene *see also* Petroleum gases, liquified.	2.1	UN1055		FLAMMABLE GAS.		306	304	314, 315	Forbidden	150 kg	1,3	1	40, 85
	Isobutyl formate	3	UN2393	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Isobutyl isobutyrate	3	UN2528	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Isobutyl isocyanate	3	UN2486	II	FLAMMABLE LIQUID, POISON.	T9	None	202	243	1 L	60 L	1	5	12, 40, 48
	Isobutyl methacrylate	3	UN2283	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Isobutyl propionate	3	UN2394	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1	
	Isobutyraldehyde *or* Isobutyl aldehyde	3	UN2045	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	5	12, 40
	Isobutyric acid	3	UN2529	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Isobutyric anhydride	3	UN2530	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Isobutyronitrile	3	UN2284	II	FLAMMABLE LIQUID, POISON.	T17	None	202	243	1 L	60 L	1,3	5	12, 40
	Isobutyryl chloride	3	UN2395	II	FLAMMABLE LIQUID, CORROSIVE.	T9, T26	None	202	243	1 L	5 L	1	1	13, 25, 40
	Isocyanates, n.o.s. *or* Isocyanate solutions, n.o.s. *boiling point not less than 300deg C.*	6.1	UN2207	III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,2	1,2	34, 48
	Isocyanates, n.o.s. *or* Isocyanate solutions, n.o.s., *flash point more than 60.5deg C and boiling point less than 300deg C.*	6.1	UN2206	II	POISON	T15	None	202	243	5 L	60 L	1,3	1	25, 40, 95
	Isocyanates, n.o.s. *or* Isocyanate solutions, n.o.s., *flash point not less than 23deg C but not more than 60.5deg C and boiling point less than 300deg C.*	6.1	UN2206	II	POISON, FLAMMABLE LIQUID.	T15	None	202	243	5 L	60 L	1,3	1	22, 25, 40, 95
	Isocyanates, n.o.s. *or* Isocyanate solutions, n.o.s., *flash point less than 23deg C.*	3	UN2478	I	FLAMMABLE LIQUID, POISON.	B40, N1, N26.	None	201	243	Forbidden	Forbidden	1	5	12, 40, 48
				II	FLAMMABLE LIQUID, POISON.	N1, N26	None	202	243	1 L	60 L	1	5	12, 40, 48
	Isocyanatobenzotrifluorides	6.1	UN2285	II	POISON	T14	None	202	243	5 L	60 L	1,2	1	25, 40, 95
	Isoheptene	3	UN2287	II	FLAMMABLE LIQUID.	T7	150	202	242	5 L	60 L	1,3	5	12
	Isohexene	3	UN2288	II	FLAMMABLE LIQUID.	T7	150	202	242	5 L	60 L	1,3	5	12
	Isononanoyl peroxide, see Di-(3,3,5-trimethylhexanoyl) peroxide.													
	Isooctane, see Octanes													
	Isooctene	3	UN1216	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	Isopentane, *see* n-Pentane													
	Isopentanoic acid, see Corrosive liquids, n.o.s.													
	Isopentenes	3	UN2371	I	FLAMMABLE LIQUID.	N15, T20	150	201	243	1 L	30 L	1,3	5	12
AW	Isophoronediamine	8	UN2289	III	CORROSIVE	T8	154	203	241	5 L	60 L	1,2	1,2	8
	Isophoronediisocyanate	6.1	UN2290	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	1,2	1	34, 40
	Isoprene, inhibited	3	UN1218	I	FLAMMABLE LIQUID.	T20	150	201	243	1 L	30 L	1,3	5	12
	Isopropanol *or* Isopropyl alcohol	3	UN1219	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Isopropenyl acetate	3	UN2403	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Isopropenyl benzene	3	UN2303	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1,3	
	Isopropyl acetate	3	UN1220	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Isopropyl acid phosphate	8	UN1793	III	CORROSIVE	T7	154	213	240	25 kg	100 kg	1,2	1,2	
	Isopropyl alcohol, *see* Isopropanol													
	Isopropylamine	3	UN1221	I	FLAMMABLE LIQUID.	T20	None	201	243	1 L	30 L	1,3	5	12, 40
	Isopropylbenzene	3	UN1918	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1	
	Isopropyl butyrate	3	UN2405	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1	
	Isopropyl chloroacetate	3	UN2947	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Isopropyl chloroformate	3	UN2407	I	FLAMMABLE LIQUID, POISON, CORROSIVE.	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1,3	1	40
	Isopropyl-2-chloropropionate	3	UN2934	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Isopropylcumyl hydroperoxide *or* Diisopropylbenzene hydroperoxide, *not more than 72 per cent in solution.*	5.2	UN2171	I	ORGANIC PEROXIDE.	B21, T25	None	225	243	1 L	5 L	1	5	12, 40
	Isopropylcumyl hydroperoxide, more than 72 per cent in solution.	Forbidden												
	Isopropyl isobutyrate	3	UN2406	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Isopropyl isocyanate	3	UN2483	I	FLAMMABLE LIQUID, POISON.	N15, N26, T18, T26.	None	201	243	Forbidden	30 L	1	5	12, 40
	Isopropyl mercaptan, see Propanethiols													
	Isopropyl nitrate	3	UN1222	II	FLAMMABLE LIQUID.	T25	150	202	None	5 L	60 L	1,3	1	
	Isopropyl peroxydicarbonate, *see* Diisopropyl peroxydicarbonate, *etc.*.													
	Isopropyl phosphoric acid, see Isopropyl acid phosphate.													
	Isopropyl propionate	3	UN2409	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Isosorbide dinitrate mixture *with not less than 60 per cent lactose, mannose, starch or calcium hydrogen phosphate.*	4.1	UN2907	II	FLAMMABLE SOLID.		None	212	None	15 kg	50 kg	1,3	5	
	Isothiocyanic acid	Forbidden												
	Jet fuel, see Fuel aviation, turbine engine													
	Jet perforating guns, charged *oil well, without detonator.*	1.1D	UN0124											
	Jet perforators, see Charges, shaped, commercial.													

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Jet tappers, without detonator, see Charges, shaped commercial, etc..													
	Jet thrust igniters, for rocket motors or Jato, see Igniters.													
	Jet thrust unit (Jato), see Rocket motors													
	Kerosene	3	UN1223	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Ketones, liquid, n.o.s.	3	UN1224	II	FLAMMABLE LIQUID.	T8, T30	150	202	242	5 L	60 L	1,3	1	12
				III	FLAMMABLE LIQUID.	B1, T7, T31.	150	203	242	60 L	220 L	1,3	1,3	
	Krypton, compressed	2.2	UN1056		NONFLAMMABLE GAS.	B13	306	302	244	75 kg	150 kg	1,3	1,3	85
	Krypton, refrigerated liquid	2.2	UN1970		NONFLAMMABLE GAS.	B13	320		244	50 kg	500 kg	1,3	1,3	85
D	Lacquer base, *or* Lacquer chips, dry	4.1	NA2557	II	FLAMMABLE SOLID.	A19, N16	151	212	240	1 kg	15 kg	1	1	
	Lacquer base or lacquer chips, nitrocellulose, dry, see Nitrocellulose, *etc.* (*UN 2557*).													
	Lacquer base or lacquer chips, plastic, wet with alcohol or solvent, see Nitrocellulose (*UN 2059, 2060, 2555, 2556*) *or* Paint *etc.* (*UN1263*).													
	Lauroyl peroxide, *see* Dilauroyl peroxide													
	Lead acetate	6.1	UN1616	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Lead arsenates	6.1	UN1617	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Lead arsenites	6.1	UN1618	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Lead azide (dry)	Forbidden												
	Lead azide, wetted *with not less than 20 per cent water, by weight, or mixture of alcohol and water.*	1.1A	UN0129											
	Lead compounds, soluble, n.o.s.	6.1	UN2291	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Lead cyanide	6.1	UN1620	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	26, 95
	Lead dioxide	5.1	UN1872	III	OXIDIZER	A1	152	213	240	25 kg	100 kg	1,2	1,2	34
	Lead dross, see Lead sulphate, *with more than 3% free acid.*													
	Lead nitrate	5.1	UN1469	II	OXIDIZER, POISON.		None	212	242	5 kg	25 kg	1,2	1,2	95
	Lead nitroresorcinate (dry)	Forbidden												
	Lead perchlorate	5.1	UN1470	II	OXIDIZER, POISON.	T8	None	212	242	5 kg	25 kg	1,2	1,2	46, 95
	Lead peroxide, see Lead dioxide													

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Lead phosphite, dibasic	4.1	UN2989	II	FLAMMABLE SOLID.		None	212	240	5 kg	25 kg	1,3	1	34
	Lead picrate (dry)	Forbidden												
	Lead styphnate (dry)	Forbidden												
	Lead styphnate (Lead trinitroresorcinate), wetted *with not less than 20 per cent water, by weight (or mixture of alcohol and water).*	1.1A	UN0130											
	Lead sulfate *with more than 3 per cent free acid.*	8	UN1794	II	CORROSIVE		154	212	240	15 kg	50 kg	1,2	1,2	
D	Lead sulfide	6.1	NA2291	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	
	Lead trinitroresorcinate, *see* Lead styphnate, *etc.*.													
	Life-saving appliances, not self inflating *containing hazardous materials as equipment.*	9	UN3072		CLASS 9			219	None	No limit	No limit	1,2	1,2	
	Life-saving appliances, self inflating	9	UN2990		CLASS 9			219	None	No limit	No limit	1,2	1,2	
	Lighter replacement cartridges containing liquefied petroleum gases (and similar devices, each not exceeding 65 grams), see Lighters for cigars, cigarettes, *etc. with flammable gas.*													
	Lighters for cigars, cigarettes, *etc. with flammable gas; or* Flammable gas in lighters.	2.1	UN1057		FLAMMABLE GAS.	21	None	308	None	1 kg	15 kg	1	1	40
D	Lighters for cigars, cigarettes, *etc., with lighter fluids.*	3	NA1226	II	FLAMMABLE LIQUID.	N72	150	202	None	Forbidden	Forbidden	1,3	1	12
	Lighters, fuse	1.4S	UN0131											
	Lime, unslaked, see Calcium oxide													
	Liquefied gases, *non-flammable charged with nitrogen, carbon dioxide or air.*	2.2	UN1058		NONFLAMMABLE GAS.	B13	306	304	244	75 kg	150 kg	1,3	1,3	85
	Liquefied hydrocarbon gas, see Hydrocarbon gases, liquefied, n.o.s., *etc.*.													
	Liquefied natural gas, see Methane, *etc. (UN 1972).*													
	Liquefied petroleum gas *see* Petroleum gases, liquefied.													
	Lithium	4.3	UN1415	II	DANGEROUS WHEN WET.	A19, N16, N26, N34, N45, 22.	None	212	None	Forbidden	50 kg	1	5	
	Lithium acetylide ethylenediamine complex, see Substances which in contact with water emit flammable gases.													

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Lithium alkyls	4.2	UN2445	I	SPONTANEOUSLY COMBUSTIBLE, DANGEROUS WHEN WET.	B11, T28, T40.	None	181	244	Forbidden	Forbidden	1	5	
	Lithium aluminum hydride	4.3	UN1410	I	DANGEROUS WHEN WET.	A19	None	211	242	Forbidden	15 kg	1	5	
	Lithium aluminum hydride, ethereal	4.3	UN1411	I	DANGEROUS WHEN WET, FLAMMABLE LIQUID.	A2, N1, N16, N34, N40.	None	201	244	Forbidden	1 L	1	5	40
	Lithium amide	4.3	UN1412	II	DANGEROUS WHEN WET.		None	212	None	15 kg	50 kg	1	5	
D	Lithium batteries	4.3	NA1415	II	DANGEROUS WHEN WET.		None	185	None	Forbidden	35 kg	1,3	5	
	Lithium borohydride	4.3	UN1413	I	DANGEROUS WHEN WET.	A19	None	211	242	Forbidden	15 kg	1,3	5	
	Lithium ferrosilicon	4.3	UN2830	II	DANGEROUS WHEN WET.	A19	None	212	241	15 kg	50 kg	1,3	5	
	Lithium hydride	4.3	UN1414	I	DANGEROUS WHEN WET.	A19	None	211	242	Forbidden	15 kg	1	5	
	Lithium hydride, fused solid	4.3	UN2805	II	DANGEROUS WHEN WET.	A19, A20, N2.	None	212	241	15 kg	50 kg	1	5	
	Lithium hydroxide, monohydrate	8	UN2680	II	CORROSIVE		154	212	240	15 kg	50 kg	1,2	1,2	
	Lithium hydroxide, solution	8	UN2679	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	1,2	1,2	96
	Lithium hypochlorite, dry *or* Lithium hypochlorite mixtures.	5.1	UN1471	II	OXIDIZER	N13, N34	152	212	None	5 kg	25 kg	1,2	1,2	
	Lithium in cartridges, see Lithium													
	Lithium nitrate	5.1	UN2722	III	OXIDIZER	A1	152	213	240	25 kg	100 kg	1,2	1,2	
	Lithium nitride	4.3	UN2806	I	DANGEROUS WHEN WET.	A19	None	211	242	Forbidden	15 kg	1,3	5	
	Lithium peroxide	5.1	UN1472	II	OXIDIZER	N13, N34	152	212	None	5 kg	25 kg	1,2	1,2	13
	Lithium silicon	4.3	UN1417	II	DANGEROUS WHEN WET.	A19, A20	None	212	241	15 kg	50 kg	1,3	1,3	
	LNG, see Methane *etc. (UN 1972)*													
	London Purple	6.1	UN1621	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	LPG, see Petroleum gases, liquefied													
	Lye, see Sodium hydroxide, solutions													
	Magnesium *or* Magnesium alloys *with more than 50 per cent magnesium in pellets, turnings or ribbons.*	4.1	UN1869	III	FLAMMABLE SOLID.	A1	151	213	240	25 kg	100 kg	1,3	1,3	39
	Magnesium alkyls	4.2	UN3053	I	SPONTANEOUSLY COMBUSTIBLE, DANGEROUS WHEN WET.	B11, T28, T29, T42.	None	181	244	Forbidden	Forbidden	1	5	18
	Magnesium aluminum phosphide	4.3	UN1419	I	DANGEROUS WHEN WET.	A19, N34	None	211	242	Forbidden	15 kg	1,3	5	40, 85

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Magnesium arsenate	6.1	UN1622	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Magnesium bisulfite solution, *see* Bisulfites, inorganic aqueous solutions, n.o.s..													
	Magnesium bromate	5.1	UN1473	II	OXIDIZER	A1	152	212	240	5 kg	25 kg	1,2	1,2	46, 56
	Magnesium chlorate	5.1	UN2723	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,2	1,2	46, 56
	Magnesium diamide	4.2	UN2004	II	SPONTANEOUSLY COMBUSTIBLE.	A19, A20, N2.	None	212	241	15 kg	50 kg	1	1	
	Magnesium diphenyl	4.2	UN2005	I	SPONTANEOUSLY COMBUSTIBLE.		None	211	244	Forbidden	Forbidden	1	1	
	Magnesium dross, wet or hot	Forbidden												
	Magnesium fluorosilicate	6.1	UN2853	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	26, 34
	Magnesium granules, coated, *particle size not less than 149 microns.*	4.3	UN2950	III	DANGEROUS WHEN WET.	A1, A19	None	213	None	25 kg	100 kg	1,3	1,3	
	Magnesium hydride	4.3	UN2010	I	DANGEROUS WHEN WET.	A19	None	211	242	Forbidden	15 kg	1	5	
	Magnesium nitrate	5.1	UN1474	III	OXIDIZER	A1, T2	152	213	240	25 kg	100 kg	1,2	1,2	
	Magnesium perchlorate	5.1	UN1475	II	OXIDIZER	B10, T8	152	212	240	5 kg	25 kg	1,2	1,2	46
	Magnesium peroxide	5.1	UN1476	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,2	1,2	13
	Magnesium phosphide	4.3	UN2011	I	DANGEROUS WHEN WET, POISON.	A19	None	211	None	Forbidden	15 kg	1,3	5	85
	Magnesium, powder *or* Magnesium alloys, powder.	4.3	UN1418	II	DANGEROUS WHEN WET, SPONTANEOUSLY COMBUSTIBLE.	A19	None	212	241	15 kg	50 kg	1,3	1,3	39
	Magnesium scrap, see Magnesium, *etc. (UN 1869).*													
	Magnesium silicide	4.3	UN2624	II	DANGEROUS WHEN WET.	A19, A20	None	212	241	15 kg	50 kg	1,3	1	
	Magnetized material. See 173.21													
D	Maleic acid	8	NA2215	III	CORROSIVE		154	213	240	25 kg	100 kg	1,2	1,2	
	Maleic anhydride	8	UN2215	III	CORROSIVE	T7, T38	154	213	240	25 kg	100 kg	1,2	1,2	34, 40
	Malononitrile	6.1	UN2647	II	POISON		None	212	240	25 kg	100 kg	1,3	1,3	12, 95
	Maneb *or* Maneb preparations, *stabilized against self-heating.*	4.3	UN2968	III	DANGEROUS WHEN WET.	A1, A19	None	213	240	25 kg	100 kg	1,3	1	34
	Maneb *or* Maneb preparations *with not less than 60 per cent maneb.*	4.2	UN2210	III	SPONTANEOUSLY COMBUSTIBLE, DANGEROUS WHEN WET.	A1, A19	None	213	240	25 kg	100 kg	1,3	1,3	12, 13, 34
	Manganese nitrate	5.1	UN2724	III	OXIDIZER	A1	152	213	240	25 kg	100 kg	1,2	1,2	

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Manganese resinate	4.1	UN1330	III	FLAMMABLE SOLID.	A1	151	213	240	25 kg	100 kg	1,3	1,3	
	Mannitan tetranitrate	Forbidden												
	Mannitol hexanitrate (dry)	Forbidden												
	Mannitol hexanitrate (Nitromannite), wetted *with not less than 40 per cent water, by weight or mixture of alcohol and water.*	1.1D	UN0133											
	Matches, block, see Matches, 'strike anywhere'.													
	Matches, fusee	4.1	UN2254	III	FLAMMABLE SOLID.		186	186	None	Forbidden	Forbidden	1,3	1,3	
	Matches, safety (*book, card or strike on box*).	4.1	UN1944	III	FLAMMABLE SOLID.		186	186	None	25 kg	100 kg	1,3	1,3	
	Matches, 'strike anywhere'	4.1	UN1331	III	FLAMMABLE SOLID.		186	186	None	Forbidden	Forbidden	1,3	1	
	Matches, wax, 'Vesta'	4.1	UN1945	III	FLAMMABLE SOLID.		186	186	None	25 kg	100 kg	1,3	1	
	Matting acid, see Sulfuric acid													
	Medicines, *corrosive, liquid,* n.o.s.	8	UN1851	II	CORROSIVE	B2	154	202	242	1 L	30 L	1,2	1,2	
				III	CORROSIVE		154	203	241	5 L	60	1,2	1,2	
	Medicines, *corrosive, solid,* n.o.s.	8	UN1851	II	CORROSIVE		154	212	240	15 kg	50 kg	1,2	1,2	
				III	CORROSIVE		154	213	240	25 kg	100 kg	1,2	1,2	
	Medicines, *flammable, liquid,* n.o.s.	3	UN1851	I	FLAMMABLE LIQUID.		150	201	243	1 L	30 L	1,3	5	
				II	FLAMMABLE LIQUID.		150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1	150	203	242	60 L	220 L	1,3	1,3	
	Medicines, *flammable, solid,* n.o.s.	4.1	UN1851	II	FLAMMABLE SOLID.		151	212	240	15 kg	50 kg	1,3	1,3	
	Medicines, *oxidizing substance, solid,* n.o.s.	5.1	UN1851	II	OXIDIZER	B10	152	212	240	5 kg	25 kg			
	Medicines, *poisonous, liquid,* n.o.s.	6.1	UN1851	I	POISON		153	201	243	1 L	30 L	1,2	1	95
				II	POISON		153	202	243	5 L	60 L	1,2	1	95
				III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,2	1	34
	Medicines, *poisonous, solid,* n.o.s.	6.1	UN1851	I	POISON		153	211	242	5 kg	50 kg	1,2	1	95
				II	POISON		153	212	242	25 kg	100 kg	1,2	1	95
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1	34
	Memtetrahydrophthalic anhydride, see Corrosive liquids, n.o.s.													
	p-Menthane hydroperoxide, *see* p-Menthyl hydroperoxide, *technically pure.*													
	p-Menthyl hydroperoxide, *technically pure*	5.2	UN2125	I	ORGANIC PEROXIDE.	B21, T9, T35.	None	225	243	1 L	5 L	1	5	12, 40
	Mercaptans, liquid n.o.s. *or* Mercaptan mixtures, liquid, n.o.s., *flash point not less than 23deg C.*	6.1	UN3071	I	POISON, FLAMMABLE LIQUID.	B40, T42	None	202	243	1 L	30 L	1,3	1	21

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	1,3	1	21
				III	KEEP AWAY FROM FOOD, FLAMMABLE LIQUID.	T14	None	202	241	60 L	220 L	1,3	1,3	
	Mercaptans, liquid, n.o.s. *or* Mercaptan mixtures, liquid, n.o.s.	3	UN1228	II	FLAMMABLE LIQUID, POISON.	N16, T14	None	202	243	Forbidden	60 L	1,3	5	12
	5-Mercapto-tetrazol-1-acetic acid	1.4C	UN0448											
	Mercuric arsenate	6.1	UN1623	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Mercuric chloride	6.1	UN1624	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Mercuric compounds, see Mercury compounds, *etc.*													
	Mercuric nitrate	6.1	UN1625	II	POISON	N73	None	212	242	25 kg	100 kg	1,2	1,2	95
	Mercuric potassium cyanide	6.1	UN1626	I	POISON	N74, N75	None	211	242	5 kg	50 kg	1,2	1,2	26, 95
	Mercuric sulfate	6.1	UN1645	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Mercuric sulfocyanate, see Mercury thiocyanate.													
	Mercurol, see Mercury nucleate													
	Mercurous azide	Forbidden												
	Mercurous compounds, see Mercury compounds, *etc.*													
	Mercurous nitrate	6.1	UN1627	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Mercurous sulfate	6.1	UN1628	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Mercury	8	UN2809	III	CORROSIVE		164	164	240	2.5 L	2.5 L	1,2	1	40, 97
	Mercury acetate	6.1	UN1629	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Mercury acetylide	Forbidden												
	Mercury ammonium chloride	6.1	UN1630	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Mercury based pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23deg C.*	3	UN2778	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	1,3	5	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	1,3	1	
	Mercury based pesticides, liquid, toxic, flammable, n.o.s., *flash point not less than 23deg C.*	6.1	UN3011	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	1	1	40, 95
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	1,2	1	40, 95
				III	KEEP AWAY FROM FOOD.	T14	153	202	241	60 L	220 L	1,2	1	34, 40
	Mercury based pesticides, liquid, toxic, n.o.s.	6.1	UN3012	I	POISON	T42	None	201	243	1 L	30 L	1	1	40, 95
				II	POISON	T14	None	202	243	5 L	60 L	1,2	1	40, 95

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	.....	.....	.....	III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	1,2	1,2	34, 40
	Mercury based pesticides, solid, toxic, n.o.s.	6.1	UN2777	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	40, 95
	.....	.....	.....	II	POSION		None	212	242	25 kg	100 kg	1,2	1,2	40, 95
	.....	.....	.....	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34, 40
	Mercury benzoate	6.1	UN1631	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Mercury bisulfate	6.1	UN1633	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Mercury bromides	6.1	UN1634	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Mercury compounds, liquid, n.o.s.	6.1	UN2024	I	POISON		None	201	243	1 L	30 L	1,2	1	40, 95
	.....	.....	.....	II	POISON		None	202	243	5 L	60 L	1,2	1	40, 95
	.....	.....	.....	III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,2	1	34, 40
	Mercury compounds, solid, n.o.s.	6.1	UN2025	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	95
	.....	.....	.....	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	.....	.....	.....	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
A	Mercury *contained in manufactured articles*	8	UN2809	I	CORROSIVE		None	164	None	No limit	No limit	1,2	1	40
	Mercury cyanide	6.1	UN1636	II	POISON	N74, N75	None	212	242	25 kg	100 kg	1,2	1,2	26, 95
	Mercury fulminate, wetted *with not less than 20 per cent water, or mixture of alcohol and water, by weight.*	1.1A	UN0135											
	Mercury gluconate	6.1	UN1637	II	POISON		None	212	242	25 kg	100 kg	a82	1,2	95
	Mercury iodide aquabasic ammonobasic (Iodide of Millon's base).	Forbidden	.....											
	Mercury iodide, *solid*	6.1	UN1638	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Mercury iodide, *solution*	6.1	UN1638	II	POISON		None	202	243	5 L	60 L	1,2	1,2	95
	Mercury nitride	Forbidden	.....											
	Mercury nucleate	6.1	UN1639	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Mercury oleate	6.1	UN1640	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Mercury oxide	6.1	UN1641	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Mercury oxycyanide	Forbidden	.....											
	Mercury oxycyanide, desensitized	6.1	UN1642	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	26, 95
	Mercury potassium iodide	6.1	UN1643	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Mercury salicylate	6.1	UN1644	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Mercury thiocyanate	6.1	UN1646	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Mesityl oxide	3	UN1229	III	FLAMMABLE LIQUID.	B1, T1	None	203	242	60 L	220 L	1,3	1	
	Metal alkyl halides, n.o.s.	4.2	UN3049	I	SPONTANEOUSLY COMBUSTIBLE; DANGEROUS WHEN WET.	B11	None	181	244	Forbidden	Forbidden	1	5	

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Metal alkyl hydrides, n.o.s.	4.2	UN3050	I	SPONTANEOUSLY COMBUSTIBLE, DANGEROUS WHEN WET.	B11	None	181	244	Forbidden	Forbidden	1	5	
	Metal alkyls, n.o.s.	4.2	UN2003	I	SPONTANEOUSLY COMBUSTIBLE, DANGEROUS WHEN WET.	B11	None	181	244	Forbidden	Forbidden	1	5	
D	Metal alkyl, solution, n.o.s.	3	NA9195	II	FLAMMABLE LIQUID.		150	202	242	1 L	4 L	1,3	1	
	Metaldehyde	4.1	UN1332	III	FLAMMABLE SOLID.	A1	151	213	240	25 kg	100 kg	1,3	1,3	
	Metal salts of methyl nitramine (dry)	Forbidden												
	Methacrylaldehyde	3	UN2396	II	FLAMMABLE LIQUID, POISON.	T8	None	202	243	1 L	60 L	1,3	5	12, 40
	Methacrylic acid, inhibited	8	UN2531	III	CORROSIVE	T8	154	203	241	5 L	60 L	1,3	1,3	8, 12
	Methacrylonitrile, inhibited	6.1	UN3079	I	POISON, FLAMMABLE LIQUID.		None	201	243	Forbidden	Forbidden	1,3	1	21
	Methallyl alcohol	3	UN2614	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1,3	
	Methane and hydrogen, mixtures, see Hydrogen and methane, mixtures, *etc.*.													
	Methane, compressed *or* Natural gas, compressed (*with high methane content*).	2.1	UN1971		FLAMMABLE GAS.	B13	306	302	244	Forbidden	150 kg	1,3	5	40, 85
	Methane, refrigerated liquid *or* Natural gas, refrigerated liquid (*with high methane content*) (*cryogenic liquid*).	2.1	UN1972		FLAMMABLE GAS.		None	316	318, 319	Forbidden	Forbidden	1	5	40
	Methanol *or* Methyl alcohol	3	UN1230	II	FLAMMABLE LIQUID, POISON.	T8	None	202	243	1 L	60 L	1,3	1	40
	Methazoic acid	Forbidden												
	Methoxymethyl isocyanate	3	UN2605	I	FLAMMABLE LIQUID, POISON.	B14, B30, 10.	None	226	244	Forbidden	Forbidden	1	5	12, 40, 48
	4-Methoxy-4-methylpentan-2-one	3	UN2293	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Methyl acetate	3	UN1231	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	Methyl acetone	3	UN1232	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	Methyl acetylene and propadiene mixtures, stabilized.	2.1	UN1060		FLAMMABLE GAS.		306	304	314, 315	Forbidden	150 kg	1,3	1	40, 85

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Methyl acrylate, inhibited	3	UN1919	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,2	1	40
	Methylal	3	UN1234	II	FLAMMABLE LIQUID.	T14	None	202	242	Forbidden	60 L	1,3	5	12
	Methyl alcohol, *see* Methanol													
	Methyl allyl chloride	3	UN2554	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	5	12, 40
	Methylamine, anhydrous	2.3	UN1061	II	POISON GAS, FLAMMABLE GAS.	B33, 10	None	304	314, 315	Forbidden	Forbidden	1,3	5	40
	Methylamine, aqueous solution	3	UN1235	II	FLAMMABLE LIQUID.	B1, T8	150	202	242	5 L	60 L	1,3	5	12, 41
	Methylamine dinitramine and dry salts thereof.	Forbidden												
	Methylamine nitroform	Forbidden												
	Methylamine perchlorate (dry)	Forbidden												
	Methylamyl acetate	3	UN1233	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Methyl amyl ketone, see Amyl methyl ketone.													
	N-Methylaniline	6.1	UN2294	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	1,2	1,2	95
	Methyl benzoate	6.1	UN2938	III	KEEP AWAY FROM FOOD.	T1	153	203	240	60 L	220 L	1,2	1,2	
	alpha-Methylbenzyl alcohol	6.1	UN2937	III	KEEP AWAY FROM FOOD.	T1	153	203	241	60 L	220 L	1,2	1,2	
	Methyl bromide	2.3	UN1062	I	POISON GAS	B13, B14, B31, 10.	None	193	244	Forbidden	Forbidden	1,3	5	40, 81, 85, 95
	Methyl bromide and chloropicrin mixtures with more than 2 per cent chloropicrin, see Chloropicrin and methyl bromide mixtures.													
	Methyl bromide and chloropicrin mixtures with not more than 2 per cent chloropicrin, see Methyl bromide.													
	Methyl bromide and ethylene dibromide mixtures, liquid.	6.1	UN1647	I	POISON	B13, B14, B32, N65, 10.	None	227	244	Forbidden	Forbidden	1	1	40, 95
	Methyl bromoacetate	6.1	UN2643	II	POISON	T8	None	202	243	5 L	60 L	1	5	12, 40, 95
	3-Methyl butan-2-one	3	UN2397	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	3-Methyl-1-butene	3	UN2561	I	FLAMMABLE LIQUID.	T20	None	201	243	1 L	30 L	1,3	5	
	2-Methyl-1-butene	3	UN2459	I	FLAMMABLE LIQUID.	T14	None	201	243	1 L	30 L	1,3	5	12, 40

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	2-Methyl-2-butene	3	UN2460	II	FLAMMABLE LIQUID.	T14	None	202	242	5 L	60 L	1,3	5	12
	N-Methylbutylamine	3	UN2945	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	Methyl-tert-butylether	3	UN2398	II	FLAMMABLE LIQUID.	T14	150	202	242	5 L	60 L	1,3	1	12
	Methyl butyrate	3	UN1237	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Methyl chloride	2.3	UN1063	II	POISON GAS, FLAMMABLE GAS.	10, B13, B14.	None	304	314, 315	Forbidden	Forbidden	1,3	5	40, 85, 95
	Methyl chloride and chloropicrin mixtures, see Chloropicrin and methyl chloride mixtures.													
	Methyl chloride and methylene chloride mixture.	2.1	UN1912		FLAMMABLE GAS.	B13, B38	306	304	244	Forbidden	150 kg	1,3	5	40, 85
	Methyl chloroacetate	6.1	UN2295	II	POISON	T11	None	202	243	5 L	60 L	1,3	1,3	95
	Methyl chlorocarbonate, see Methyl chloroformate.													
	Methyl chloroform, see 1,1,1-Trichloroethane.													
	Methyl chloroformate	3	UN1238	I	FLAMMABLE LIQUID, POISON, CORROSIVE.	B6, B14, B32, N1, N11, N26, N34, 10.	None	227	244	Forbidden	Forbidden	1,3	5	40
	Methylchloromethyl ether	3	UN1239	I	FLAMMABLE LIQUID, POISON.	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1	5	12, 40
	Methyl-2-chloropropionate	3	UN2933	III	FLAMMABLE LIQUID.	B1, T7	150	203	242	60 L	220 L	1,3	1,3	
	Methyl chlorosilane	2.3	UN2534	I	FLAMMABLE GAS, POISON GAS.	A2, B14, B30, NI, N15, N26, N34, 10.	None	226	244	Forbidden	Forbidden	1,3	1	40
	Methyl cyanide	3	UN1648	II	FLAMMABLE LIQUID, POISON.	T14	None	202	243	1 L	60 L	1,3	1	40
	Methyl cyclohexane	3	UN2296	II	FLAMMABLE LIQUID.	B1, T1	150	202	242	5 L	60 L	1,3	1	
	Methyl cyclohexanols, *flash point not more than 60.5 degrees C.*	3	UN2617	III	FLAMMABLE LIQUID.	B1, T2	150	203	242	60 L	220 L	1,3	1,3	
	Methyl cyclohexanone	3	UN2297	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Methylcyclohexanone peroxide(s) *not more than 67 per cent in solution with not more than 9 per cent available oxygen.*	5.2	UN3046	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 19, 25, 40
	Methyl cyclopentane	3	UN2298	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	Methyl dichloroacetate	6.1	UN2299	III	KEEP AWAY FROM FOOD.	T1	153	203	241	60 L	220 L	1,2	1,2	34, 40
D	Methyldichloroarsine	2.3	NA1556	II	POISON GAS	B14, B32, 10.	None	192	244	Forbidden	Forbidden	1	5	40, 95
	Methyldichlorosilane	4.3	UN1242	I	DANGEROUS WHEN WET, CORROSIVE, POISON, FLAMMABLE LIQUID.	A2, B6, B14, B32, N1, N15, N26, N34, 10.	None	227	244	Forbidden	Forbidden	1	5	21, 40, 49, 91
	Methylene chloride, see Dichloromethane													
	Methylene glycol dinitrate	Forbidden												
D	Methylene isocyanate	6.1	NA2929	I	POISON, FLAMMABLE LIQUID.	B14, B30, 10.	None	226	244	Forbidden	Forbidden	L2	1	
	Methyl ethyl ether see Ethyl methyl ether													
	Methyl ethyl ketone, *see* Ethyl methyl ketone.													
	Methyl ethyl ketone peroxide, in solution with more than 9 per cent by weight active oxygen.	Forbidden												
	Methyl ethyl ketone peroxide(s), *not more than 40% in diiso-butylnylonate, with not more than 8.2% available oxygen.*	5.2	UN3068	I	ORGANIC PEROXIDE.		None	255	None	1 L	5 L	1	5	
	Methyl ethyl ketone peroxide(s), *not more than 60 per cent in solution and not more than 9 per cent by weight active oxygen.*	5.2	UN2127	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	Methyl ethyl ketone peroxide(s), *not more than 50 per cent in solution and not more than 9 per cent by weight active oxygen.*	5.2	UN2550	I	ORGANIC PEROXIDE.		None	225	None	1 L	5 L	1	5	12, 40
	2-Methyl-5-ethyl pyridine	6.1	UN2300	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	1,2	1,2	34, 40
	Methyl fluoride	2.1	UN2454		FLAMMABLE GAS.	B13	306	304	244	Forbidden	150 kg	1,3	5	40, 85
	Methyl formate	3	UN1243	I	FLAMMABLE LIQUID.	T20	150	201	243	1 L	30 L	1,3	5	12
	2-Methylfuran	3	UN2301	II	FLAMMABLE LIQUID.	T7	150	202	242	5 L	60 L	1,3	5	12
	a-Methylglucoside tetranitrate	Forbidden												

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	a-Methylglycerol trinitrate	Forbidden												
	5-Methylhexan-2-one	3	UN2302	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Methylhydrazine	3	UN1244	I	FLAMMABLE LIQUID, POISON, CORROSIVE.	B14, B32, N15, N34, 10.	None	227	244	Forbidden	Forbidden	1,3	5	49
	Methyl iodide	6.1	UN2644	II	POISON	T14	None	202	243	5 L	60 L	1,3	1,3	12, 40, 95
	Methyl isobutyl carbinol	3	UN2053	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Methyl isobutyl ketone	3	UN1245	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Methyl isobutyl ketone peroxide, in solution with more than 9 per cent by weight active oxygen.	Forbidden												
	Methyl isobutyl ketone peroxide(s), *not more than 9 percent by weight active oxygen and not more than 62 per cent with phlegmatizer, or with 30 percent methal isobutyl ketone and 20 percent phlegmatizer.*	5.2	UN2126	I	ORGANIC PEROXIDE.		None	225	None	1 L	5 L	1	5	12, 40
	Methyl isocyanate *or* Methyl isocyanate solutions.	3	UN2480	I	FLAMMABLE LIQUID, POISON.	B14, B30, N15, N26, 10.	None	226	244	Forbidden	Forbidden	1	5	12, 40, 48
	Methyl isopropenyl ketone, inhibited	3	UN1246	II	FLAMMABLE LIQUID.	T7	150	202	242	5 L	60 L	1,3	1	
	Methyl isothiocyanate	3	UN2477	I	FLAMMABLE LIQUID, POISON.	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1	1,3	12, 40, 48, 95
	Methyl isovalerate	3	UN2400	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Methyl magnesium bromide, in ethyl ether	4.2	UN1928	I	SPONTANEOUSLY COMBUSTIBLE.	N15	None	201	243	Forbidden	Forbidden	1	5	
	Methyl mercaptan	2.3	UN1064	I	POISON GAS, FLAMMABLE GAS.	10, B7, B14, B31.	None	304	314, 315	Forbidden	Forbidden	1,3	1	40, 85, 95
	Methyl methacrylate monomer, inhibited	3	UN1247	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	40
	Methylmorpholine	3	UN2535	II	FLAMMABLE LIQUID, CORROSIVE.	B6, T8	None	202	243	1 L	5 L	1,3	1	40
	Methyl nitramine (dry),	Forbidden												
	Methyl nitrite	Forbidden												

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Methyl norbornene dicarboxylic anhydride, see Corrosive liquids, n.o.s..													
	Methyl orthosilicate	3	UN2606	I	FLAMMABLE LIQUID, POISON.	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1,3	5	12, 40
D	Methyl parathion *liquid*	6.1	NA2783	II	POISON	N76	None	202	243	Forbidden	1 L	1,3	1,3	
D	Methyl parathion *solid*	6.1	NA2783	II	POISON	N77	None	212	242	25 kg	100 kg	1,2	1,2	
	Methylpentadiene	3	UN2461	II	FLAMMABLE LIQUID.	T7	150	202	241	5 L	60 L	1,3	5	12
	Methylpentanes, see Hexanes													
	2-Methylpentan-2-ol	3	UN2560	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1	
	Methylphenyldichlorosilane	8	UN2437	II	CORROSIVE	T8, T26	154	202	242	1 L	30 L	1	1	13, 40
D	Methyl phosphonic dichloride	8	NA9206	I	CORROSIVE, POISON.	B8, B25, B32, N1, N15, N34, N43, 10.	None	227	244	Forbidden	Forbidden	1	1	
	Methyl phosphonothioic dichloride, anhydrous, see Corrosive liquid, n.o.s..													
D	Methyl phosphonous dichloride, *pyrophoric liquid.*	6.1	NA2845	I	POISON, SPONTANEOUSLY COMBUSTIBLE, CORROSIVE.	B8, B14, B16, B32, 10.	None	181	244	Forbidden	Forbidden	1	5	18
	Methyl picric acid (heavy metal salts of)	Forbidden												
	1-Methylpiperidine	3	UN2399	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	Methyl propionate	3	UN1248	II	FLAMMABLE LIQUID.	T2	150	202	242	5 L	60 L	1,3	1	
	Methyl propyl ether	3	UN2612	II	FLAMMABLE LIQUID.	T14	150	202	242	5 L	60 L	1,3	5	12, 40
	Methyl propyl ketone	3	UN1249	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Methyl sulfate, see Dimethyl sulfate													
	Methyl sulfide, see Dimethyl sulfide													
	Methyltetrahydrofuran	3	UN2536	II	FLAMMABLE LIQUID.	T7	150	202	242	5 L	60 L	1,3	1	
	Methyl trichloroacetate	6.1	UN2533	III	KEEP AWAY FROM FOOD.	T1	153	203	241	60 L	220 L	1,2	1,2	34
	Methyltrichlorosilane	3	UN1250	I	FLAMMABLE LIQUID, POISON, CORROSIVE.	B6, B14, B32, N26, N34, 10.	None	227	244	Forbidden	Forbidden	1,3	1	40

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Methyl trimethylol methane trinitrate	Forbidden												
	alpha-Methyl valeraldehyde	3	UN2367	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Methyl vinyl ketone	3	UN1251	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	Mine rescue equipment containing carbon dioxide, see Carbon dioxide.													
	Mines *with bursting charge*	1.1F	UN0136											
	Mines *with bursting charge*	1.1D	UN0137											
	Mines *with bursting charge*	1.2D	UN0138											
	Mines *with bursting charge*	1.2F	UN0294											
	Mixed acid, see Nitrating acid, mixtures													
	Molybdenum pentachloride	8	UN2508	III	CORROSIVE	T8, T26	154	213	240	25 kg	100 kg	1	1	8, 40
	Monochloroacetone (unstabilized)	Forbidden												
	Monochloroethylene, see Vinyl chloride													
	Monoethanolamine, see Ethanolamine													
	Monoethylamine, see Ethylamine													
	Morpholine	3	UN2054	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1	
	Morpholine, aqueous, mixture, see Corrosive liquid, n.o.s.													
	Motorcycles, see Vehicles, self-propelled													
	Motor fuel anti-knock mixtures	6.1	UN1649	I	POISON, FLAMMABLE LIQUID.	B9, B11, B12, B43, T26, T39.	None	201	244	Forbidden	30 L	1	5	22, 40, 95
	Motor spirit, *see* Gasoline													
	Motor vehicle, see Vehicles, self-propelled													
	Muriatic acid, see Hydrochloric acid solution.													
	Musk xylene, *see* 5-tert-Butyl2,4,6-trinitro-m-xylene.													
	Naphtha	3	UN2553	I	FLAMMABLE LIQUID.	T8, T31	150	201	243	1 L	30 L	1,3	5	
				II	FLAMMABLE LIQUID.	T8, T31	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T7, T30.	150	203	242	60 L	220 L	1,3	1,3	
	Naphthalene, crude *or* refined	4.1	UN1334	III	FLAMMABLE SOLID.	A1	151	213	240	25 kg	100 kg	1,3	1,3	
	Naphthalene diozonide	Forbidden												
	Naphthalene, molten	4.1	UN2304	III	FLAMMABLE SOLID.	A1, T8, T38.	151	213	241	25 kg	100 kg	1	1	
	Naphtha, *petroleum*	3	UN1255	I	FLAMMABLE LIQUID.	T8	150	201	243	1 L	30 L	1,3	5	

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
				II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T8	150	203	242	60 L	220 L	1,3	1,3	
Naphtha, *solvent*		3	UN1256	II	FLAMMABLE LIQUID.	T8, T31	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T7, T30.	150	203	242	60 L	220 L	1,3	1,3	
alpha-Naphthylamine		6.1	UN2077	III	KEEP AWAY FROM FOOD.	T7	153	213	240	100 kg	200 kg	1,2	1,2	34
beta-Naphthylamine		6.1	UN1650	II	POISON	T12, T26	None	212	242	25 kg	100 kg	1,2	1,2	95
Naphthyl amineperchlorate		Forbidden												
Naphthylthiourea		6.1	UN1651	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
Naphthylurea		6.1	UN1652	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
Natural gases (with high methane content), see Methane, *etc. (UN 1971, 1972).*														
Natural gasoline		3	UN1257	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	5	12
Neohexane, see Hexanes														
Neon, compressed		2.2	UN1065		NONFLAMMABLE GAS.	B13	306	302	244	75 kg	150 kg	1,3	1,3	85
Neon, refrigerated liquid (*cryogenic liquid*)		2.2	UN1913		NONFLAMMABLE GAS.	B13	320	320	244	50 kg	500 kg	1,3	1	85
New explosive or explosive device. See 173.51 and 173.86.														
Nickel carbonyl		6.1	UN1259	I	POISON, FLAMMABLE LIQUID.		None	198	None	Forbidden	Forbidden	1	5	18, 21, 40, 95
Nickel catalyst, dry		4.2	UN2881	I	SPONTANEOUSLY COMBUSTIBLE.	N15, N34	None	211	None	Forbidden	Forbidden	1,3	1	
Nickel catalyst, wetted *with not less than 40 per cent water or other suitable liquid, by weight, finely divided, activated or spent.*		4.2	UN1378	II	SPONTANEOUSLY COMBUSTIBLE.	A2, N2, N15, N34.	None	212	None	Forbidden	50 kg	1,3	1	
Nickel cyanide		6.1	UN1653	II	POISON	N74, N75	None	212	242	25 kg	100 kg	1,2	1,2	26, 95
Nickel nitrate		5.1	UN2725	III	OXIDIZER	A1	152	213	240	25 kg	100 kg	1,2	1,2	
Nickel nitrite		5.1	UN2726	III	OXIDIZER	A1	152	213	240	25 kg	100 kg	1,2	1,2	34, 56, 58
Nickel picrate		Forbidden												
Nicotine		6.1	UN1654	II	POISON		None	202	243	5 L	60 L	1,2	1	95
				III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,2	1,2	34
Nicotine compounds, n.o.s. *or* Nicotine preparations, n.o.s. *liquid.*		6.1	UN1655	I	POISON		None	201	243	1 L	30 L	1,2	1,2	95
				II	POISON		None	202	243	5 L	60 L	1,2	1,2	95

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
				III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,2	1,2	34
	Nicotine compounds, n.o.s. *or* Nicotine preparations, n.o.s. *solid.*	6.1	UN1655	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	95
				II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Nicotine hydrochloride *or* Nicotine hydrochloride solution.	6.1	UN1656	II	POISON		None	202	243	5 L	60 L	1,2	1,2	95
	Nicotine salicylate	6.1	UN1657	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Nicotine sulfate, solid	6.1	UN1658	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Nicotine sulfate, solution	6.1	UN1658	II	POISON	T14	None	202	243	5 L	60 L	1,2	1,2	95
	Nicotine tartrate	6.1	UN1659	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Nitrated paper (unstable)	Forbidden												
	Nitrates, inorganic, n.o.s.	5.1	UN1477	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,2	1,2	46
	Nitrates of diazonium compounds	Forbidden												
	Nitrating acid mixtures, spent *with more than 50 per cent nitric acid.*	8	UN1826	I	CORROSIVE, OXIDIZER.	B28, T12, T27.	None	158	243	Forbidden	2.5 L	1	5	33, 40
	Nitrating acid mixtures spent *with not more than 50 per cent nitric acid.*	8	UN1826	II	CORROSIVE	B2, B28, T12, T27.	None	158	242	Forbidden	30 L	1	5	33, 40
	Nitrating acid mixtures *with more than 50 per cent nitric acid.*	8	UN1796	I	CORROSIVE, OXIDIZER.	B28, T12, T27.	None	158	243	Forbidden	2.5 L	1	5	33, 40
	Nitrating acid mixtures *with not more than 50 per cent nitric acid.*	8	UN1796	II	CORROSIVE	B2, B28, T12, T27.	None	158	242	Forbidden	30 L	1	5	33, 40
	Nitric acid, *other than red fuming, with more than 70 per cent nitric acid.*	8	UN2031	I	CORROSIVE	10, B12, B14, B32, B53.	None	158	244	Forbidden	Forbidden	1	5	33, 37, 38, 63
	Nitric acid, *other than red fuming, with not more than 70 per cent nitric acid.*	8	UN2031	II	CORROSIVE	B2, B12, B17, B28, T9, T27.	None	158	242	Forbidden	30 L	1	5	33, 37, 38, 63
	Nitric acid, red fuming	8	UN2032	I	CORROSIVE, OXIDIZER, POISON.	B17, B28, B30, 10.	None	158	244	Forbidden	Forbidden	1	5	33, 37, 38, 40, 63
	Nitric ether. See Ethyl nitrate													
	Nitric oxide	2.3	UN1660	I	POISON GAS	10, B7, B12, B14, B31, B37, B45, B46, B50.	None	337	244	Forbidden	Forbidden	1	5	40, 95

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Nitric oxide and nitrogen tetroxide mixtures	2.3	UN1975	I	POISON GAS, OXIDIZER.	10, B7, B12, B14, B45, B46.	None	337	245	Forbidden	Forbidden	1	5	40, 43, 95
	Nitrites, inoganic, n.o.s.	5.1	UN2627	II	OXIDIZER	A33	152	212	None	5 kg	25 kg	1,2	1,2	34, 46, 56, 58
	N-Nitroaniline	Forbidden												
	Nitroanilines (*o-,m-,p-*)	6.1	UN1661	II	POISON	T14	None	212	242	25 kg	100 kg	1,2	1,2	95
	Nitroanisole, *liquid*	6.1	UN2730	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	1,3	1,3	12, 34
	Nitroanisole, *solid*	6.1	UN2730	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Nitrobenzene	6.1	UN1662	II	POISON	T14	None	202	243	5 L	60 L	1,2	1,2	40, 95
	m-Nitrobenzene diazonium perchlorate	Forbidden												
	Nitrobenzenesulfonic acid	8	UN2305	II	CORROSIVE		154	212	240	15 kg	50 kg	1,2	1,2	
	Nitrobenzol, see Nitrobenzene													
	5-Nitrobenzotriazol	1.1D	UN0385											
	Nitrobenzotrifluorides	6.1	UN2306	II	POISON	T8	None	202	243	5 L	60 L	1,2	1,2	40, 95
	Nitrobromobenzene, *liquid*	6.1	UN2732	III	KEEP AWAY FROM FOOD.	T8, T38	153	203	241	60 L	220 L	1,3	1,3	12, 95
	Nitrobromobenzene, *solid*	6.1	UN2732	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Nitrocellulose, *dry or wetted with less than 25 per cent water (or alcohol), by weight.*	1.1D	UN0340											
	Nitrocellulose, plasticized *with not less than 18 per cent plasticizing substance, by weight.*	1.3C	UN0343											
	Nitrocellulose, solution, flammable *with not more than 12.6 per cent nitrogen, by weight, and not more than 55 per cent nitrocellulose, flash point less than 23 degrees C.*	3	UN2059	II	FLAMMABLE LIQUID.	A32, T9	150	202	242	5 L	60 L	1,3	1	
	Nitrocellulose, solution, flammable *with not more than 12.6 per cent nitrogen, by weight, and not more than 55 per cent nitrocellulose, flash point not less than 23 degrees C but not more than 60.5 degrees C.*	3	UN2060	II	FLAMMABLE LIQUID.	A32, T9	150	202	242	5 L	60 L	1,3	1	
	Nitrocellulose, *unmodified or plasticized with less than 18 per cent plasticizing substance, by weight.*	1.1D	UN0341											
	Nitrocellulose, wetted *with not less than 25 per cent alcohol, by weight.*	1.3C	UN0342											
	Nitrocellulose with alcohol, *not less than 25 per cent alcohol by weight, and not more than 12.6 per cent nitrogen, by dry weight.*	4.1	UN2556	II	FLAMMABLE SOLID.		151	212	None	1 kg	15 kg	1	5	25

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Nitrocellulose with plasticizing substance, *not less than 18 per cent, plasticizing substance, by weight, and not more than 12.6 per cent nitrogen, by dry weight.*	4.1	UN2557	II	FLAMMABLE SOLID.		151	212	None	1 kg	15 kg	1	5	25
	Nitrocellulose with water, *not less than 25 per cent water, by weight.*	4.1	UN2555	II	FLAMMABLE SOLID.		151	212	None	15 kg	50 kg	1,3	5	25
	Nitrochlorobenzene, see Chloronitrobenzenes.													
	3-Nitro-4-chlorobenzotrifluoride	6.1	UN2307	II	POISON	T8	None	202	243	5 L	60 L	1,2	1,2	40, 95
	Nitrocresols	6.1	UN2446	III	KEEP AWAY FROM FOODS.		153	213	240	100 kg	200 kg	1,2	1,2	34
	6-Nitro-4-diazotoluene-3-sulfonic acid (dry)	Forbidden												
	Jitroethane	3	UN2842	III	FLAMMABLE LIQUID.	T8	150	203	242	60 L	220 L	1,3	1,3	
	Nitroethylene polymer	Forbidden												
	Nitroethyl nitrate	Forbidden												
	Nitrogen, compressed	2.2	UN1066		NONFLAMMABLE GAS.		306	302	314, 315	75 kg	150 kg	1,3	1,3	85
	Nitrogen dioxide, liquefied	2.3	UN1067	I	POISON GAS, OXIDIZER.	10, B7, B12, B45, B46.	None	336	245	Forbidden	Forbidden	1	5	40, 43, 95
	Nitrogen fertilizer solution, see Fertilizer ammoniating solution *etc.*.													
	Nitrogen, mixtures with rare gases, see Rare gases and nitrogen mixtures.													
	Nitrogen peroxide, see Nitrogen dioxide, liquified.													
	Nitrogen, refrigerated liquid (*cryogenic liquid*).	2.2	UN1977		NONFLAMMABLE GAS.		320	316	318	50 kg	500 kg	1,3	1,3	85
	Nitrogen tetroxide, see Nitrogen dioxide, liquefied.													
	Nitrogen tetroxide and nitric oxide mixtures, see Nitric oxide and nitrogen tetroxide mixtures.													
	Nitrogen trichloride	Forbidden												
	Nitrogen trifluoride	2.3	UN2451	III	POISON GAS	B13, B14, B34, 10.	None	302	244	Forbidden	Forbidden	1	5	40, 43, 95
	Nitrogen triiodide	Forbidden												
	Nitrogen triiodide monoamine	Forbidden												
	Nitrogen trioxide	2.3	UN2421	I	POISON GAS, OXIDIZER.	B13, 10	None	336	245	Forbidden	Forbidden	1	5	31, 40, 95

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Nitroglycerin, desensitized *with not less than 40 per cent non-volatile water insoluble phlegmatizer, by weight.*	1.1D	UN0143											
	Nitroglycerin (Glyceryl trinitrate) solution in alcohol *with not more than 1 per cent nitroglycerin.*	3	UN1204	II	FLAMMABLE LIQUID.	N34, T25...	None	202	None	5 L	60 L	1,3	1	
	Nitroglycerin, liquid, not desensitized	Forbidden												
	Nitroglycerin, solution in alcohol, *with more than 1% but not greater than 5% nitroglycerin.*	3	UN3064	II	FLAMMABLE LIQUID.		None	202	None	Forbidden	5 L			
	Nitroglycerin, spirit of, *with more than 1 per cent but not more than 10 per cent nitroglycerin in solution in alcohol.*	1.1D	UN0144											
	Nitroguanidine nitrate	Forbidden												
	Nitroguanidine (Picrite), *dry or wetted with less than 20 per cent water, by weight.*	1.1D	UN0282											
	Nitroguanidine (Picrite), wetted *with not less than 20 per cent water, by weight.*	4.1	UN1336	I	FLAMMABLE SOLID.	A19, A20, N2, N34, N41.	None	211	None	1 kg	15 kg	1,3	5	
	1-Nitrohydantoin	Forbidden												
	Nitrohydrochloric acid	8	UN1798	I	CORROSIVE	B4, N1, N15, N34, N41, T18, T27.	None	201	242	Forbidden	2.5 L	1	5	33, 40
	Nitro isobutane triol trinitrate	Forbidden												
	Nitromannite (dry)	Forbidden												
	Nitromannite, wetted, *see* Mannitol hexanitrate, *etc.*.													
	Nitromethane	3	UN1261	II	FLAMMABLE LIQUID.	T25	150	202	None	Forbidden	60 L	1,3	1,3	
	N-Nitro-N-methylglycolamide nitrate	Forbidden												
	2-Nitro-2-methylpropanol nitrate	Forbidden												
	Nitromuriatic acid, see Nitrohydrochloric acid.													
	Nitronaphthalene	4.1	UN2538	III	FLAMMABLE SOLID.	A1	151	213	240	25 kg	100 kg	1,3	1,3	
	Nitrophenols (*o-,m-,p-*)	6.1	UN1663	III	KEEP AWAY FROM FOOD.	T8, T38	153	213	240	100 kg	200 kg	1,2	1,2	34
	m-Nitrophenyldinitro methane	Forbidden												

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Nitropropanes	3	UN2608	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	p-Nitrosodimethylaniline	4.2	UN1369	II	SPONTANEOUSLY COMBUSTIBLE.	A19, A20, N34.	None	212	241	15 kg	50 kg	1,3	5	34
	Nitrostarch, *dry or wetted with less than 20 per cent water, by weight.*	1.1D	UN0146											
	Nitrostarch, wetted *with not less than 20 per cent water, by weight.*	4.1	UN1337	I	FLAMMABLE SOLID.	A19, A20, N2, N34, N41.	None	211	None	1 kg	15 kg	1	5	
	Nitrosugars (dry)	Forbidden												
	Nitrosyl chloride	2.3	UN1069	II	POISON GAS, CORROSIVE.	10	None	304	245	Forbidden	Forbidden	1	5	40, 95
	Nitrosylsulfuric acid	8	UN2308	II	CORROSIVE	B2, N1, N11, N26, N34, T9, T27.	154	202	242	1 L	30 L	1	5	40, 43
	Nitrotoluenes, *liquid, o-*	6.1	UN1664	II	POISON	T14	None	202	243	5 L	60 L	1,2	1,2	95
	Nitrotoluenes, *solid m- or p-*	6.1	UN1664	II	POISON	T14	None	212	242	25 kg	100 kg	1,2	1,2	95
	Nitrotoluidines (mono)	6.1	UN2660	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Nitro urea	1.1.D	UN0147											
	Nitrous oxide and carbon dioxide mixtures, see Carbon dioxide and nitrous oxide mixtures.													
	Nitrous oxide, compressed	2.3	UN1070	II	POISON GAS, OXIDIZER.	B13, B33, 10.	None	304	244	Forbidden	Forbidden	1,3	1,3	40, 85
	Nitrous oxide, refrigerated liquid	2.3	UN2201	II	POISON GAS, OXIDIZER.	B6, B14, B33, 10.	None	316	314, 315	Forbidden	Forbidden	1,3	1	40, 85
	Nitroxylenes (*o-,m-,p-*)	6.1	UN1665	II	POISON	T14	None	202	243	5 L	60 L	1,2	1,2	95
	Nitroxylol, see Nitroxylenes													
	Nonanes	3	UN1920	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1	
	Nonflammable gas, n.o.s., see Compressed *or* Liquefied gases, *e tc.* (*UN 1955, 1956*).													
	Nonliquefied gases, see Compressed gases, *etc.*.													
	Nonliquefied hydrocarbon gas, see Hydrocarbon gases, compressed, n.o.s..													
	Nonyltrichlorosilane	8	UN1799	II	CORROSIVE	B2, B6, N26, N34, T8, T26.	None	202	242	Forbidden	30 L	1	1	40
	2,5 Norbornadiene	3	UN2251	II	FLAMMABLE LIQUID.		150	202	241	5 L	60 L	1	5	12

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Nordhausen acid, see Sulfuric acid, fuming													
	Octadecyltrichlorosilane	8	UN1800	II	CORROSIVE	B2, B6, N26, N34, T8.	None	202	242	Forbidden	30 L	1	1	40
	Octadiene	3	UN2309	II	FLAMMABLE LIQUID.	B1, T1	150	202	242	5 L	60 L	1,3	1,3	
				III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	1,7-Octadine-3,5-diyne-1,8-dimethoxy-9-octadecynoic acid.	Forbidden												
	Octafluorobut-2-ene	2.2	UN2422		NONFLAMMABLE GAS.	B13	None	304	244	75 kg	150 kg	1,3	1,3	85
	Octafluorocyclobutane	2.2	UN1976		NONFLAMMABLE GAS.	B13	None	304	244	75 kg	150 kg	1,3	1,3	85
	Octafluoropropane	2.2	UN2424		NONFLAMMABLE GAS.	B13	None	304	244	75 kg	150 kg	1,3	1,3	85
	Octanes	3	UN1262	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	n-Octanoyl peroxide, *see* Di-n-octanoyl peroxide, *technically pure.*													
	Octogen, *see* Cyclotetramethylene tetranitramine, etc..													
	Octol, *see* Octolite, *etc.*													
	Octolite (Octol), *dry or wetted with less than 15 per cent water, by weight.*	1.1D	UN0266											
	Octyl aldehydes, *flammable*	3	UN1191	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	tert-Octylmercaptan	6.1	UN3023	I	POISON, FLAMMABLE LIQUID.	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1,2	1,2	21, 40
	Octyltrichlorosilane	8	UN1801	II	CORROSIVE	B2, B6, N26, N34, T8, T26.	None	202	242	Forbidden	30 L	1	1	40
	Oil gas	2.1	UN1071		FLAMMABLE GAS.	B13	None	304	244	Forbidden	150 kg	1	5	40
	Oleum, see Sulfuric acid, fuming													
	Organic peroxides, mixtures	5.2	UN2756	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	Organic peroxides, samples, n.o.s.	5.2	UN2255	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	Organic peroxides, trial quantities, n.o.s.	5.2	UN2899	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
D	Organic phosphate, Organic phosphate compound, *or* Organic phosphorus compound; mixed with compressed gas.	2.3	NA1955	I	POISON GAS	10	None	334	None	Forbidden	Forbidden	1	5	40, 95
	Organochlorine pesticides liquid, flammable, toxic, n.o.s., *flash point less than 23 degrees C.*	3	UN2762	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	1,3	5	

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	1,3	1	
	Organochlorine pesticides, liquid, toxic, flammable, n.o.s., *flash point not less than 23 degrees C.*	6.1	UN2995	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	1	1	23, 40, 95
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	1,2	1	23, 40, 95
				III	KEEP AWAY FROM FOOD.	B1, T14	153	203	242	60 L	220 L	1,2	1,2	23, 34, 40
	Organochlorine pesticides, liquid, toxic, n.o.s..	6.1	UN2996	I	POISON	T42	None	201	243	1 L	30 L	1	1	40, 95
				II	POISON	T14	None	202	242	5 L	60 L	1,2	1	40, 95
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	1,2	1,2	34, 40
	Organochlorine pesticides, solid toxic n.o.s.	6.1	UN2761	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	40, 95
				II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	40, 95
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1.2	34, 40
	Organophosphorus pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23 degrees C.*	3	UN2784	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	1,3	5	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	1,3	1	
	Organophosphorus pesticides, liquid, toxic, flammable, n.o.s., *flash point not less than 23 degrees C.*	6.1	UN3017	I	POISON, FLAMMABLE LIQUID.	N76, T42	None	201	243	1 L	30 L	1	1	23, 40, 95
				II	POISON, FLAMMABLE LIQUID.	N76, T14	None	202	243	5 L	60 L	1,3	1	23, 40, 95
				III	KEEP AWAY FROM FOOD.	B1, N76, T14.	153	203	242	60 L	220 L	1,3	1,3	23, 34, 40
	Organophosphorus pesticides, liquid, toxic, n.o.s..	6.1	UN3018	I	POISON	N76, T42	None	201	243	1 L	30 L	1	1	40, 95
				II	POISON	N76, T14	None	202	243	5 L	60 L	1,2	1	40, 95
				III	KEEP AWAY FROM FOOD.	N76, T14	153	203	241	60 L	220 L	1,2	1,2	34, 40
	Organophosphorus pesticides, solid, toxic, n.o.s..	6.1	UN2783	I	POISON	N77	None	211	242	5 kg	50 kg	1,2	1,2	40, 95
				II	POISON	N77	None	212	242	25 kg	100 kg	1,2	1,2	40, 95
				III	KEEP AWAY FROM FOOD.	N77	153	213	240	100 kg	200 kg	1,2	1,2	34, 40
	Organotin compounds, n.o.s. *liquid*	6.1	UN2788	I	POISON	N1, N16, N33, N34.	None	201	243	1 L	30 L	1,2	1	40, 95
				II	POISON	N1, N16, N33, N34.	None	202	243	5 L	60 L	1,2	1	40, 95

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	.....	.....	.....	III	KEEP AWAY FROM FOOD.	.....	153	203	241	60 L	220 L	1,2	1	34, 40
	Organotin compounds, n.o.s. *solid*	6.1	UN2788	I	POISON	A2, A5, N1.	None	211	242	5 kg	50 kg	1,2	1	40, 95
	.....	.....	.....	II	POISON	A1, N1	None	212	242	25 kg	100 kg	1,2	1	40, 95
	.....	.....	.....	III	KEEP AWAY FROM FOOD.	A29	153	213	240	100 kg	200 kg	1,2	1,2	34, 40
	Organotin pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23deg C.*	3	UN2787	I	FLAMMABLE LIQUID, POISON.	.....	None	201	243	Forbidden	30 L	1,3	5	
	.....	.....	.....	II	FLAMMABLE LIQUID, POISON.	.....	None	202	243	1 L	60 L	1,3	1	
	Organotin pesticides, liquid, toxic, flammable, n.o.s., *flash point not less than 23deg C.*	6.1	UN3019	I	POISON, FLAMMABLE LIQUID.	.....	None	201	243	1 L	30 L	1	1	23, 40, 95
	.....	.....	.....	II	POISON, FLAMMABLE LIQUID.	.....	None	202	243	5 L	60 L	1,2	1	23, 40, 95
	.....	.....	.....	III	KEEP AWAY FROM FOOD.	.....	153	203	241	60 L	220 L	1,2	1,2	23, 34, 40
	Organotin pesticides, liquid, toxic, n.o.s.	6.1	UN3020	I	POISON	.....	None	201	243	1 L	30 L	1	1	40, 95
	.....	.....	.....	II	POISON	.....	None	202	243	5 L	60 L	1,2	1	40, 95
	.....	.....	.....	III	KEEP AWAY FROM FOOD.	.....	153	203	241	60 L	220 L	1,2	1,2	34, 40
	Organotin pesticides, solid, toxic, n.o.s.	6.1	UN2786	I	POISON	.....	None	211	242	5 kg	50 kg	1,2	1,2	40, 95
	.....	.....	.....	II	POISON	.....	None	212	242	25 kg	100 kg	1,2	1,2	40, 95
	.....	.....	.....	III	KEEP AWAY FROM FOOD.	.....	153	213	240	100 kg	200 kg	1,2	1,2	34, 40
	ORM-E, liquid *or* solid, n.o.s. *See* Hazardous substance, liquid, n.o.s. *or* Hazardous substance, solid, n.o.s..	.....	.....											
	Orthonitroaniline, see Nitroanilines *etc.*	.....	.....											
	Osmium tetroxide	6.1	UN2471	I	POISON	N2, N33, N34.	None	211	242	5 kg	50 kg	1,2	1	40, 95
AD	Other regulated substances, *n.o.s., liquid*	9	None	III	CLASS 9	.....	155	203	241	No limit	No limit	1,2	1,2	
AD	Other regulated substances, *n.o.s., solid*	9	None	III	CLASS 9	.....	155	213	240	No limit	No limit	1,2	1,2	
	Oxalates, *water soluble*	6.1	UN2449	III	KEEP AWAY FROM FOOD.	.....	153	213	240	100 kg	200 kg	1,2	1,2	34
D	Oxidizing substances, liquid, corrosive, n.o.s..	5.1	NA9193	II	OXIDIZER, CORROSIVE.	B2	None	202	243	Forbidden	1 L	1	5	
	Oxidizing substances, liquid, poisonous, n.o.s..	5.1	NA9199	II	OXIDIZER, POISON.	.....	None	202	243	Forbidden	1 L	1	5	
	Oxidizing substances, n.o.s. *liquid*	5.1	UN1479	I	OXIDIZER	A2	None	201	None	Forbidden	Forbidden	1	5	40, 46, 56
	.....	.....	.....	II	OXIDIZER	A2	152	202	242	1 L	5 L	1,2	1,2	40, 46, 56
	.....	.....	.....	III	OXIDIZER	A2	152	203	240	5 L	60 L	1,2	1,2	40, 46, 56
	Oxidizing substances, n.o.s. *solid*	5.1	UN1479	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,2	1,2	

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Oxidizing substances, solid, corrosive, n.o.s..	5.1	UN3085,	I	OXIDIZER, CORROSIVE.	B10	None	211	242	1 kg	15 kg	1	4	
				II	OXIDIZER, CORROSIVE.	B10	None	212	240	5 kg	25 kg	1	4	
				III	OXIDIZER, CORROSIVE.	B10	152	213	240	25 kg	100 kg	1	4	
	Oxidizing substances, solid poisonous, n.o.s..	5.1	UN3087	I	OXIDIZER, POISON.	B10	None	211	242	1 kg	15 kg	1,2	4	
				II	OXIDIZER, POISON.	B10	None	212	240	5 kg	25 kg	1,2	4	
				III	OXIDIZER, KEEP AWAY FROM FOOD.	B10	152	213	240	25 kg	100 kg	1,2	4	
	Oxygen and carbon dioxide mixtures, see Carbon dioxide and oxygen mixtures.													
	Oxygen, compressed	2.2	UN1072		NONFLAMMABLE GAS, OXIDIZER.		306	302	314, 315	75 kg	150 kg	1,3	1,3	85
	Oxygen difluoride	2.3	UN2190	I	POISON GAS	10	None	304	245	Forbidden	Forbidden	1	5	13, 40
	Oxygen, mixtures with rare gases, see Rare gases and oxygen mixtures.													
	Oxygen, refrigerated liquid (*cryogenic liquid*).	2.2	UN1073		NONFLAMMABLE GAS, OXIDIZER.		320	316	318	Forbidden	Forbidden	1	5	5
	Paint *or* Paint related material	3	UN1263	I	FLAMMABLE LIQUID.		150	201	243	1 L	30 L	1,3	5	
				II	FLAMMABLE LIQUID.	B52, T7, T30.	150	173	242	5 L	60 L	1,2	1	
				III	FLAMMABLE LIQUID.	B52, T7, T30.	150	173	241	60 L	220 L	1,3	5	
	Paint *or* Paint related material	8	UN3066	II	CORROSIVE	B2, N71, T7.	154	202	242	1 L	30 L	1,2	1,2	
				III	CORROSIVE	B52, N71, T7.	154	203	241	5 L	60 L	1,2	1,2	
	Paint driers, see Driers, paint *or* varnish, *etc.*.													
	Paper, unsaturated oil treated *incompletely dried* (*includes carbon paper*).	4.2	UN1379	III	SPONTANEOUSLY COMBUSTIBLE.		None	213	241	Forbidden	Forbidden	1,3	1,3	
	Paraformaldehyde	4.1	UN2213	III	FLAMMABLE SOLID.	A1	151	213	240	25 kg	100 kg	1,3	1,3	
	Paraldehyde	3	UN1264	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1	
	Paranitroaniline, solid, see Nitroanilines *etc.*.													
D	Parathion	6.1	NA2783	I	POISON		None	201	243	Forbidden	1 L	1,3	1,3	
				II	POISON		None	202	243	Forbidden	5 L	1,3	1,3	
D	Parathion and compressed gas mixture	2.3	NA1967	I	POISON GAS	B14, B31, 10.	None	334	244	Forbidden	Forbidden	1,3	5	40, 95

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Paris green, solid, see Copper acetoarsenite.													
D	PCB. *See* Polychlorinated biphenyls													
	Pelargonyl peroxide, *see* Di-n-nonanoyl peroxide, *technically pure.*													
	Pentaborane	4.2	UN1380	I	SPONTANEOUSLY COMBUSTIBLE, POISON.	10	None	205	246	Forbidden	Forbidden	1	5	
	Pentachloroethane	6.1	UN1669	II	POISON		None	202	243	5 L	60 L	1,2	1,2	40, 95
	Pentaerythrite tetranitrate (dry)	Forbidden												
	Pentaerythrite tetranitrate (Pentaerythritol tetranitrate; PETN) wetted *with not less than 25 per cent water, by weight, or* Pentaerythrite tetranitrate (Pentaerythritol tetranitrate ; PETN) desensitized *with not less than 15 per cent phlegmatizer by weight.*	1.1.D	UN0150											
	Pentaerythrite tetranitrate (PETN) *with not less than 7 per cent wax by weight.*	1.1D	UN0411											
	Pentaerythritol tetranitrate, *see* Pentaerythrite tetranitrate, *etc.*.													
	Pentamethylheptane	3	UN2286	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Pentan-2,4-dione	3	UN2310	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	n-Pentane *or* Isopentane	3	UN1265	I	FLAMMABLE LIQUID.	T20	150	201	243	1 L	30 L	1,3	5	12
	Pentanitroaniline (dry)	Forbidden												
	1-Pentol	8	UN2705	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	1,2	1	38
	Pentolite, *dry or wetted with less than 15 per cent water, by weight.*	1.1D	UN0151	II										
	Perchlorates, inorganic, n.o.s.	5.1	UN1481	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,2	1,2	46, 56
	Perchloric acid *more than 50 per cent but not more than 72 per cent acid, by weight.*	5.1	UN1873	I	OXIDIZER, CORROSIVE.	A2, N1, N34, N41, T9, T27.	None	201	243	Forbidden	2.5 L	1	5	
	Perchloric acid, more than 72 per cent acid by weight.	Forbidden												
	Perchloric acid *not more than 50 per cent acid by weight.*	8	UN1802	II	CORROSIVE, OXIDIZER.	N15, N34, N41, T9.	None	202	243	Forbidden	30 L	1	1	37
	Perchloroethylene, see Tetrachloroethylene.													

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Perchloromethylmercaptan	6.1	UN1670	I	POISON	B14, B25, B32, N1, N15, N17, N26, N34, 10.	None	227	244	Forbidden	Forbidden	1	5	40, 95
	Perchloryl fluoride	2.3	UN3083	II	POISON GAS, OXIDIZER.	10, B12, B14, B33.	None	302	244	Forbidden	Forbidden	1	5	40, 43, 95
	Percussion caps, see Primers, cap type													
	Perfluoro-2-butene, see Octafluorobut-2-ene.													
	Perfumery products *with flammable solvents.*	3	UN1266	II	FLAMMABLE LIQUID.	T7, T30	150	202	242	15 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T7, T30.	150	203	242	60 L	220 L	1,3	1,3	
	Permanganates, inorganic, n.o.s.	5.1	UN1482	II	OXIDIZER	A30, B10	152	212	240	5 kg	25 kg	1,2	1,2	56, 69
	Peroxides, inoganic, n.o.s.	5.1	UN1483	II	OXIDIZER	A20, B10, N26, N34.	None	212	240	5 kg	25 kg	1,2	1	13, 46
	Peroxyacetic acid, more than 43 per cent and with more than 6 per cent hydrogen peroxide.	Forbidden												
	Peroxyacetic acid, *not more than 16 per cent in a mixture with at least 39 per cent water, at least 15 per cent acetic acid, not more than 24 per cent hydrogen peroxide, with stabilizer.*	5.2	UN3045	I	ORGANIC PEROXIDE, CORROSIVE.		None	225	None	1 L	5 L	1	5	12, 40
	Peroxyacetic acid *not more than 43 percent in a mixture with at least 5 percent water, at least 35 percent acetic acid, not more than 6 percent hydrogen peroxide with stabilizer.*	5.2	UN2131	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	12, 40
	Pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23 degrees C.*	3	UN3021	I	FLAMMABLE LIQUID, POISON.	B5	None	201	243	Forbidden	30 L	1,3	5	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	1,3	1	
	Pesticides, liquid, toxic, flammable, n.o.s., *flash point not less than 23 degrees C.*	6.1	UN2903	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	1	1	23, 40, 95
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	1,2	1	23, 40, 95
				III	KEEP AWAY FROM FOOD.	T14	153	203	242	60 L	220 L	1,2	1,2	23, 34, 40
	Pesticides, liquid, toxic, n.o.s.	6.1	UN2902	I	POISON	T42	None	201	243	1 L	30 L	1	1	40, 95

Symbols (1)	Hazardous materials descriptions and proper shipping names (2)	Hazard class (3)	Identification numbers (4)	Packing group (5)	Labels (6)	Special provisions (7)	(8) Packaging authorizations (§173.***) Exceptions (8A)	Non-bulk packaging (8B)	Bulk packaging (8C)	(9) Quantity limitations Passenger aircraft or railcar (9A)	Cargo aircraft only (9B)	(10) Vessel stowage requirements Cargo vessel (10A)	Passenger vessel (10B)	Other stowage provisions (10C)
				II	POISON	T14	None	202	243	5 L	60 L	1,2	1	40, 95
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	1,2	1,2	34, 40
	Pesticides, solid, toxic, n.o.s.	6.1	UN2588	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	40, 95
				II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	40, 95
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34, 40
	PETN, *see* Pentaerythrite tetranitrate													
	PETN/TNT, *see* Pentolite, *etc.*													
	Petrol, *see* Gasoline													
	Petroleum crude oil	3	UN1267	II	FLAMMABLE LIQUID.	T8, T31	150	202	242	5 L	60 L	1,3	5	12
				III	FLAMMABLE LIQUID.	B1, T8, T31.	150	203	242	60 L	220 L	1,3	1,3	12
	Petroleum distillates, n.o.s.	3	UN1268	I	FLAMMABLE LIQUID.	T42	150	201	243	1 L	30 L	1,3	5	12
				II	FLAMMABLE LIQUID.	T7, T30	150	202	242	5 L	60 L	1,3	5	12
				III	FLAMMABLE LIQUID.	B1, T7, T30.	150	203	242	60 L	220 L	1,3	1,3	12
	Petroleum ether, see Petroleum spirit													
	Petroleum gases, liquefied	2.1	UN1075		FLAMMABLE GAS.		306	304	314, 315	Forbidden	150 kg	1,3	1	40, 85
	Petroleum naphtha, see Naphtha, *petroleum.*													
	Petroleum oil	3	UN1270	II	FLAMMABLE LIQUID.	T8, T31	150	202	242	5 L	60 L	1,3	5	12
				III	FLAMMABLE LIQUID.	B1, T8, T31.	150	203	242	60 L	220 L	1,3	1,3	12
	Petroleum spirit	3	UN1271	I	FLAMMABLE LIQUID.	T8	150	201	243	1 L	30 L	1,3	5	12
				II	FLAMMABLE LIQUID.	B1, T8	150	202	242	5 L	60 L	1,3	1	12
				III	FLAMMABLE LIQUID.	T8	150	202	241	60 L	220 L	1,2	1,2	
	Phenacyl bromide	6.1	UN2645	II	POISON		None	212	242	25 kg	100 kg	1,3	1	12, 40, 95
	Phenetidines	6.1	UN2311	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	1,2	1,2	34
	Phenol, molten	6.1	UN2312	II	POISON	B14, T8, T38.	None	202	243	Forbidden	Forbidden	1	1	40, 95
	Phenol, solid	6.1	UN1671	II	POISON	N78, T14	None	212	240	25 kg	100 kg	1,2	1,2	95
	Phenol solutions	6.1	UN2821	II	POISON	T14	None	202	243	5 L	60 L	1,2	1,2	95
				III	KEEP AWAY FROM FOOD.	T14	153	203	242	60 L	220 L	1,2	1,2	34
	Phenolsulfonic acid, liquid	8	UN1803	II	CORROSIVE	B2, N16, N34, N41, T8.	154	202	242	1 L	30 L	1,2	1	

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Phenoxy pesticides, liquid, flammable, toxic n.o.s., *flash point less than 23 degrees C.*	3	UN2766	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	1,3	5	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	1,3	1	
	Phenoxy pesticides, liquid, toxic, flammable, n.o.s., *flash point not less than 23 degrees C.*	6.1	UN2999	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	1	1	23, 40, 95
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	1,2	1	23, 40, 95
				III	KEEP AWAY FROM FOOD.	T14	153	203	242	60 L	220 L	1,2	1,2	23, 34, 40
	Phenoxy pesticides, liquid, toxic, n.o.s.	6.1	UN3000	I	POISON	T42	None	201	243	1 L	30 L	1	1	40, 95
				II	POISON	T14	None	202	243	5 L	60 L	1,2	1	40, 95
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	1,2	1,2	34, 40
	Phenoxy pesticides, solid, toxic, n.o.s.	6.1	UN2765	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	40, 95
				II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	40, 95
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34, 40
	Phenylacetonitrile, liquid	6.1	UN2470	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	1,2	1,2	26, 34
	Phenylacetyl chloride	8	UN2577	II	CORROSIVE	B2, T8, T26.	154	202	242	1 L	30 L	1	1	40
	Phenylcarbylamine chloride	6.1	UN1672	I	POISON	B14, B32, 10.	None	227	244	Forbidden	Forbidden	1	5	40, 95
	Phenylchloroformate	6.1	UN2746	II	POISON, CORROSIVE.	T12	None	202	243	1 L	30 L	1,3	1,3	12, 13, 23, 25, 40, 95
D	Phenyldichloroarsine	6.1	NA1556	I	POISON	B3, B14, B30, 10.	None	226	244	Forbidden	Forbidden	1	5	
	m-Phenylene diaminediperchlorate (dry)	Forbidden												
	Phenylenediamines (*o-,m-,p-*)	6.1	UN1673	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Phenylhydrazine	6.1	UN2572	II	POISON		None	202	243	5 L	60 L	1,2	1,2	40, 95
	Phenyl isocyanate	6.1	UN2487	I	POISON	10, B14, B30, N1, N33, N34.	None	227	244	Forbidden	Forbidden	1	1,3	21, 25, 40, 95
	Phenyl mercaptan	6.1	UN2337	I	POISON, FLAMMABLE LIQUID.	10, B14, B32.	None	227	244	Forbidden	Forbidden	1	1,3	21, 40, 95
	Phenylmercuric acetate	6.1	UN1674	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Phenylmercuric compounds, n.o.s.	6.1	UN2026	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	95
				II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Phenylmercuric hydroxide	6.1	UN1894	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Phenylmercuric nitrate	6.1	UN1895	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Phenyl phosphorus dichloride	8	UN2798	II	CORROSIVE	B2, B15, T8, T26.	154	202	242	Forbidden	30 L	1,2	1	40
	Phenyl phosphorus thiodichloride	8	UN2799	II	CORROSIVE	B2, B15, T8, T26.	154	202	242	Forbidden	30 L	1,2	1	40
	Phenyltrichlorosilane	8	UN1804	I	CORROSIVE, POISON.	B6, B14, B32, N26, N34, 10.	None	227	244	Forbidden	Forbidden	1	1	
	Phenyl urea pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23 degrees C.*	3	UN2768	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	1,3	5	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	1,3	1	
	Phenyl urea pesticides, liquid, toxic, flammable, n.o.s., *flash point not less than 23 degrees C.*	6.1	UN3001	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	1	1	23, 40, 95
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	1,2	1	23, 40, 95
				III	KEEP AWAY FROM FOOD.	B1, T14	153	203	242	60 L	220 L	1,2	1,2	23, 34, 40
	Phenyl urea pesticides, liquid, toxic, n.o.s.	6.1	UN3002	I	POISON	T42	None	201	243	1 L	30 L	1	1	40, 95
				II	POISON	T14	None	202	243	5 L	60 L	1,2	1	40, 95
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	1,2	1,2	34, 40
	Phenyl urea pesticides, solid, toxic, n.o.s.	6.1	UN2767	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	40, 95
				II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	40, 95
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34, 40
	Phosgene	2.3	UN1076	I	POISON GAS, CORROSIVE.	10, B7, B45, B46.	None	192	245	Forbidden	Forbidden	1	5	40, 95
	9-Phosphabicyclononanes (Cyclo-octadiene phosphines).	4.2	UN2940	II	SPONTANEOUSLY COMBUSTIBLE.	A19	None	212	241	15 kg	50 kg	1,3	1,3	
	Phosphine	2.3	UN2199	I	POISON GAS, FLAMMABLE GAS.	B7, 10	None	192	245	Forbidden	Forbidden	1	5	40, 95
	Phosphoric acid	8	UN1805	III	CORROSIVE	N26, N34, T7.	154	203	241	5 L	60 L	1,2	1,2	
	Phosphoric acid triethyleneimine, see Tri-(1-aziridiyl) phosphine oxide, solution.													

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Phosphoric anhydride, see Phosphorus pentoxide.													
	Phosphorous acid, ortho	8	UN2834	III	CORROSIVE	T7	154	213	240	25 kg	100 kg	1,3	1,3	48
	Phosphorus, amorphous	4.1	UN1338	III	FLAMMABLE SOLID.	A1, A19, B12, B26.	None	213	243	25 kg	100 kg	1,3	1,3	
	Phosphorus bromide, see Phosphorus tribromide.													
	Phosphorus chloride, see Phosphorus trichloride.													
	Phosphorus heptasulfide, *free from yellow and white phosphorus.*	4.1	UN1339	II	FLAMMABLE SOLID.	A20, B10, N34.	None	212	240	15 kg	50 kg	1,3	1	74
	Phosphorus oxybromide	8	UN1939	II	CORROSIVE	B8, B10, N15, N34, N41.	None	212	240	Forbidden	50 kg	1	1	12, 40
	Phosphorus oxybromide, molten	8	UN2576	II	CORROSIVE	B2, B8, N15, N34, N41, T8, T27, T38.	None	202	242	Forbidden	Forbidden	1	1	40
	Phosphorus oxychloride	8	UN1810	I	CORROSIVE, POISON.	10, B8, B14, B32, N26, N34.	None	227	244	Forbidden	Forbidden	1	1	8, 40
	Phosphorus pentabromide	8	UN2691	II	CORROSIVE	B10, N26, N34.	154	202	240	Forbidden	50 kg	1,3	1	12, 40
	Phosphorus pentachloride	8	UN1806	II	CORROSIVE	B10, N26, N34.	None	202	240	Forbidden	50 kg	1	1	40
	Phosphorus pentafluoride	2.3	UN2198	I	POISON GAS	B13, 10	None	302	245	Forbidden	Forbidden	1	5	40, 95
	Phosphorus pentasulfide, *free from yellow and white phosphorus.*	4.3	UN1340	II	DANGEROUS WHEN WET, FLAMMABLE SOLID.	A20, B10, N34.	None	212	241	15 kg	50 kg	1,3	1,3	74
	Phosphorus pentoxide	8	UN1807	II	CORROSIVE	B10, N26, N34.	154	212	240	15 kg	50 kg	1,2	1,2	9
	Phosphorus sesquisulfide, *free from yellow and white phosphorus.*	4.1	UN1341	II	FLAMMABLE SOLID.	A20, B10, N34.	None	212	240	15 kg	50 kg	1,3	1	74
	Phosphorus tribromide	8	UN1808	II	CORROSIVE	B2, B25, N1, N11, N26, N34, T8.	None	202	242	Forbidden	30 L	1	1	8, 40

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Phosphorus trichloride	8	UN1809	I	CORROSIVE, POISON.	10, B8, B14, B32, N1, N26, N34.	None	227	244	Forbidden	Forbidden	1	1	8, 40
	Phosphorus trioxide	8	UN2578	III	CORROSIVE		154	213	241	25 kg	100 kg	1,3	1,3	12
	Phosphorus trisulfide, *free from yellow and white phosphorus.*	4.1	UN1343	II	FLAMMABLE SOLID.	A20, B10, N34.	None	212	240	15 kg	50 kg	1,3	1	74
	Phosphorus, white *or* yellow dry *or* under water *or* in solution.	4.2	UN1381	I	SPONTANEOUSLY COMBUSTIBLE, POISON.	A19, B12, B26, N1, N15, N34, T15, T26, T33.	None	188	243	Forbidden	Forbidden	1,3	5	
	Phosphorus white, molten	4.2	UN2447	I	SPONTANEOUSLY COMBUSTIBLE, POISON.	A19, B12, B26, N1, N15, N34, T15, T26, T29.	None	188	243	Forbidden	Forbidden	1	5	
	Phosphorus (white or red) and a chlorate, mixtures of.	Forbidden												
	Phosphoryl chloride, see Phosphorus oxychloride.													
	Photo-flash powder, *in units*	1.1G	UN0094											
	Photo-flash powder, *in units*	1.2G	UN0096											
	Photo-flash powder, *in units*	1.3G	UN0305											
	Phthalic anhydride	8	UN2214	III	CORROSIVE	T7, T38	154	213	240	25 kg	100 kg	1,2	1,2	34
	Phthalimide derivative pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23 degrees C.*	3	UN2774	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	1,3	5	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	1,3	1	
	Phthalimide derivative pesticides, liquid, toxic, flammable, n.o.s., *flash point not less than 23 degrees C.*	6.1	UN3007	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	1	1	23, 40, 95
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	1,2	1	23, 40, 95
				III	KEEP AWAY FROM FOOD.	T14	153	203	242	60 L	220 L	1,2	1,2	23, 34, 40
	Phthalimide derivative pesticides, liquid, toxic, n.o.s..	6.1	UN3008	I	POISON	T42	None	201	243	1 L	30 L	1	1	40, 95
				II	POISON	T14	None	202	243	5 L	60 L	1,2	1	40, 95

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	.....	.....	.....	III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	1,2	1,2	34, 40
	Phthalimide derivative pesticides, solid, toxic, n.o.s..	6.1	UN2773	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	40, 95
	.....	.....	.....	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	40, 95
	.....	.....	.....	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34, 40
	Picolines	3	UN2313	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1,3	40
	Picric acid, *see* Trinitrophenol, *etc.*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
D	Picric acid, wet, with not less than 10% water.	4.1	NA1344	I	FLAMMABLE SOLID.	A19, A20, N34(N41.	None	211	None	Forbidden	Forbidden	1	5	
	Picrite, *see* Nitroguanidine, *etc.*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Picryl chloride, *see* Trinitrochlorobenzene	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Pinane hydroperoxide, *see* Pinanyl hydroperoxide(*technically pure.*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Pinanyl hydroperoxide *or* Pinane hydroperoxide, *technically pure.*	5.2	UN2162	I	ORGANIC PEROXIDE.	B19, T25	None	225	243	1 L	5 L	1	5	12, 40
	Pindone *liquid*	6.1	UN2472	III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,2	1,2	34
	Pindone *solid*	6.1	UN2472	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	alpha-Pinene	3	UN2368	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1,3	
	Pine oil	3	UN1272	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Piperazine	8	UN2579	III	CORROSIVE	T7	154	213	240	25 kg	100 kg	1,3	1,3	12
	Piperidine	3	UN2401	II	FLAMMABLE LIQUID.	T2	150	202	242	5 L	60 L	1,3	1	13
	Pivaloyl chloride, see Trimethyl acetyl chloride.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Plastic moulding material *in dough, sheet or extruded rope form.*	9	.....	III	CLASS 9	.....	155	213	None	100 kg	200 kg	1,2	1,2	
	Plastics, nitrocellulose based, spontaneously combustible, n.o.s..	4.2	UN2006	III	SPONTANEOUSLY COMBUSTIBLE.	.....	None	213	None	Forbidden	Forbidden	1	1	
	Plastic solvent, n.o.s., see Flammable liquids, n.o.s..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Poisonous gases, n.o.s., see Compressed *or* liquefied gases, flammable *or* toxic, n.o.s..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Poisonous liquids, corrosive, n.o.s.	6.1	UN2927	I	POISON, CORROSIVE.	B38, T42	None	201	243	0.5 L	2.5 L	1,2	1	20, 40, 95
	.....	.....	.....	II	POISON, CORROSIVE.	.....	None	202	243	1 L	30 L	1,2	1	20, 40, 95
	Poisonous liquids, corrosive, n.o.s., *inhalation hazard, Packing Group I, Zone A.*	6.1	UN2927	I	POISON, CORROSIVE.	10, B14, B30.	None	226	245	Forbidden	Forbidden	1	5	20, 40, 95

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Poisonous liquids, corrosive, n.o.s., *inhalation hazard, Packing Group I, Zone B.*	6.1	UN2927	I	POISON, CORROSIVE.	10, B14, B32.	None	227	244	Forbidden	Forbidden	1	5	20, 40, 95
	Poisonous liquids, flammable, n.o.s.	6.1	UN2929	I	POISON, FLAMMABLE LIQUID.	B38, B40, T42.	None	201	243	1 L	30 L	1,2	1	21, 40, 95
				II	POISON, FLAMMABLE LIQUID.	T15	None	202	243	5 L	60 L	1,2	1	21, 40, 95
	Poisonous liquids, flammable, n.o.s., *inhalation hazard, Packing Group I, Zone A.*	6.1	UN2929	I	POISON, FLAMMABLE.	10, B14, B30.	None	226	245	Forbidden	Forbidden	1	5	20, 40, 95
	Poisonous liquids, flammable, n.o.s., *inhalation hazard, Packing Group I, Zone B.*	6.1	UN2929	I	POISON, FLAMMABLE.	10, B14, B32.	None	227	244	Forbidden	Forbidden	1	5	20, 40, 95
	Poisonous liquids, n.o.s.	6.1	UN2810	I	POISON	B38, B40, T42.	None	201	243	1 L	30 L	1,2	1	40, 95
				II	POISON	T14	None	202	243	5 L	60 L	1,2	1	40, 95
				III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	1,2	1	34, 40
	Poisonous liquids, n.o.s., *inhalation hazard, Packing Group I, Zone A.*	6.1	UN2810	I	POISON	10, B14, B30.	None	226	245	Forbidden	Forbidden	1	5	20, 40, 95
	Poisonous liquids, n.o.s., *inhalation hazard, Packing Group I, Zone B.*	6.1	UN2810	I	POISON	10, B14, B32.	None	227	244	Forbidden	Forbidden	1	5	20, 40, 95
	Poisonous solids, corrosive, n.o.s.	6.1	UN2928	I	POISON, CORROSIVE.		None	211	242	1 kg	25 kg	1,2	1	20, 40, 95
				II	POISON, CORROSIVE.		None	212	242	15 kg	50 kg	1,2	1	20, 40, 95
	Poisonous solids, flammable, n.o.s.	6.1	UN2930	I	POISON, FLAMMABLE SOLID.		None	211	242	1 kg	15 kg	1,2	1	24, 40, 95
				II	POISON, FLAMMABLE SOLID.		None	212	242	15 kg	50 kg	1,2	1	24, 40, 95
	Poisonous solids, n.o.s.	6.1	UN2811	I	POISON		None	211	242	5 kg	50 kg	1,2	1	95
				II	POISON		None	212	242	25 kg	100 kg	1,2	1	95
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1	34
	Poisonous solids, oxidizing, n.o.s.	6.1	UN3086	I	POISON, OXIDIZER.		None	211	242	1 kg	15 kg	1,2	1	40, 89, 95
				II	POISON, OXIDIZER.		None	212	242	15 kg	50 kg	1,2	1	40, 89, 95
	Polyalkylamines, n.o.s., *see* Alkylamines, *etc.*.													
AW	Polychlorinated biphenyls	9	UN2315	II	CLASS 9	B10	155	202	240	100 L	220 L	1,2	1,2	34
D	Polyester resin kits	5.2	NA2255	II	ORGANIC PEROXIDE.	66	None	225	246	5 kg	5 kg	1	5	
	Polystyrene beads, expandable, *evolving flammable vapor*..	9	UN2211	III	CLASS 9		221	221	240	100 kg	200 kg	1,2	1,2	84

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Potassium	4.3	UN2257	II	DANGEROUS WHEN WET.	A19, A20, B27, N6, N34, T15, T26.	None	212	244	Forbidden	50 kg	1	5	
	Potassium arsenate	6.1	UN1677	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Potassium arsenite	6.1	UN1678	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Potassium bifluoride, *solid*	8	UN1811	II	CORROSIVE, POISON.	N3, N34, T8.	154	212	242	15 kg	50 kg	1,3	1,3	25, 26, 40
	Potassium bifluoride solution, see Corrosive liquid, n.o.s..													
	Potassium bifluoride, *solution*	8	UN1811	II	CORROSIVE, POISON.	N3, N34, T8.	154	202	242	1 L	30 L	1,3	1,3	25, 26, 40
	Potassium bisulfite solution, *see* Bisulfites, inoganic, aqueous solutions, n.o.s..													
	Potassium borohydride	4.3	UN1870	I	DANGEROUS WHEN WET.	A19	None	211	242	Forbidden	15 kg	1,3	5	
	Potassium bromate	5.1	UN1484	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,2	1,2	46, 56
	Potassium carbonyl	Forbidden												
	Potassium chlorate	5.1	UN1485	II	OXIDIZER	B10, N13, N34.	152	212	240	5 kg	25 kg	1,2	1,2	46, 56
	Potassium chlorate mixed with mineral oil, see Explosive, blasting, type C.													
	Potassium chlorate, solution	5.1	UN2427	II	OXIDIZER	A2, T8	152	202	241	1 L	5 L	1,2	1	46, 56
	Potassium cuprocyanide	6.1	UN1679	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	26, 95
	Potassium cyanide	6.1	UN1680	I	POISON	N74, N75, T8, T26.	None	211	242	5 kg	50 kg	1,2	1,2	26, 95
	Potassium dichloro isocyanurate. See Oxidizer, n.o.s..													
	Potassium dithionite *or* Potassium hydrosulfite.	4.2	UN1929	II	SPONTANEOUSLY COMBUSTIBLE.	A19, A20, N2.	None	212	241	15 kg	50 kg	1,3	5	13
	Potassium fluoride	6.1	UN1812	III	KEEP AWAY FROM FOOD.	T8	153	213	240	100 kg	200 kg	1,2	1,2	26, 34
	Potassium fluoroacetate	6.1	UN2628	I	POISON		None	211	242	5 kg	50 kg	1,2	5	95
	Potassium fluorosilicate	6.1	UN2655	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	26, 34
	Potassium hydrate, see Potassium hydroxide, solid.													
	Potassium hydrogen fluoride, see Potassium bifluoride.													
	Potassium hydrogen fluoride solution, see Corrosive liquid, n.o.s..													
	Potassium hydrogen sulfate	8	UN2509	II	CORROSIVE	N26, N34	154	212	240	15 kg	50 kg	1,2	1,2	27
	Potassium hydrosulfite, *see* Potassium dithionite.													

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Potassium hydroxide, liquid, see Potassium hydroxide solution.													
	Potassium hydroxide, solid	8	UN1813	II	CORROSIVE		154	212	240	15 kg	50 kg	1,2	1,2	
	Potassium hydroxide, solution	8	UN1814	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	1,2	1,2	
	Potassium hypochlorite, solution, see Hypochlorite solutions, *etc.*.													
	Potassium, metal alloys	4.3	UN1420	II	DANGEROUS WHEN WET.	A19, A20, B27, N16.	None	212	244	Forbidden	50 kg	1	5	
	Potassium metal, liquid alloy, see Alkali metal alloys, liquid.													
	Potassium metavanadate	6.1	UN2864	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Potassium monoxide	8	UN2033	II	CORROSIVE		154	212	240	15 kg	50 kg	1,2	1,2	
	Potassium nitrate	5.1	UN1486	III	OXIDIZER	A1, A29	152	212	240	25 kg	100 kg	1,2	1,2	
	Potassium nitrate and sodium nitrite mixtures.	5.1	UN1487	II	OXIDIZER	B10, B12	152	212	240	5 kg	25 kg	1,2	1,2	34, 56, 58
	Potassium nitrite	5.1	UN1488	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,2	1,2	34, 56, 58
	Potassium perchlorate	5.1	UN1489	II	OXIDIZER	B10, T8	152	212	240	5 kg	25 kg	1,2	1,2	46
	Potassium permanganate	5.1	UN1490	II	OXIDIZER	B10, B12	152	212	240	5 kg	25 kg	1,2	1,2	56, 69
	Potassium peroxide	5.1	UN1491	I	OXIDIZER	A20, N16, N34.	None	211	None	Forbidden	15 kg	1,2	1,2	13
	Potassium persulfate	5.1	UN1492	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	1,2	1,2	
	Potassium phosphide	4.3	UN2012	I	DANGEROUS WHEN WET, POISON.	A19	None	211	None	Forbidden	15 kg	1,2	5	40, 85
	Potassium salts of aromatic nitro-derivatives, *explosive-*.	1.3C	UN0158											
	Potassium selenate, *see* Selenates *or* Selenites.													
	Potassium selenite, *see* Selenates *or* Selenites.													
	Potassium sodium alloys	4.3	UN1422	I	DANGEROUS WHEN WET.	A19, B27, N34, T15, T26.	None	211	244	Forbidden	15 kg	1	5	
	Potassium sulfide, anhydrous *or* Potassium sulfide *with less than 30 per cent water of crystallization.*	4.2	UN1382	II	SPONTANEOUSLY COMBUSTIBLE.	A19, A20, B16, N34.	None	212	241	15 kg	50 kg	1,3	1,3	52
	Potassium sulfide, hydrated *with not less than 30 per cent water of crystallization.*	8	UN1847	II	CORROSIVE	B10	154	212	240	15 kg	50 kg	1,2	1,2	26
	Potassium superoxide	5.1	UN2466	I	OXIDIZER	A20	None	211	None	Forbidden	15 kg	1,2	1	13, 31
	Powder cake (Powder paste) wetted *with not less than 35 per cent water, by weight.*	1.3C	UN0159											
	Powder cake, wetted *with not less than 17 per cent alcohol by weight.*	1.1C	UN0433											
	Powder paste, *see* Powder cake, *etc.*													
	Powder, smokeless	1.1C	UN0160											

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Powder, smokeless	1.3C	UN0161											
	Power device, explosive, see Cartridges, power device.													
	Primers, cap type	1.4S	UN0044											
	Primers, cap type	1.1B	UN0377											
	Primers, cap type	1.4B	UN0378											
	Primers, small arms, see Primers, cap type													
	Primers, tubular	1.3G	UN0319											
	Primers, tubular	1.4G	UN0320											
	Primers, tubular	1.4S	UN0376											
	Projectiles, illuminating, see Ammunition, illuminating, *etc.*													
	Projectiles, *inert with tracer*	1.45	UN0345											
	Projectiles, *inert, with tracer*	1.3G	UN0424											
	Projectiles, *inert, with tracer*	1.4G	UN0425											
	Projectiles, *with burster or expelling charge*	1.2D	UN0346											
	Projectiles, *with burster or expelling charge*	1.4D	UN0347											
	Projectiles, *with burster or expelling charge*	1.2F	UN0426											
	Projectiles, *with burster or expelling charge*	1.4F	UN0427											
	Projectiles, *with burster or expelling charge*	1.2G	UN0434											
	Projectiles, *with burster or expelling charge*	1.4G	UN0435											
	Projectiles, *with bursting charge*	1.1F	UN0167											
	Projectiles, *with bursting charge*	1.1D	UN0168											
	Projectiles, *with bursting charge*	1.2D	UN0169											
	Projectiles, *with bursting charge*	1.2F	UN0324											
	Projectiles, *with bursting charge*	1.4D	UN0344											
	Propadiene, inhibited	2.1	UN2200		FLAMMABLE GAS.	B13	None	304	244	Forbidden	150 kg	1	5	40
	Propadiene mixed with methyl acetylene, see Methyl acetylene and propadiene mixtures, stabilized.													
	Propane *see also* Petroleum gases, liquified.	2.1	UN1978		FLAMMABLE GAS.		306	304	314, 315	Forbidden	150 kg	1,3	1	40, 85
	Propanethiols	3	UN2402	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	5	12, 13, 34, 35, 40
	n-Propanol	3	UN1274	II	FLAMMABLE LIQUID.	B1, T1	150	202	242	5 L	60 L	1,3	1	
D	Propargyl alcohol	3	NA1986	II	FLAMMABLE LIQUID, POISON.		None	202	243	Forbidden	1 L	1,3	1	
	Propionaldehyde	3	UN1275	II	FLAMMABLE LIQUID.	T14	150	202	242	5 L	60 L	1,3	1	12
	Propionic acid	8	UN1848	III	CORROSIVE	T7	154	203	241	5 L	60 L	1,3	1,3	22, 76, 77
	Propionic anhydride	8	UN2496	III	CORROSIVE	T2	154	203	241	5 L	60 L	1,2	1,2	8
	Propionitrile	3	UN2404	II	FLAMMABLE LIQUID, POISON.	B14	None	201	243	Forbidden	60 L	1,3	5	12, 40, 94

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Propionyl chloride	3	UN1815	II	FLAMMABLE LIQUID, CORROSIVE.	T8, T26	None	202	243	1 L	5 L	1,3	1	40
	Propionyl peroxide, *see* Dipropionyl peroxide, *etc.*.													
	n-Propyl acetate	3	UN1276	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Propyl alcohol, *see* Propanol													
	Propylamine	3	UN1277	II	FLAMMABLE LIQUID.	N34, T14	None	202	242	5 L	60 L	1,3	5	12, 40
	n-Propyl benzene	3	UN2364	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1	
	Propyl chloride	3	UN1278	II	FLAMMABLE LIQUID.	N34, T14	None	202	242	Forbidden	60 L	1,3	5	12
	n-Propyl chloroformate	6.1	UN2740	I	FLAMMABLE LIQUID, POISON, CORROSIVE.	B6, B14, B32, N1, N11, N26, N34, 10.	None	227	244	Forbidden	Forbidden	1,3	5	21, 40, 95
	Propylene chlorohydrin	6.1	UN2611	II	POISON	T9	None	202	243	5 L	60 L	1,3	1,3	12, 21, 25, 40, 95
	1,2-Propylenediamine	8	UN2258	II	CORROSIVE	N1, N11, N34, T8.	None	202	243	1 L	30 L	1,3	1,3	40
	Propylene dichloride	3	UN1279	II	FLAMMABLE LIQUID.	N36, T1	150	202	242	5 L	60 L	1,3	1	
	Propyleneimine, inhibited	3	UN1921	I	FLAMMABLE LIQUID.	N1, N15, N34, T25.	None	201	243	1 L	30 L	1,3	5	40
	Propylene oxide	3	UN1280	I	FLAMMABLE LIQUID.	N1, N15, N34, T20, T29.	None	201	243	1 L	30 L	1,3	5	12
	Propylene *see also* Petroleum gases, liquified.	2.1	UN1077		FLAMMABLE GAS.		306	304	314, 315	Forbidden	150 kg	1,3	1	40, 85
	Propylene tetramer	3	UN2850	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Propyl formates	3	UN1281	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	n-Propyl isocyanate	3	UN2482	I	FLAMMABLE LIQUID, POISON.	N15, N26, T18, T26.	None	201	243	Forbidden	30 L	1	5	12, 40, 48
	Propyl mercaptan, see Propanethiols													
	n-Propyl nitrate	3	UN1865	II	FLAMMABLE LIQUID.	T25	150	202	None	5 L	60 L	1,3	1	

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Propyltrichlorosilane	8	UN1816	II	CORROSIVE	B2, B6, N16, N26, N34, T8, T26.	None	202	242	Forbidden	30 L	1	1	13, 21, 78
	Prussic acid, see Hydrogen cyanide													
	Pyridine	3	UN1282	II	FLAMMABLE LIQUID, POISON.	T8	None	202	243	1 L	60 L	1,3	1	40
	Pyridine perchlorate	Forbidden												
	Pyrophoric *or* Pyroforic liquids, n.o.s.	4.2	UN2845	I	SPONTANEOUSLY COMBUSTIBLE.	B11	None	181	244	Forbidden	Forbidden	1	5	18
	Pyrophoric *or* Pyroforic solids, n.o.s.	4.2	UN2846	I	SPONTANEOUSLY COMBUSTIBLE.		None	187	242	Forbidden	Forbidden	1	1	
				II	SPONTANEOUSLY COMBUSTIBLE.		None	187	241	Forbidden	Forbidde	1	1	
				III	SPONTANEOUSLY COMBUSTIBLE.		None	187	241	Forbidden	Forbidden	1	1	
	Pyrophoric metals, n.o.s., *or* Pyrophoric alloys, n.o.s.	4.2	UN1383	I	SPONTANEOUSLY COMBUSTIBLE.	B11	None	187	242	Forbidden	Forbidden	1	5	
	Pyrosulfuryl chloride	8	UN1817	II	CORROSIVE	B2, T9, T27.	154	202	242	1 L	30 L	1	1	8, 40
	Pyroxylin solution or solvent, see Nitrocellulose.													
	Pyrrolidine	3	UN1922	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	40
	Quebrachitol pentanitrate	Forbidden												
	Quicklime, see Calcium oxide													
	Quinoline	6.1	UN2656	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	1,3	1,3	12, 22, 25, 34
	R 12, see Dichlorodifluoromethane													
	R 12B1, see Chlorodifluorobromomethane													
	R 13, see Chlorotrifluoromethane													
	R 13B1, see Bromotrifluoromethane													
	R 14, see Tetrafluoromethane													
	R 21, see Dichlorofluoromethane													
	R 22, see Chlorodifluoromethane													
	R 114, see Dichlorotetrafluoroethane													

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	R 115, see Chloropentafluoroethane													
	R 116, see Hexafluoroethane													
	R 124, see Chlorotetrafluoroethane													
	R 133a, see Chlorotrifluoroethane													
	R 152a, see Difluoroethane													
	R 500, see Dichlorodifluoromethane and difluorethane, *etc.*.													
	R 502, see Chlorodifluoromethane and chloropentafluoroethane mixture, *etc.*.													
	R 503, see Chlorotrifluoromethane and trifluoromethane, *etc.*.													
	Radioactive material, excepted package-articles manufactured from natural *or* depleted uranium *or* natural thorium.	7	UN2910		None		421-1, 424	421-1, 424	None			1,2	1,2	
	Radioactive material, excepted package-empty packaging.	7	UN2910		EMPTY		427	427	427			1,2	1,2	
	Radioactive material, excepted package-instruments *or* articles.	7	UN2910		None		421-1, 422	421-1, 422	None					
	Radioactive material, excepted package-limited quantity of material.	7	UN2910		None		421, 421-1	421, 421-1	None			1,2	1,2	
	Radioactive material, fissile, n.o.s., *Class I, II, or III.*	7	UN2918		RADIOACTIVE		453	417	None			1,2	1,2	
	Radioactive material, low specific activity *LSA*, n.o.s..	7	UN2912		RADIOACTIVE		421, 422, 424	425	425			1,2	1,2	
	Radioactive material, n.o.s.	7	UN2982		RADIOACTIVE		421, 422, 424	415, 416	None			1,2	1,2	
	Radioactive material, special form, n.o.s.	7	UN2974		RADIOACTIVE		421, 422	415, 416	None			1,2	1,2	
	Railway torpedo, see Signals, railway track, explosive.													
	Rare gases and nitrogen mixtures	2.2	UN1981		NONFLAMMABLE GAS.	B13	306	302	244	75 kg	150 kg	1,3	1,3	85
	Rare gases and oxygen mixtures	2.2	UN1980		NONFLAMMABLE GAS.	B13	306	302	244	75 kg	150 kg	1,3	1,3	85
	Rare gases, mixtures (*e.g. Argon; Helium; Krypton; Neon; Xenon*).	2.2	UN1979		NONFLAMMABLE GAS.	B13	306	302	244	75 kg	150 kg	1,3	1,3	85
	RC 318, see Octafluorocyclobutane													
	RDX, see Cyclotrimethylene trinitramine, etc..													
	Receptacles, small with flammable gas *without a dispersion device, not refillable.*	2.1	UN2037		FLAMMABLE GAS.		306	304	None	1 kg	15 kg	1	1	40
	Red phosphorus, see Phosphorus, amorphous.													
	Refrigerant gases, n.o.s. (*e.g. non-flammable halocarbons*).	2.2	UN1078		NONFLAMMABLE GAS.	B51	306	304	314, 315	75 kg	150 kg	1,3	1,3	85

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
D	Refrigerant gas, n.o.s. *or* Dispersant gas, n.o.s..	2.1	NA1954		FLAMMABLE GAS.	B51	306	304	314, 315	Forbidden	150 kg	1	1	40
D	Refrigerating machine	3	NA1993	III	FLAMMABLE LIQUID.		174	174	None	10 L	10 L	1,3	1	
D	Refrigerating machines, *containing flammable, non-poisonous, liquefied gas.*	2.1	NA1954		FLAMMABLE GAS.		306	306	306	Forbidden	Forbidden	1	1	40
	Refrigerating machines, *containing non-flammable, non-poisonous, liquefied gas.*	2.2	UN2857		NONFLAMMABLE GAS.		306, 307	306	306, 307	Forbidden	Forbidden	1,3	1,3	85
	Release devices, explosive	1.4S	UN0173											
	Resin solution, *flammable*	3	UN1866	II	FLAMMABLE LIQUID.	T7	150	202	242	5 L	60 L	1,3	1,3	
				III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
I	Resin solution, poisonous	6.1	UN1896	I	POISON		None	201	243	1 L	30 L	1,2	1,2	23, 95
				II	POISON		None	202	243	5 L	60 L	1,2	1,2	23, 95
				III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,2	1,2	23, 34
	Resorcinol	6.1	UN2876	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Rifle grenade, see Grenades, *hand or rifle, etc.*.													
	Rifle powder, see Powder, smokeless (*UN 0160*).													
	Rivets, explosive	1.4S	UN0174											
	Road asphalt or tar liquid, see Tars, liquid, *etc.*.													
	Rocket motors	1.3C	UN0186											
	Rocket motors	1.1C	UN0280											
	Rocket motors	1.2C	UN0281											
	Rocket motors, liquid fueled	1.2J	UN0395											
	Rocket motors, liquid fueled	1.3J	UN0396											
	Rocket motors *with hypergolic liquids, with or without an expelling charge.*	1.3L	UN0250											
	Rocket motors *with hypergolic liquids, with or without an expelling charge.*	1.2L	UN0322											
	Rockets, line throwing	1.4G	UN0453											
	Rockets, line-throwing	1.2G	UN0238											
	Rockets, line-throwing	1.3G	UN0240											
	Rockets, liquid fueled *with bursting charge*	1.2J	UN0398											
	Rockets, liquid-fueled *with bursting charge*	1.1J	UN0397											
	Rockets, *with bursting charge*	1.1F	UN0180											
	Rockets, *with bursting charge*	1.1E	UN0181											
	Rockets, *with bursting charge*	1,2E	UN0182											
	Rockets, *with bursting charge*	1.2F	UN0295											
	Rockets, *with expelling charge*	1.2C	UN0436											
	Rockets, *with expelling charge*	1.3C	UN0437											
	Rockets, *with expelling charge*	1.4C	UN0438											
	Rockets, *with inert head*	1.3C	UN0183											
	Rodenticides, n.o.s.(*liquid*)	6.1	UN1681	I	POISON		None	201	243	1 L	30 L	1	1	40, 95
				II	POISON		None	202	243	5 L	60 L	1,2	1	40, 95

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
				III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,2	1,2	34, 40
	Rodenticides, n.o.s. (*solid*)	6.1	UN1681	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	40, 95
				II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	40, 95
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34, 40
	Rosin oil	3	UN1286	II	FLAMMABLE LIQUID.	T7	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,2	1,2	
	Rubber solution	3	UN1287	II	FLAMMABLE LIQUID.	T7, T30	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T7, T30.	150	203	242	60 L	220 L	1,3	1,3	
	Rubidium	4.3	UN1423	I	DANGEROUS WHEN WET.	A19, N26, N34, N45, 22.	None	211	242	Forbidden	15 kg	1	5	
	Rubidium hydroxide	8	UN2678	II	CORROSIVE	T8	154	212	240	15 kg	50 kg	1,2	1,2	
	Rubidium hydroxide solution	8	UN2677	II	CORROSIVE	B2	154	202	242	1 L	30 L	1,2	1,2	
	Safety fuse, see Fuse, safety													
	Safety squibs, see Squibs, *etc.*													
	Samples, explosive, *other than initiating explosives.*		UN0190											
	Sand acid, see Fluorosilicic acid													
I	Seed cake *with more than 1.5 per cent oil and not more than 11 per cent moisture.*	4.2	UN1386	III	None		None	213	241	Forbidden	Forbidden	1,3	5	
I	Seed cake *with not more than 1.5 per cent oil and not more than 11 per cent moisture.*	4.2	UN2217	III	None		None	213	241	Forbidden	Forbidden	1,3	1,3	
	Selenates *or* Selenites	6.1	UN2630	I	POISON		None	211	242	5 kg	50 kg	1,2	5	95
	Selenic acid	8	UN1905	I	CORROSIVE	N34	None	211	240	Forbidden	25 kg	1,2	1,2	
	Selenites, *see* Selenates *or* Selenites													
	Selenium disulfide	6.1	UN2657	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Selenium hexafluoride	2.3	UN2194	I	POISON GAS	10	None	302	245	Forbidden	Forbidden	1	5	40, 95
	Selenium nitride	Forbidden												
D	Selenium oxide	6.1	NA2811	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	
	Selenium oxychloride	8	UN2879	I	CORROSIVE, POISON.	N1, N11, N26, N34, T12, T27.	None	201	243	0.5 L	2.5 L	1,2	5	40
	Selenium powder	6.1	UN2658	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Self-heating substances, solid, n.o.s.	4.2	UN3088	II	SPONTANEOUSLY COMBUSTIBLE.		None	212	241	Forbidden	Forbidden	1	5	

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	.....	.....	.....	III	SPONTANEOUSLY COMBUSTIBLE.	.....	None	213	241	Forbidden	Forbidden	1	5	
	Self-propelled vehicle, see Vehicles, self-propelled.	.....	.....											
	Self-reactive substances (*aliphatic azo-compounds, aromatic sulphoh ydrazides, N-nitroso compounds, diazonium salts*) Sample, n.o.s..	4.1	UN3031	I	FLAMMABLE SOLID.	.....	None	214	None	Forbidden	Forbidden	1	5	
	Self-reactive substances (*aliphatic azo-compounds, aromatic sulphohydrazides, n-nitroso compounds, diazonium salts*), Trial quantities, n.o.s..	4.1	UN3032	I	FLAMMABLE SOLID.	.....	None	214	None	Forbidden	Forbidden	1	5	
	Shale oil	3	UN1288	II	FLAMMABLE LIQUID.	T7, T30	150	202	242	5 L	60 L	1,3	1	
	.....	.....	.....	III	FLAMMABLE LIQUID.	B1, T7, T30.	150	203	242	60 L	220 L	1,2	1,2	
	Shaped charges, commercial, see Charges, shaped, commercial.	.....	.....											
	Shaped charges (commercial) containing more than 8 ounces of explosives.	Forbidden	.....											
	Signal devices, hand	1.4G	UN0191											
	Signal devices, hand	1.4S	UN0373											
	Signals, highway, see Signal devices, hand; Fireworks, type D.	.....	.....											
	Signals, railway track, explosive	1.1G	UN0192											
	Signals, railway track, explosive	1.4S	UN0193											
	Signals, ship distress (*other than water-activated contrivances*).	1.1G	UN0194											
	Signals, ship distress (*other than water-activated contrivances*).	1.3G	UN0195											
	Signals, ship distress, wateractivated, see Contrivances, water-activated, *etc.*.	.....	.....											
	Signals, smoke *with explosive sound unit*	1.1G	UN0196											
	Signals, smoke *with explosive sound unit*	1.2G	UN0313											
	Signals, smoke *without explosive sound unit.*	1.4G	UN0197											
	Silane	2.1	UN2203	.....	FLAMMABLE GAS.	.....	None	302	None	Forbidden	Forbidden	1	5	25, 40, 74
	Silicofluoric acid, see Fluorosilicic acid	.....	.....											
	Silicon chloride, see Silicon tetrachloride	.....	.....											
	Silicon powder, amorphous	4.1	UN1346	III	FLAMMABLE SOLID.	A1	None	213	240	25 kg	100 kg	1,3	1,3	

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Silicon tetrachloride	8	UN1818	II	CORROSIVE	B2, B6, N1, N11, N34, N41, T18, T26, T29.	154	202	242	1 L	30 L	1	1	8, 40
	Silicon tetrafluoride	2.3	UN1859	III	POISON GAS, CORROSIVE.	B13, B14, B34, 10.	None	302	244	Forbidden	Forbidden	1	5	40, 95
	Silver acetylide (dry)	Forbidden												
	Silver arsenite	6.1	UN1683	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Silver azide (dry)	Forbidden												
	Silver chlorite (dry)	Forbidden												
	Silver cyanide	6.1	UN1684	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	26, 40, 95
	Silver fulminate (dry)	Forbidden												
	Silver nitrate	5.1	UN1493	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,2	1,2	34
	Silver oxalate (dry)	Forbidden												
	Silver picrate (dry)	Forbidden												
	Silver picrate, wetted *with not less than 30 per cent water, by weight.*	4.1	UN1347	I	FLAMMABLE SOLID.		None	211	None	Forbidden	Forbidden	1	5	
	Sludge, acid	8	UN1906	II	CORROSIVE	B2, N1, N26, N34, T9, T14, T27.	None	202	242	Forbidden	30 L	1,2	1	14, 33
D	Small arms ammunition	ORM-D	None	III	None		None	230	None	65 lb gross	65 lb gross	1,2	1,2	
D	Smokeless powder for small arms (*100 pounds or less*).	4.1	NA1325	I	FLAMMABLE SOLID.		None	171	None	Forbidden	Forbidden			
	Soda lime *with more than 4 per cent sodium hydroxide.*	8	UN1907	III	CORROSIVE		154	213	240	25 kg	100 kg	1,2	1,2	
	Sodium	4.3	UN1428	II	DANGEROUS WHEN WET.	A19, A20, B22, N2, N16, N26, N34, T15, T29.	None	212	243	Forbidden	50 kg	1	5	
	Sodium aluminate, solid	8	UN2812	III	CORROSIVE		154	213	240	25 kg	100 kg	1,2	1,2	
	Sodium aluminate, solution	8	UN1819	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	1,2	1,2	

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Sodium aluminum hydride	4.3	UN2835	II	DANGEROUS WHEN WET.	A19, A20, N2.	None	212	242	Forbidden	50 kg	1	5	
	Sodium ammonium vanadate	6.1	UN2863	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	40, 95
	Sodium arsanilate	6.1	UN2473	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Sodium arsenate	6.1	UN1685	II	POISON		None	212	240	25 kg	100 kg	1,2	1,2	95
	Sodium arsenite, aqueous solutions	6.1	UN1686	II	POISON	T15	None	202	243	5 L	60 L	1,2	1,2	95
				III	KEEP AWAY FROM FOOD.	T15	153	203	241	60 L	220 L	1,2	1,2	34
	Sodium arsenite, solid	6.1	UN2027	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Sodium azide	6.1	UN1687	II	POISON	B28	None	212	242	25 kg	100 kg	1,2	1,2	36, 52, 95
	Sodium bifluoride, see Sodium hydrogen fluoride.													
	Sodium bisulfate, solid or *solution, see* Sodium hydrogen sulfate, solid *or* solution.													
	Sodium bisulfite, solid or *solution, see* Sodium hydrogen sulfite, solid *or* solution.													
	Sodium borohydride	4.3	UN1426	I	DANGEROUS WHEN WET.		None	211	242	Forbidden	15 kg	1,3	5	
	Sodium bromate	5.1	UN1494	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,2	1,2	46, 56
	Sodium cacodylate	6.1	UN1688	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	26, 95
	Sodium chlorate	5.1	UN1495	II	OXIDIZER	B10, N13, N34, T8.	152	212	240	5 kg	25 kg	1,2	1,2	46, 56
	Sodium chlorate mixed with dinitrotoluene, see Explosive blasting, type C.													
	Sodium chlorate, solution	5.1	UN2428	II	OXIDIZER	A2, B6, T8.	152	202	241	1 L	5 L	1,2	1	46, 56
	Sodium chlorite	5.1	UN1496	II	OXIDIZER	B10, N13, N34, T8.	None	212	240	5 kg	25 kg	1,2	1,2	46, 56
	Sodium chlorite solution *with more than 5 per cent available chlorine.*	8	UN1908	II	CORROSIVE	B2, N1, N11, N25, N26, N34.	154	202	242	1 L	30 L	1,2	1	
	Sodium chloroacetate	6.1	UN2659	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,3	1,3	12, 13, 34
	Sodium cuprocyanide, solid	6.1	UN2316	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	26, 40, 95
	Sodium cuprocyanide, solution	6.1	UN2317	I	POISON	T8, T26	None	201	243	1 L	30 L	1,2	1	40, 52, 95
	Sodium cyanide	6.1	UN1689	I	POISON	N74, N75, T18, T26.	None	211	242	5 kg	50 kg	1,2	1,2	26, 95
	Sodium 2-diazo-1-naphthol-4-sulphonate	4.1	UN3040	II	FLAMMABLE SOLID.		None	214	None	15 kg	50 kg	1	5	25

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Sodium 2-diazo-1-naphthol-5-sulphonate	4.1	UN3041	II	FLAMMABLE SOLID.		None	214	None	15 kg	50 kg	1	5	25
	Sodium dichloroisocyanurate or *Sodium dichloro-s-triazinetrione, see* Dichloroisocyanuric acid *etc.*.													
	Sodium dinitro-o-cresolate, *dry or wetted with less than 15 per cent water, by weight.*	1.3C	UN0234											
	Sodium dinitro-o-cresolate, wetted *with not less than 15 per cent water, by weight.*	4.1	UN1348	I	FLAMMABLE SOLID, POISON.	A19, A20, N2, N34, N41.	None	211	None	1 kg	15 kg	1	5	36
	Sodium dithiojite *or* Sodiui hydrosulfite	4.2	UN1384	II	SPONTANEOUSLY COMBUSTIBLE.	A19, A20	None	212	241	15 kg	50 kg	1,3	1,3	13
	Sodium fluoride	6.1	UN1690	III	KEEP AWAY FROM FOOD.	T8	153	213	240	100 kg	200 kg	1,2	1,2	26, 34
	Sodium fluoroacetate	6.1	UN2629	I	POISON		None	211	242	5 kg	50 kg	1,2	5	40, 95
	Sodium fluorosilicate	6.1	UN2674	III	KEEP AWAY FROM FKOD.		153	213	240	100 kg	200 kg	1,2	1,2	26, 34
	Sodium hydrate, see Sodium hydroxide													
	Sodium hydride	4.3	UN1427	I	DANGEROUS WHEN WET.	A19	None	211	242	Forbidden	15 kg	1	5	
	Sodium hydrogen fluoride, *solid*	8	UN2439	II	CORROSIVE	N3, N34	154	212	240	15 kg	50 kg	1,3	1,3	12, 25, 26, 40
	Sodium hydrogen fluoride, *solution*	8	UN2439	II	CORROSIVE	N3, N34	154	202	242	1 L	30 L	1,2	1,2	12, 25, 26, 40
	Sodium hydrogen sulfate, solid	8	UN1821	III	CORROSIVE		154	213	240	25 kg	100 kg	1,2	1,2	
	Sodium hydrogen sulfate, solution	8	UN2837	II	CORROSIVE	B2, N26, N34, T8, T26.	154	202	242	1 L	30 L	1,2	1,2	
D	Sodium hydrosulfide, solution	8	NA2922	II	CORROSIVE	B2	154	202	242	1 L	30 L	1,2	1,2	
	Sodium hydrosulfide, *with less than 25 per cent water of crystallization.*	4.2	UN2318	II	SPONTANEOUSLY COMBUSTIBLE.	A19, A20, N26.	None	212	241	15 kg	50 kg	1,3	1,3	
	Sodium hydrosulfide *with not less than 25 per cent water of crystallization.*	8	UN2949	II	CORROSIVE	N26	154	212	240	15 kg	50 kg	1,2	1,2	26
	Sodium hydrosulfite, *see* Sodium dithionite													
	Sodium hydroxide, solid	8	UN1823	II	CORROSIVE		154	212	240	15 kg	50 kg	1,2	1,2	
	Sodium hydroxide solution	8	UN1824	II	CORROSIVE	B2, N34, T8.	154	202	242	1 L	30 L	1,2	1,2	
	Sodium hypochlorite, solution, see Hypochlorite solutions.													
	Sodium metal, liquid alloy, see Alkali metal alloys, liquid.													
	Sodium methylate	4.3	UN1431	II	DANGEROUS WHEN WET.	A19	None	211	242	Forbidden	15 kg	1,3	1	

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Sodium methylate solutions *in alcohol*	3	UN1289	II	FLAMMABLE LIQUID.	T8, T31	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T7, T30.	150	202	242	60 L	220 L	1,3	1,3	
	Sodium monoxide	8	UN1825	II	CORROSIVE		154	212	240	15 kg	50 kg	1,2	1,2	
	Sodium nitrate	5.1	UN1498	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	1,2	1,2	
	Sodium nitrate and potassium nitrate mixtures.	5.1	UN1499	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	1,2	1,2	
	Sodium nitrite	5.1	UN1500	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	1,2	1,2	34, 56, 58
	Sodium pentachlorophenate	6.1	UN2567	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	40, 95
	Sodium percarbonates	5.1	UN2467	III	OXIDIZER	A1, A29, 27.	152	213	240	25 kg	100 kg	1,2	1,2	13
	Sodium perchlorate	5.1	UN1502	II	OXIDIZER	B10, T8	152	212	240	5 kg	25 kg	1,2	1,2	46
	Sodium permanganate	5.1	UN1503	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,2	1,2	56, 69
	Sodium peroxide	5.1	UN1504	I	OXIDIZER	A20, N16, N34.	None	211	None	Forbidden	15 kg	1,2	1	13, 31, 45, 46
	Sodium persulfate	5.1	UN1505	III	OXIDIZER	A1	152	213	240	25 kg	100 kg	1,2	1,2	
	Sodium phenolate, solid	8	UN2497	III	CORROSIVE		154	213	240	25 kg	100 kg	1,2	1,2	
	Sodium phosphide	4.3	UN1432	I	DANGEROUS WHEN WET, SPONTANEOUSLY COMBUSTIBLE, POISON.	A19	None	211	None	Forbidden	15 kg	1,3	5	40, 85
	Sodium picramate, *dry or wetted with less than 20 per cent water, by weight.*	1.3C	UN0235											
	Sodium picramate, wetted *with not less than 20 per cent water, by weight.*	4.1	UN1349	I	FLAMMABLE SOLID.	A19, N2, N34, N41.	None	211	None	Forbidden	15 kg	1,3	5	36
	Sodium picryl peroxide	Forbidden												
	Sodium potassium alloys, see Potassium sodium alloys.													
	Sodium salts of aromatic nitro-derivatives, n.o.s., *explosive.*	1.3C	UN0203											
	Sodium selenate, see Selenates *or* Selenites.													
D	Sodium selenite	6.1	NA2630	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	
	Sodium sulfide, anhydrous *or* Sodium sulfide *with less than 30 per cent water of crystallization.*	4.2	UN1385	II	SPONTANEOUSLY COMBUSTIBLE.	A19, A20, N34.	None	212	241	15 kg	50 kg	1,3	1,3	52
	Sodium sulfide, hydrated *with not less than 30 per cent water.*	8	UN1849	II	CORROSIVE	T8	154	212	240	15 kg	50 kg	1,2	1,2	26
	Sodium superoxide	5.1	UN2547	I	OXIDIZER	A20, N34	None	211	None	Forbidden	15 kg	1,2	5	13, 31, 45, 46
	Sodium tetranitride	Forbidden												
	Sounding devices, explosive	1.2F	UN0204											

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Sounding devices, explosive	1.1F	UN0296											
	Sounding devices, explosive	1.1E	UN0374											
	Sounding devices, explosive	1.2E	UN0375											
	Spirits of salt, see Hydrochloric acid													
	Squibs	1.4B	UN0422											
	Squibs	1.4G	UN0423											
	Squibs, *including electric squibs and safety squibs.*	1.4S	UN0206											
	Stannic chloride, anhydrous	8	UN1827	II	CORROSIVE	B2, T8, T26.	154	202	242	1 L	30 L	1	1	8
	Stannic chloride, pentahydrate	8	UN2440	III	CORROSIVE		154	213	240	25 kg	100 kg	1,2	1,2	
	Stannic phosphides	4.3	UN1433	I	DANGEROUS WHEN WET.	A19	None	211	242	Forbidden	15 kg	1,3	5	85
	Steel swarf, *see* Ferrous metal borings, *etc.*.													
	Stibine	2.3	UN2676	I	POISON GAS, FLAMMABLE GAS.	10	None	304	245	Forbidden	Forbidden	1	5	40
	Storage batteries, wet, see Batteries, *wet etc.*.													
	Strontium arsenite	6.1	UN1691	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Strontium chlorate	5.1	UN1506	II	OXIDIZER	A1, B10, N13, N34, T8.	152	212	240	5 kg	25 kg	1,2	1,2	46, 56
	Strontium nitrate	5.1	UN1507	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	1,2	1,2	
	Strontium perchlorate	5.1	UN1508	II	OXIDIZER	B10, T8	152	212	240	5 kg	25 kg	1,2	1,2	46
	Strontium peroxide	5.1	UN1509	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,2	1,2	13
	Strontium phosphide	4.3	UN2013	I	DANGEROUS WHEN WET, POISON.	A19	None	211	None	Forbidden	15 kg	1,3	5	40, 85
	Strychnine *or* Strychnine salts	6.1	UN1692	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	40, 95
				II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	40, 95
	Styphnic acid, *see* Trinitroresorcinol, *etc.*													
	Styrene monomer, inhibited	3	UN2055	III	FLAMMABLE LIQUID.	T1	150	203	202	60 L	220 L	1,3	1	
	Substances, explosive, n.o.s.	1.1L	UN0357											
	Substances, explosive, n.o.s.	1.2L	UN0358											
	Substances, explosive, n.o.s.	1.3L	UN0359											
	Substances which in contact with water emit flammable gases, n.o.s. *liquid.*	4.3	UN2813	I	DANGEROUS WHEN WET.	A2, A19	None	201	244	Forbidden	1 L	1,3	5	40
I	Substances which in contact with water emit flammable gases, n.o.s., *solid.*	4.3	UN2813	I	DANGEROUS WHEN WET.		None	211	242	Forbidden	15 kg	1,3	5	
	Substituted nitrophenol pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23 degrees C.*	3	UN2780	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	1,3	5	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	1,3	1	

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Substituted nitrophenol pesticides, liquid, toxic, flammable, n.o.s., *flash point not less than 23 degrees C.*	6.1	UN3013	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	1	1	21, 40, 95
	.....	.....	.....	II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	1,2	1	21, 40, 95
	.....	.....	.....	III	KEEP AWAY FROM FOOD.	B1, T14	153	203	242	60 L	220 L	1,2	1,2	21, 34, 40
	Substituted nitrophenol pesticides, liquid, toxic, n.o.s..	6.1	UN3014	I	POISON	T42	None	201	243	1 L	30 L	1	1	40, 95
	.....	.....	.....	II	POISON	T14	None	202	243	5 L	60 L	1,2	1	40, 95
	.....	.....	.....	III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	1,2	1,2	34, 40
	Substituted nitrophenol pesticides, solid, toxic, n.o.s..	6.1	UN2779	I	POISON	.....	None	211	242	5 kg	50 kg	1,2	1,2	40, 95
	.....	.....	.....	II	POISON	.....	None	212	242	25 kg	100 kg	1,2	1,2	40, 95
	.....	.....	.....	III	KEEP AWAY FROM FOOD.	.....	153	213	240	100 kg	200 kg	1,2	1,2	34, 40
	Succinic acid peroxide, *see* Disuccinic acid peroxide.	.....	.....											
	Sucrose octanitrate (dry)	Forbidden	.....											
	Sulfamic acid	8	UN2967	III	CORROSIVE	.....	154	213	240	25 kg	100 kg	1,2	1,2	
	Sulfur	4.1	UN1350	III	FLAMMABLE SOLID.	A1	151	213	240	25 kg	100 kg	1,3	1,3	19, 74
	Sulfur and chlorate, loose mixtures of	Forbidden	.....											
	Sulfur chloride (mono)	8	UN1828	I	CORROSIVE, POISON.	10, B6, B14, B32, N26, N35.	None	227	244	Forbidden	Forbidden	1	5	8
	Sulfur chlorides (*other than mono*)	8	UN1828	I	CORROSIVE	B4, B6, N1, N26, N35, T18, T27.	None	201	242	Forbidden	2.5 L	1	1	8
	Sulfur dichloride, see Sulfur chlorides	.....	.....											
	Sulfur dioxide, liquefied	2.3	UN1079	II	POISON GAS	10, B14	None	304	314, 315	Forbidden	Forbidden	1,3	5	40, 85, 95
	Sulfur dioxide solution, see Sulfurous acid	.....	.....											
	Sulfuretted hydrogen, see Hydrogen sulfide, liquefied.	.....	.....											
	Sulfur hexafluoride	2.2	UN1080	.....	NONFLAMMABLE GAS.	B13	306	304	244	75 kg	150 kg	1,3	1,3	85
	Sulfuric acid, fuming	8	UN1831	I	CORROSIVE, POISON.	N1, N11, N26, N34.	None	201	243	Forbidden	2.5 L	1,2	1	14, 33, 38, 40

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Sulfuric acid *over 65.25% concentration*	8	UN1830	II	CORROSIVE	B2, N1, N26, N34, T9, T27.	None	202	242	1 L	30 L	1,2	1	33, 38, 83
	Sulfuric acid, spent *over 65.25% concentration.*	8	UN1832	II	CORROSIVE	B2, N1, N26, N34, T9, T27.	None	202	242	Forbidden	30 L	1,2	1	
	Sulfuric acid, spent *up to 65.25% concentration.*	8	UN1832	II	CORROSIVE	B2, N1, N26, N34, T9, T27.	None	202	242	Forbidden	30 L	1,2	1	14, 33, 38
	Sulfuric acid *up to 65.25% concentration*	8	UN1830	II	CORROSIVE	B2, B15, N1, N26, N34, T9, T27.	154	202	242	1 L	30 L	1,2	1	14, 33, 38
	Sulfuric and hydrofluoric acid mixtures, *see* Hydrofluoric and sulfuric acid mixtures.													
	Sulfuric anhydride, see Sulfur trioxide, inhibited.													
	Sulfur, molten	4.1	UN2448	III	FLAMMABLE SOLID.	T9, T38	None	213	241	Forbidden	Forbidden	1	1	74
	Sulfurous acid	8	UN1833	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	1,2	1	40
	Sulfur tetrafluoride	2.3	UN2418	I	POISON GAS	10	None	302	245	Forbidden	Forbidden	1	5	40, 95
	Sulfur trioxide, inhibited	8	UN1829	I	CORROSIVE, POISON.	10, B12, B14, B29, B32, N16, N26, N34.	None	227	244	Forbidden	Forbidden	1	5	9, 13, 28
D	Sulfur trioxide, uninhibited	8	NA1829	I	CORROSIVE, POISON.	10, B12, B14, B32, B49, N16, N26, N34.	None	227	244	Forbidden	Forbidden	1	5	9, 38, 40
	Sulfuryl chloride	8	UN1834	I	CORROSIVE	B4, B6, N1, N11, N26, N34, T18, T27.	None	201	242	0.5 L	2.5 L	1	1	8, 40
	Sulfuryl fluoride	2.3	UN2191	III	POISON GAS	B34, 10	None	304	314, 315	Forbidden	Forbidden	1,3	5	40, 85, 95
	Tars, liquid *including road asphalt and oils, bitumen and cut backs.*	3	UN1999	II	FLAMMABLE LIQUID.	T7, T30	150	202	242	5 L	60 L	1,3	1	

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	.....	.....	.....	III	FLAMMABLE LIQUID.	T7, T30	150	203	242	60 L	220 L	1,3	1,3	
	Tear gas candles	6.1	UN1700	II	POISON, FLAMMABLE SOLID.		None	340	None	Forbidden	50 kg	1	5	24, 40, 95
	Tear gas cartridges, see Ammunition, tear-producing, *etc.*.	.....	.....											
D	Tear gas devices *with more than 2 per cent tear gas substances, by mass.*	2.3	NA1693	II	POISON GAS	10	None	340	None	Forbidden	Forbidden	1	5	40, 95
	Tear gas devices, with not more than 2 per cent tear gas substances, by mass, see Aerosols, *etc.*.	.....	.....											
	Tear gas grenades, see Tear gas candles	.....	.....											
	Tear gas substances, n.o.s., liquid	6.1	UN1693	II	POISON		None	202	None	Forbidden	5 L	1	5	40, 95
	Tear gas substances, n.o.s., solid	6.1	UN1693	II	POISON		None	212	None	Forbidden	25 kg	1	5	95
	Tellurium hexafluoride	2.3	UN2195	II	POISON GAS	B14, B31, 10.	None	302	244	Forbidden	Forbidden	1	5	40, 85, 95
	Terpene hydrocarbons, n.o.s.	3	UN2319	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Terpinolene	3	UN2541	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1,3	
	Tetraazido benzene quinone	Forbidden	.....											
	Tetrabromoethane	6.1	UN2504	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	1,2	1,2	34
	Tetrachloroethane	6.1	UN1702	II	POISON	N36	None	202	243	5 L	60 L	1,2	1,2	40, 95
	Tetrachloroethylene	6.1	UN1897	III	KEEP AWAY FROM FOOD.	N36	153	203	241	60 L	220 L	1,2	1,2	34, 40
	Tetraethylammonium perchlorate (dry)	Forbidden	.....											
	Tetraethyl dithiopyrophosphate and gases in solution *or* Tetraethyl dithiopyrophosphate and gases mixtures *LC50 less than or equal to 200 ppm.*	2.3	UN1703	II	POISON GAS	10	None	334	245	Forbidden	Forbidden	1	5	40, 85, 95
	Tetraethyl dithiopyrophosphate and gases in solution *or* tetraethyl dithiopyrophphate and gas mixtures *LC50 over 200 up to 500 ppm.*	2.3	UN1703	II	POISON GAS	B14, B40, 10.	None	334	244	Forbidden	Forbidden	1	5	40
	Tetraethyl dithiopyrophosphate, dry or mixture.	6.1	UN1704	I	POISON	49	None	211	242	5 kg	50 kg	1	5	95
	.....	.....	.....	II	POISON	49	None	212	242	25 kg	100 kg	1	5	95
	.....	.....	.....	III	KEEP AWAY FROM FOOD.	49	153	213	240	100 kg	200 kg	1	5	34
	Tetraethyl dithiopyrophosphate, liquid or mixture.	6.1	UN1704	I	POISON	N76	None	201	243	1 L	30 L	1	5	40, 95
	.....	.....	.....	II	POISON	N76	None	202	243	5 L	60 L	1	5	40, 95
	.....	.....	.....	III	KEEP AWAY FROM FOOD.	N76	None	203	241	60 L	220 L	1	5	34, 40
	Tetraethylenepentamine	8	UN2320	III	CORROSIVE	T2	154	203	241	5 L	60 L	1,2	1,2	8
D	Tetraethyl lead, liquid	6.1	NA1649	I	POISON	B14, B32	None	201	None	Forbidden	Forbidden	1	5	40, 95

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Tetraethyl pyrophosphate and compressed gas mixtures*LC50 less than or equal to 200 ppm.*	2.3	UN1705	II	POISON GAS	10	None	334	245	Forbidden	Forbidden	1	5	40, 85, 95
	Tetraethyl pyrophosphate and compressed gas mixtures) *LC50 over 200 ppm up to 5000 ppm.*	2.3	UN1705	II	POISON GAS	B14, B40, 10.	None	334	244	Forbidden	Forbidden	1	5	40
D	Tetraethyl pyrophosphate, (*liquid*)	6.1	NA2783	I	POISON		None	201	243	Forbidden	1 L	1,3	5	
D	Tetraethyl pyrophosphate (*solid*)	6.1	NA2783	I	POISON	N77	None	211	242	Forbidden	50 kg	1,3	5	
	Tetraethyl silicate	3	UN1292	III	FLAMMABLE LIQUID.	T1	150	203	241	60 L	220 L	1,3	1	
	Tetrafluoroethylene, inhibited	2.1	UN1081		FLAMMABLE GAS.	B13	306	304	244	Forbidden	150 kg	1,3	5	40, 85
	Tetrafluoromethane	2.2	UN1982		NONFLAMMABLE GAS.	B13	None	302	244	75 kg	150 kg	1,3	1,3	85
	1,2,3,6-Tetrahydrobenzaldehyde	3	UN2498	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Tetrahydrofuran	3	UN2056	II	FLAMMABLE LIQUID.	T8	None	202	242	5 L	60 L	1,3	5	12
	Tetrahydrofurfurylamine	3	UN2943	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Tetrahydronaphthyl hydroperoxide *or* Tetralin hydroperoxide, *pure.*	5.2	UN2136	I	ORGANIC PEROXIDE.		None	225	None	1 kg	5 kg	1	5	12, 40
	Tetrahydrophthalic anhydrides *with more than 0.05 percent of maleic anhydride.*	8	UN2698	III	CORROSIVE		154	213	240	25 kg	100 kg	1,2	1,2	
	1,2,3,6-Tetrahydropyridine	3	UN2410	II	FLAMMABLE LIQUID.	T7	150	202	242	5 L	60 L	1,3	1	40
	Tetrahydrothiophene	3	UN2412	II	FLAMMABLE LIQUID.	T7	150	202	242	5 L	60 L	1,3	1	
	Tetralin hydroperoxide, *see* Tetrahydronaphthyl hydroperoxide.													
	Tetramethylammonium hydroxide	8	UN1835	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	1,2	1,2	
	1,1,3,3-Tetramethylbutyl hydroperoxide, *technically pure.*	5.2	UN2160	II	ORGANIC PEROXIDE.		152	225	None	5 L	10 L	1	5	12, 40
	1,1,3,3-Tetramethylbutyl peroxy-2-ethylhexanoate, *technically pure.*	5.2	UN2161	I	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	20, 40
	Tetramethylene diperoxide dicarbamide	Forbidden												
	Tetramethylsilane	3	UN2749	I	FLAMMABLE LIQUID.	T21, T26	None	201	243	Forbidden	30 L	1	5	12, 25
	Tetranitroaniline	1.1D	UN0207											
	Tetranitro diglycerin	Forbidden												
	Tetranitromethane	5.1	UN1510	I	OXIDIZER, POISON.	10	None	227	None	Forbidden	Forbidden	1	5	40, 66, 92, 95
	2,3,4,6-Tetranitrophenol	Forbidden												
	2,3,4,6-Tetranitrophenyl methyl nitramine	Forbidden												
	2,3,4,6-Tetranitrophenylnitramine	Forbidden												

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Tetranitroresorcinol (dry)	Forbidden												
	2,3,5,6-Tetranitroso-1,4-dinitrobenzene	Forbidden												
	2,3,5,6-Tetranitroso nitrobenzene (dry)	Forbidden												
	Tetrapropylorthotitanate	3	UN2413	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1,3	
	Tetrazene, *see* Guanyl nitrosaminoguanyl-tetrazene.													
	Tetrazine (dry)	Forbidden												
	Tetrazol-1-acetic acid	1.4C	UN0407											
	Tetrazolyl azide (dry)	Forbidden												
	Tetryl, *see* Trinitrophenylmethyl nitramine													
	Thallium chlorate	5.1	UN2573	II	OXIDIZER, POISON.		None	212	242	5 kg	25 kg	1,2	1,2	46, 56, 95
	Thallium compounds, n.o.s.	6.1	UN1707	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	34
	Thallium nitrate	6.1	UN2727	II	POISON, OXIDIZER.		None	212	242	5 kg	25 kg	1,2	1,2	89, 95
D	Thallium sulfate, solid	6.1	NA1707	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	
	Thia-4-pentanal	6.1	UN2785	III	KEEP AWAY FROM FOOD.	12	153	203	241	60 L	220 L	1, 2	1	34, 40
	Thioacetic acid	3	UN2436	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	Thiocarbonylchloride, see Thiophosgene													
	Thioglycol	6.1	UN2966	II	POISON	T8	None	202	243	5 L	60 L	1,2	1,2	95
	Thioglycolic acid	8	UN1940	II	CORROSIVE	B2, N26, N34.	154	202	242	1 L	30 L	1,2	1,2	9
	Thiolactic acid	6.1	UN2936	II	POISON	T8	None	212	242	25 kg	100 kg	1,2	1,2	95
	Thionyl chloride	8	UN1836	I	CORROSIVE, POISON.	10, B14, B32, N1, N11, N34, N35.	None	227	244	Forbidden	Forbidden	1	5	8, 40, 95
	Thiophene	3	UN2414	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Thiophosgene	6.1	UN2474	I	POISON	B14, B32, N26, N33, N34, 10.	None	227	244	Forbidden	Forbidden	1,2	1	26, 40, 95

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Thiophosphoryl chloride	8	UN1837	II	CORROSIVE	B2, B8, B25, N1, N26, N34, T12.	None	202	242	Forbidden	30 L	1	1	80, 40
	Thorium metal, pyrophoric	7	UN2975		RADIOACTIVE, SPONTANEOUSLY COMBUSTIBLE.		None	418	None	Forbidden	Forbidden	1,2	1,2	
	Thorium nitrate, solid	7	UN2976		RADIOACTIVE, OXIDIZER.		None	419	None	Forbidden	15 kg	1,2	1,2	
	Tin chloride, fuming, see Stannic chloride, anhydrous.													
	Tinctures, medicinal	3	UN1293	II	FLAMMABLE LIQUID.	T8, T31	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T7, T30.	150	203	241	60 L	220 L	1,3	1,3	
	Tinning flux, see Zinc chloride													
	Tin perchloride or Tin tetrachloride, see Stannic chloride, anhydrous.													
	Titanium hydride	4.1	UN1871	II	FLAMMABLE SOLID.	A19, A20, N34.	None	212	241	15 kg	50 kg	1,3	5	
	Titanium powder, dry (a) *mechanically produced, particle size between 3 and 53 microns;* (b) *chemically produced, particle size between 10 and 840 microns.*	4.2	UN2546	II	SPONTANEOUSLY COMBUSTIBLE.	A19, A20, N5, N34.	None	212	241	15 kg	50 kg	1	5	
	Titanium powder, wetted *with not less than 25 per cent water (a visible excess of water must be present)* (a) *mechanically produced, particle size less than 53 microns;* (b) *chemically produced, particle size less than 840 microns.*	4.1	UN1352	II	FLAMMABLE SOLID.	A19, A20, B10, N34.	None	212	240	15 kg	50 kg	1,3	5	
	Titanium sponge granules *or* Titanium sponge powders.	4.1	UN2878	III	FLAMMABLE SOLID.	A1	None	213	240	25 kg	100 kg	1	5	
D	Titanium sulfate solution	8	NA1760	II	CORROSIVE	B2, B15	None	213	242	1 L	30 L	1,2	1,2	
	Titanium tetrachloride	8	UN1838	I	CORROSIVE, POISON.	10, B7, B14, B32, B41, N1, N11, N34, N41.	None	227	244	Forbidden	Forbidden	1	1	8, 40
	Titanium trichloride mixtures	8	UN2869	II	CORROSIVE	N26, N34	154	212	240	15 kg	50 kg	1,2	1,2	40

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Titanium trichloride, pyrophoric *or* Titanium trichloride mixtures, pyrophoric.	4.2	UN2441	II	SPONTANEOUSLY COMBUSTIBLE, CORROSIVE.	A19, A20, N2, N26, N34.	None	212	244	15 kg	50 kg	1,3	1,3	
	TNT, *see* Trinitrotoluene, *etc.*													
	TNT mixed with aluminum, see *Tritonal*													
	Toe puffs, *nitrocellulose base*	4.1	UN1353	III	FLAMMABLE SOLID.	A1	None	213	240	25 kg	100 kg	1	5	
	Toluene	3	UN1294	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Toluene diisocyanate	6.1	UN2078	II	POISON.	T14	None	202	243	5 L	60 L	1,2	1	22, 25, 40, 95
	Toluene sulfonic acid, *see* Alkyl, Aryl *or* Toluene sulfonic acid *etc.*.													
	Toluidines, *liquid*	6.1	UN1708	II	POISON.	T14	None	202	243	5 L	60 L	1,2	1,2	26, 95
	Toluidines, *solid*	6.1	UN1708	II	POISON.		None	212	241	25 kg	100 kg	1,2	1,2	95
	2,4-Toluylenediamine	6.1	UN1709	III	KEEP AWAY FROM FOOD.	T7	153	213	240	100 kg	200 kg	1,2	1,2	34
	Torpedoes, liquid fuelled, *with inert head*	1.3J	UN0450											
	Torpedoes, liquid fuelled, *with or without bursting charge.*	1.1J	UN0449											
	Torpedoes *with bursting charge*	1.1E	UN0329											
	Torpedoes *with bursting charge*	1.1F	UN0330											
	Torpedoes *with bursting charge*	1.1D	UN0451											
	Tracers for ammunition	1.3G	UN0212											
	Tracers for ammunition	1.4G	UN0306											
	Tractors, see Vehicles, self propelled													
	Triallylamine	3	UN2610	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1	40
	Triallyl borate	6.1	UN2609	III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,3	1,3	12, 13, 22, 25, 34
	Triazine pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23deg C.*	3	UN2764	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	1,3	5	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	1,3	1	
	Triazine pesticides, liquid, toxic, flammable, n.o.s., *flash point not less than 23deg C.*	6.1	UN2997	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	1	1	21, 40, 95
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	1,2	1	21, 40, 95
				III	KEEP AWAY FROM FOOD.	T14	153	203	242	60 L	220 L	1,2	1,2	21, 40, 34
	Triazine pesticides, liquid, toxic, n.o.s.	6.1	UN2998	I	POISON.	T42	None	201	243	1 L	30 L	1	1	40, 95
				II	POISON.	T14	None	202	243	5 L	60 L	1,2	1	40, 95

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	.....	.....	.....	III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	1,2	1,2	34, 40
	Triazine pesticides, solid, toxic, n.o.s.	6.1	UN2763	I	POISON	.....	None	211	242	5 kg	50 kg	1,2	1,2	40, 95
	.....	.....	.....	II	POISON	.....	None	212	242	25 kg	100 kg	1,2	1,2	40, 95
	.....	.....	.....	III	KEEP AWAY FROM FOOD.	.....	153	213	240	100 kg	200 kg	1,2	1,2	34, 40
	Tri-(1-aziridinyl)phosphine oxide, solution	6.1	UN2501	II	POISON	T8	None	202	243	5 L	60 L	1,2	1,2	95
	Tributylamine	8	UN2542	III	CORROSIVE	T1	None	203	241	5 L	60 L	1,2	1,2	
	Trichloroacetic acid	8	UN1839	II	CORROSIVE	N26, N34 ..	154	212	240	15 kg	50 kg	1,2	1,2	
	Trichloroacetic acid, solution	8	UN2564	II	CORROSIVE	B2, N1, N11, N26, N34, T8.	154	202	242	1 L	30 L	1,2	1	8
	Trichloroacetyl chloride	8	UN2442	II	CORROSIVE	B2, N1, N16, N17, N26, N34, T9, T26.	None	202	242	Forbidden	Forbidden	1	5	40
	Trichlorobenzenes, liquid	6.1	UN2321	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	1,2	1,2	34
	Trichlorobutene	6.1	UN2322	II	POISON	T8	None	202	243	5 L	60 L	1,2	1,2	25, 40, 95
	1,1,1-Trichloroethane	6.1	UN2831	III	KEEP AWAY FROM FOOD.	N36, T7	153	203	241	60 L	220 L	1,2	1,2	34, 40
	Trichloroethylene	6.1	UN1710	III	KEEP AWAY FROM FOOD.	N36, T1	153	203	241	60 L	220 L	1,2	1,2	34, 40
	Trichloroisocyanuric acid, dry	5.1	UN2468	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,2	1,2	13, 25, 72
	Trichloromethyl perchlorate	Forbidden	.....											
	Trichlorosilane	4.3	UN1295	I	DANGEROUS WHEN WET, FLAMMABLE LIQUID, CORROSIVE.	N16, N26, N34, T24, T26.	None	201	244	Forbidden	Forbidden	1	5	40
D	(mono-(Trichloro) tetra-(monopotassium dichloro)-penta-s-triazinetrione, dry (*containing over 39% available chlorine*).	5.1	NA2468	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,3	1,3	
	Trichloro-s-triazinetrione dry, containing over 39% available chlorine, see Trichloroisocyanuric acid, dry.	.....	.....											
	Tricresyl phosphate *with more than 3 per cent ortho isomer.*	6.1	UN2574	II	POISON	N1, N16, N33, N34, T8.	None	202	243	5 L	60 L	1,2	1,2	95
	Triethylamine	3	UN1296	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	40

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Triethylene tetramine	8	UN2259	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	1,2	1	26, 40, 71
	Triethyl phosphite	3	UN2323	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	52
	Trifluoroacetic acid	8	UN2699	I	CORROSIVE	B4, N1, N3, N11, N26, N34, T18, T27.	None	201	242	0.5 L	2.5 L	1,3	1	12, 38, 40
	Trifluoroacetylchloride	2.3	UN3057	II	POISON GAS	10, B13, B33.	None	304	244	Forbidden	Forbidden	1,3	1,3	40, 85
	Trifluorochloroethylene, inhibited	2.1	UN1082		FLAMMABLE GAS.		306	304	314, 315	Forbidden	150 kg	1,3	1	40, 85
	Trifluoroethane, compressed	2.1	UN2035		FLAMMABLE GAS.	B13	306	304	244	Forbidden	150 kg	1,3	1	40, 85
	Trifluoromethane	2.2	UN1984		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	1,3	1,3	85
D	Trifluoromethane and chlorotrifluoromethane mixture (*constant boiling mixture*) (*R-503*). *See* Refrigerant gas, n.o.s..													
	3-Trifluoromethylaniline	6.1	UN2948	II	POISON	T14	None	202	243	5 L	60 L	1,2	1,2	40, 95
	2-Trifluoromethylaniline	6.1	UN2942	III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	1,2	1,2	34
	Triformoxime trinitrate	Forbidden												
	Triisobutylene	3	UN2324	II	FLAMMABLE LIQUID.	T7, T30	150	203	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T7, T30.	150	203	242	60 L	220 L	1,3	1,3	
	Triisocyanatoisocyanurate of isophoronediisocyanate, solution, *70 per cent, by weight.*	3	UN2906	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Triisopropyl borate	3	UN2616	II	FLAMMABLE LIQUID.	T8, T31	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T8, T31.	150	202	242	60 L	220 L	1,3	1,3	
D	Trimethoxysilane	6.1	NA1992	I	POISON, FLAMMABLE LIQUID.	B3, B14, B32.	None	201	244	Forbidden	Forbidden	1,3	5	12
	Trimethyl acetyl chloride	8	UN2438	II	CORROSIVE, FLAMMABLE LIQUID.	B2, B6, N1, N11, N26, N34, T8, T26.	None	202	243	1 L	30 L	1	5	21, 25, 40
	Trimethylamine, anhydrous	2.1	UN1083		FLAMMABLE GAS.		306	304	314, 315	Forbidden	150 kg	1	5	40, 85

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Trimethylamine, aqueous solutions *not more than 50 per cent trimethylamine by weight.*	3	UN1297	II	FLAMMABLE LIQUID.	T42	150	202	242	5 L	60 L	1,3	1	40, 41
				III	FLAMMABLE LIQUID.	B1, T14	150	203	242	60 L	220 L	1,3	1,3	40, 41
	1,3,5-Trimethylbenzene (mesitylene)	3	UN2325	III	FLAMMABLE LIQUID, POISON.	B14	None	201	243	60 L	220 L	1,3	1,3	
	Trimethyl borate	3	UN2416	II	FLAMMABLE LIQUID.	T14	150	202	242	5 L	60 L	1,3	1	
	Trimethylchlorosilane	3	UN1298	I	FLAMMABLE LIQUID, POISON, CORROSIVE.	B14, B30, N1, N26, N34, 10.	None	226	244	Forbidden	Forbidden	1,3	5	
	Trimethylcyclohexylamine	8	UN2326	III	CORROSIVE	T2	154	203	241	5 L	60 L	1,2	1,2	8
	Trimethylene glycol diperchlorate	Forbidden												
	Trimethylhexamethylenediamines	8	UN2327	III	CORROSIVE	T7	154	203	241	5 L	60 L	1,2	1,2	8
	Trimethylhexamethylenediisocyanate	6.1	UN2328	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	1,2	1	34
	Trimethylol nitromethane trinitrate	Forbidden												
	2,4,4-Trimethylpentyl-2-peroxy phenoxy acetate, *not more than 37 per cent in solution.*	5.2	UN2961	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	1	5	20, 40
	Trimethyl phosphite	3	UN2329	III	FLAMMABLE LIQUID.	T1	150	203	242	60 L	220 L	1,3	1,3	
	1,3,5-Trimethyl-2,4,6-trinitrobenzene	Forbidden												
	Trinitroacetic acid	Forbidden												
	Trinitroacetonitrile	Forbidden												
	Trinitroamine cobalt	Forbidden												
	Trinitroaniline	1.1D	UN0153											
	Trinitroanisole	1.1D	UN0213											
	Trinitrobenzene, *dry or wetted with less than 30 per cent water, by weight.*	1.1D	UN0214											
	Trinitrobenzenesulfonic acid	1.1L	UN0386											
	Trinitrobenzene, wetted *with not less than 30 per cent water, by weight.*	4.1	UN1354	I	FLAMMABLE SOLID.	A2, A19, N2, N34, N41.	None	211	None	0.5 kg	0.5 kg	1	5	36
	Trinitrobenzoic acid, *dry or wetted with less than 30 per cent water, by weight.*	1.1D	UN0215											

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Trinitrobenzoic acid, wetted *with not less than 30 per cent water, by weight.*	4.1	UN1355	I	FLAMMABLE SOLID.	A2, A19, N2, N34, N41.	None	211	None	0.5 kg	0.5 kg	1,3	5	36
	Trinitrochlorobenzene	1.1D	UN0155											
	Trinitro-m-cresol	1.1D	UN0216											
	2,4,6-Trinitro-1,3-diazobenzene	Forbidden												
	Trinitroethanol	Forbidden												
	Trinitroethylnitrate	Forbidden												
	Trinitrofluorenone	1.1D	UN0387											
	Trinitromethane	Forbidden												
	1,3,5-Trinitronaphthalene	Forbidden												
	Trinitronaphthalene	1.1D	UN0217											
	Trinitrophenetole	1.1D	UN0218											
	Trinitrophenol (Picric acid), *dry or wetted with less than 30 per cent water, by weight.*	1.1D	UN0154											
	Trinitrophenol, wetted *with not less than 30 per cent water, by weight.*	4.1	UN1344	I	FLAMMABLE SOLID.	A19, N2, N34, N41.	None	211	None	1 kg	15 kg	1	5	36
	2,4,6-Trinitrophenyl guanidine (dry)	Forbidden												
	Trinitrophenylmethylnitramine (Tetryl)	1.1D	UN0208											
	2,4,6-Trinitrophenyl nitramine	Forbidden												
	2,4,6-Trinitrophenyl trimethylol methyl nitramine trinitrate (dry).	Forbidden												
	Trinitroresorcinol (Styphnic acid), *dry or wetted with less than 20 per cent water, by weight, or mixture of alcohol and water.*	1.1D	UN0219											
	Trinitroresorcinol (Styphnic acid), wetted *with not less than 20 per cent water, by weight, or mixture of alcohol and water.*	1.1D	UN0394											
	2,4,6-Trinitroso-3-methyl nitraminoanisole	Forbidden												
	Trinitrotetramine cobalt nitrate	Forbidden												
	Trinitrotoluene (TNT) and Trinitrobenzene mixtures *or* Trinitrotoluene (TNT) and Hexanitrostilbene mixtures.	1.1D	UN0388											
	Trinitrotoluene (TNT), *dry or wetted with less than 30 per cent water, by weight.*	1.1D	UN0209											
	Trinitrotoluene (TNT) mixtures containing Trinitrobenzene and Hexanitrostilbene.	1.1D	UN0389											

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Trinitrotoluene (TNT), wetted *with not less than 30 per cent water, by weight.*	4.1	UN1356	I	FLAMMABLE SOLID.	A2, A19, N2, N34, N41.	None	211	None	0.5 kg	0.5 kg	1,3	5	36
	2,4,6-Trinitro-1,3,5-triazido benzene (dry)	Forbidden												
	Tri-(b-nitroxyethyl) ammonium nitrate	Forbidden												
	Tripropylamine	3	UN2260	II	FLAMMABLE LIQUID, CORROSIVE.	T8	None	202	243	1 L	5 L	1,3	1	40
	Tripropylene	3	UN2057	II	FLAMMABLE LIQUID.		150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.		150	203	242	60 L	220 L	1,3	1,3	
	Tris, bis-bifluoroamino diethoxy propane (TVOPA).	Forbidden												
	Tritonal	1.1D	UN0390											
	Tungsten hexafluoride	2.3	UN2196	I	POISON GAS	B14, B31, 10.	None	338	244	Forbidden	Forbidden	1	5	40, 85, 95
	Turpentine	3	UN1299	III	FLAMMABLE LIQUID.	B1	150	203	242	60 L	220 L	1,3	1,3	
I	Turpentine substitute	3	UN1300	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Undecane	3	UN2330	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Uranium hexafluoride, fissile (*containing more than 1% U-235*).	7	UN2977		RADIOACTIVE, CORROSIVE.		453	417	None			1,2	1,2	
	Uranium hexafluoride, *fissile excepted or non-fissile.*	7	UN2978		RADIOACTIVE, CORROSIVE.		421	425	425					
	Uranium metal, pyrophoric	7	UN2979		RADIOACTIVE, SPONTANEOUSLY COMBUSTIBLE.		None	418	None			1,2	1,2	
	Uranyl nitrate hexahydrate solution	7	UN2980		RADIOACTIVE, CORROSIVE.		421, 425	415, 416, 417	None			1,2	1,2	
	Uranyl nitrate, solid	7	UN2981		RADIOACTIVE, OXIDIZER.		None	419	None	Forbidden	15 kg	1,2	1,2	
	Urea hydrogen peroxide	5.1	UN1511	III	OXIDIZER	A1, A29, N26.	152	213	240	25 kg	100 kg	1,2	1,2	13, 25
	Urea nitrate, *dry or wetted with less than 20 per cent water, by weight.*	1.1D	UN0220											
	Urea nitrate, wetted *with not less than 20 per cent water, by weight.*	4.1	UN1357	I	FLAMMABLE SOLID.	A19, N2, N34, N41.	None	211	None	1 kg	15 kg	1,3	1,3	

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Urea peroxide, see Urea hydrogen peroxide.													
	Valeraldehyde	3	UN2058	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
	Valeric acid, see Corrosive liquids, n.o.s.													
	Valeryl chloride	8	UN2502	II	CORROSIVE	B2, N1, N11, N26, N34, T8.	154	202	242	1 L	30 L	1	1	40
	Vanadium oxytrichloride	8	UN2443	II	CORROSIVE	B2, B16, N1, N11, N16, N26, N34, T8, T26.	154	202	242	Forbidden	30 L	1	1	8, 40
	Vanadium pentoxide, *nonfused form*	6.1	UN2862	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Vanadium tetrachloride	8	UN2444	I	CORROSIVE	B4, N1, N11, N26, N34, T8, T26.	None	201	242	Forbidden	2.5 L	1	1	80, 40
AW	Vanadium trichloride	8	UN2475	III	CORROSIVE		154	213	240	25 kg	100 kg	1,2	1,2	40
	Vanadium trioxide, *nonfused form*	6.1	UN2860	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Vanadyl sulfate	6.1	UN2931	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Vehicles, self-propelled *including internal combustion engines or other apparatus containing an internal combustion engine or electric storage battery(see also* Wheel chair, electric).	9	None	III	CLASS 9		220	220	None	No limit	No limit	1,2	1,2	
	Very signal cartridge, see Cartridges, signal.													
	Vinyl acetate, inhibited	3	UN1301	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	
	Vinyl bromide, inhibited	2.1	UN1085		FLAMMABLE GAS.	B13	306	304	244	Forbidden	150 kg	1,3	1	40, 85
	Vinyl butyrate, inhibited	3	UN2838	II	FLAMMABLE LIQUID.	T7	150	202	242	5 L	60 L	1,3	1	
	Vinyl chloride, inhibited	2.1	UN1086		FLAMMABLE GAS.	B44	306	304	314, 315	Forbidden	150 kg	1,3	1	40, 85
	Vinyl chloroacetate	6.1	UN2589	II	POISON	T14	None	202	243	5 L	60 L	1,2	1,2	21, 95
	Vinyl ethyl ether, inhibited	3	UN1302	I	FLAMMABLE LIQUID.	N1, N15, T14.	None	201	243	1 L	30 L	1,3	5	12
	Vinyl fluoride, inhibited	2.1	UN1860		FLAMMABLE GAS.	B43	306	304	314, 315	Forbidden	150 kg	1,3	1	40, 85
	Vinylidene chloride, inhibited	3	UN1303	I	FLAMMABLE LIQUID.	T23, T29	150	201	243	1 L	30 L	1,3	5	12
	Vinyl isobutyl ether, inhibited	3	UN1304	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	1,3	1	

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							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Vinyl methyl ether, inhibited	2.1	UN1087		FLAMMABLE GAS.	B44	306	304	314, 315	Forbidden	150 kg	1,3	1	40, 85
	Vinyl nitrate polymer	Forbidden												
	Vinyl pyridenes, inhibited	6.1	UN3073	II	POISON, FLAMMABLE LIQUID.	T8	None	212	243	5 L	60 L	1,3	1,3	
				III	KEEP AWAY FROM FOOD.	T8	153	213	241	60 L	220 L	1,3	1,3	
	Vinyl toluene, inhibited *mixed isomers*	3	UN2618	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Vinyltrichlorosilane	3	UN1305	I	FLAMMABLE LIQUID, CORROSIVE.	B6, N1, N26, N34, T14, T26.	None	201	243	Forbidden	2.5 L	1,3	1	40
	Warheads, rocket *with burster or expelling charge.*	1.4D	UN0370											
	Warheads, rocket *with burster or expelling charge.*	1.4F	UN0371											
	Warheads, rocket *with bursting charge*	1.1D	UN0286											
	Warheads, rocket *with bursting charge*	1.2D	UN0287											
	Warheads, rocket *with bursting charge*	1.1F	UN0369											
	Warheads, torpedo *with bursting charge*	1.1D	UN0221											
	Water reactive substances, n.o.s., see Substances which in contact with water, *etc.*													
A	Wheel chair, electric (*spillable or non-spillable type batteries*).	9	None	III	CLASS 9		222	222	None	No limit	No limit	1,2	1,2	
	White acid, see Hydrofluoric acid mixtures													
	Wood preservatives, liquid	3	UN1306	II	FLAMMABLE LIQUID.	T7, T30	150	202	242	5 L	60 L	1,3	1	40
				III	FLAMMABLE LIQUID.	B1, T7, T30.	150	203	242	60 L	220 L	1,3	1,3	40
	Xenon	2.2	UN2036		NONFLAMMABLE GAS.	B13	306	302	244	75 kg	150 kg	1,3	1,3	85
	Xenon, refrigerated liquid	2.2	UN2591		NONFLAMMABLE GAS.		320	316	318	50 kg	500 kg	1,3	1	85
	Xylenes	3	UN1307	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	1,3	1	
				III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	1,3	1,3	
	Xylenols	6.1	UN2261	II	POISON	T8	None	212	243	25 kg	100 kg	1,2	1,2	40, 95
	Xylidines	6.1	UN1711	II	POISON	T14	None	202	243	5 L	60 L	1,2	1,2	26, 95
	Xylyl bromide	6.1	UN1701	I	POISON	B14, B30, N1, N11, N26, N33, 10.	None	226	244	Forbidden	Forbidden	1	5	40, 95

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	p-Xylyl diazide	Forbidden												
	Zinc ammonium nitrite	5.1	UN1512	II	OXIDIZER	B10	None	212	240	5 kg	25 kg	1,3	5	
	Zinc arsenate *or* Zinc arsenite *or* Zinc arsenate and Zinc arsenite mixtures..	6.1	UN1712	II	POISON		None	212	242	25 kg	100 kg	1,2	1,2	95
	Zinc ashes	4.3	UN1435	III	DANGEROUS WHEN WET.	A1, A19	None	213	241	25 kg	100 kg	1,3	1,3	
	Zinc bisulfite solution *see* Bisulfites, inorganic aqueous solutions, n.o.s..													
	Zinc bromate	5.1	UN2469	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	1,2	1,2	46, 56
	Zinc chlorate	5.1	UN1513	II	OXIDIZER	B10, N13, N34.	152	212	240	5 kg	25 kg	1,2	1,2	46, 56
	Zinc chloride, anhydrous	8	UN2331	III	CORROSIVE		None	213	240	25 kg	100 kg	1,2	1,2	
	Zinc chloride, solution	8	UN1840	III	CORROSIVE	T7	154	203	241	5 L	60 L	1,2	1,2	
	Zinc cyanide	6.1	UN1713	I	POISON		None	211	242	5 kg	50 kg	1,2	1,2	26, 95
	Zinc dithionite *or* Zinc hydrosulfite	9	UN1931	III	CLASS 9		155	204	240	100 kg	200 kg	1,2	1,2	13, 26
	Zinc ethyl, see Diethylzinc													
	Zinc fluorosilicate	6.1	UN2855	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	1,2	1,2	26, 34
	Zinc hydrosulfite, *see* Zinc dithionite													
	Zinc muriate solution, see Zinc chloride, solution.													
	Zinc nitrate	5.1	UN1514	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,2	1,2	
	Zinc permanganate	5.1	UN1515	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,2	1,2	56, 69
	Zinc peroxide	5.1	UN1516	II	OXIDIZER	B10	152	212	240	5 kg	25 kg	1,2	1,2	13
	Zinc phosphide	4.3	UN1714	I	DANGEROUS WHEN WET, POISON.	A19	None	211	None	Forbidden	15 kg	1,3	5	85
	Zinc powder *or* Zinc dust	4.3	UN1436	II	DANGEROUS WHEN WET, SPONTANEOUSLY COMBUSTIBLE.	A19	None	212	242	15 kg	50 kg	1,3	1,3	
	Zinc resinate	4.1	UN2714	III	FLAMMABLE SOLID.	A1	151	213	240	25 kg	100 kg	1,3	1,3	
	Zinc selenate, *see* Selenates *or* Selenites													
	Zinc selenite, *see* Selenates *or* Selenites													
	Zinc silicofluoride, see Zinc fluorosilicate													
	Zirconium, dry, *coiled wire, finished metal sheets, strip (thinner than 254 microns but not thinner than 18 microns).*	4.1	UN2858	III	FLAMMABLE SOLID.	A1	151	213	240	25 kg	100 kg	1,3	1,3	
	Zirconium, dry, *finished sheets, strip or coiled wire.*	4.2	UN2009	III	SPONTANEOUSLY COMBUSTIBLE.	A1, A19	None	213	240	25 kg	100 kg	1	5	
	Zirconium hydride	4.1	UN1437	II	FLAMMABLE SOLID.	A19, A20, N34.	None	212	240	15 kg	50 kg	1,3	5	
	Zirconium nitrate	5.1	UN2728	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	1,2	1,2	25

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Packing group	Labels	Special provisions	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements		
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	(10C)
	Zirconium picramate, *dry or wetted with less than 20 per cent water, by weight.*	1.3C	UN0236											
	Zirconium picramate, wetted *with not less than 20 per cent water, by weight.*	4.1	UN1517	I	FLAMMABLE SOLID.	N34, N41	None	211	None	1 kg	15 kg	1	5	36
	Zirconium powder, dry (*a*) *mechanically produced, particle size between 3 and 53 microns;* (*b*) *chemically produced, particle size between 10 and 840 microns.*	4.2	UN2008	II	SPONTANEOUSLY COMBUSTIBLE.	A19, A20, N5, N34.	None	212	241	15 kg	50 kg	1	5	
	Zirconium powder, wetted *with not less than 25 per cent water (a visible excess of water must be present)* (*a*) *mechanically produced, particle size less than 53 microns;* (*b*) *chemically produced, particle size less than 840 microns.*	4.1	UN1358	II	FLAMMABLE SOLID.	A19, A20, N34.	None	212	241	15 kg	50 kg	1,3	5	
	Zirconium scrap	4.2	UN1932	III	SPONTANEOUSLY COMBUSTIBLE.	B10, N34	None	213	240	Forbidden	Forbidden	1	5	
D	Zirconium sulfate	8	NA9163	III	CORROSIVE	N34	None	213	240	50 kg	No limit	1,2	1,2	
	Zirconium suspended in a liquid	3	UN1308	II	FLAMMABLE LIQUID.		None	202	242	Forbidden	60 L	1	5	12
	Zirconium tetrachloride	8	UN2503	III	CORROSIVE		154	213	240	25 kg	100 kg	1,2	1,2	

§ 172.102 Special provisions.

(a) *General.* When Column 7 of the § 172.101 Table refers to a special provision for a hazardous material, the meaning and requirements of that provision are as set forth in this section. When a special provision specifies packagings or packaging requirements, they are in addition to the standard requirements for all packagings prescribed in § 173.24 of this subchapter and any other applicable packaging requirements in Subparts A and B of Part 173 of this subchapter.

(b) *Description of codes for special provisions.* Special provisions may contain packaging provisions, prohibitions, exceptions from requirements for particular quantities or forms of materials and requirements or prohibitions applicable to specific modes of transportation, as follows:

(1) A code consisting only of numbers (for example, "11") is multi-modal in application and may apply to bulk and non-bulk packagings.

(2) A code containing the letter "A" refers to a special provision which applies only to transportation by aircraft.

(3) A code containing the letter "B" refers to a special provision which applies only to bulk packaging requirements. Unless otherwise provided in this subchapter, these special provisions do not apply to IM portable tanks.

(4) A code containing the letter "H" refers to a special provision which applies only to transportation by highway.

(5) A code containing the letter "N" refers to a special provision which applies only to non-bulk packaging requirements.

(6) A code containing the letter "R" refers to a special provision which applies only to transportation by rail.

(7) A code containing the letter "T" refers to a special provision which applies only to transportation in IM portable tanks.

(8) A code containing the letter "W" refers to a special provision which applies only to transportation by water.

(c) *Tables of special provisions.* The following tables list, and set forth the requirements of, the special provisions referred to in Column 7 of the § 172.101 Table.

(1) *Numeric provisions.* These provisions are multi-modal and apply to bulk and non-bulk packagings:

Code	Special provisions
10	Packagings shall be marked "INHALATION HAZARD" in accordance with Subpart D of Part 172.
11	The hazardous material must be packaged as either a liquid or a solid, as appropriate, depending on its physical form at 55 °C (131 °F) at atmospheric pressure.
12	Manufacturing impurities may cause this material to be toxic by inhalation. If toxic by inhalation, the shipping description, Poisonous liquids, n.o.s., *inhalation hazard,* must be used.
13	For materials which meet the criteria for inhalation toxicity in § 173.133 of this subchapter at the Packing Group I level, the proper shipping name is "Poisonous liquids, corrosive, n.o.s., *inhalation hazard, Packing Group I, Zone B.*"
17	Aqueous solutions of hydrogen peroxide containing less than 8 percent hydrogen peroxide are not subject to the requirements of this subchapter.
22	If the hazardous material is in dispersion in organic liquid, the organic liquid must have a flash point above 50 °C (122 °F).
27	Sodium carbonate peroxyhydrate is considered non-hazardous.
28	The dihydrated sodium salt of dichloroisocyanuric acid is not subject to the requirements of this subchapter.
31	Materials which have undergone sufficient heat treatment to render them nonhazardous are not subject to the requirements of this subchapter.
33	Ammonium nitrites and mixtures of an inorganic nitrite with an ammonium salt are prohibited.
42	Fish meal or fish scrap may not be offered for transportation if the temperature of the material exceeds 49 °C (120.2 °F).
66	The organic peroxide included in a polyester resin kit must be specifically listed in the § 172.101 Table and be permitted for transportation.

(2) *"A" codes.* These provisions apply only to transportation by aircraft:

Code	Special provisions
A1	Single packagings are not permitted on passenger aircraft.
A2	Single packagings are not permitted on aircraft.
A4	Liquids having an inhalation toxicity of Packing Group I are not permitted on aircraft.
A5	Solids having an inhalation toxicity of Packing Group I are not permitted on passenger aircraft and may not exceed a maximum net quantity per package of 15 kg (33.1 pounds) on cargo aircraft.
A19	Combination packagings consisting of outer fiber drums or plywood drums, with inner plastic packagings, are not authorized for transportation by aircraft.
A20	Plastic bags as inner receptacles of combination packagings are not authorized for transportation by aircraft.
A29	Combination packagings consisting of outer expanded plastic boxes with inner plastic bags are not authorized for transportation by aircraft.
A30	Ammonium permanganate is not authorized for transportation on aircraft.
A33	Ammonium nitrites and mixtures of an inorganic nitrite with an ammonium salt are prohibited.

(3) "B" codes. These provisions apply only to bulk packagings:

Code	Special provisions
B1	If the material has a flash point at or above 100°F (37.8°C) and below 200°F (93.3°C), then the bulk packaging requirements of § 173.241 of this subchapter are applicable. If the material has a flash point of less than 100°F, then the bulk packaging requirements of § 173.242 of this subchapter are applicable.
B2	MC 306 cargo tanks, DOT 57 portable tanks, and riveted tank car tanks are not authorized.
B4	Riveted tank car tanks, AAR 206 tank car tanks, MC 306 cargo tanks, and DOT 57 portable tanks are not authorized.
B5	Lading temperature may not exceed 240°F (115.6°C). Only the following bulk packagings are authorized for ammonium nitrate solutions with 15 percent or more water: DOT 103 ALW, 111A60 ALW tank car tanks and MC 307 and MC 312 cargo tanks with at least 25 psig (172.4 kPa) design pressure. The packaging shall be designed for a working temperature of at least 250°F (121.1°C). Transportation by vessel is not authorized.
B6	Packagings shall be made of steel.
B7	Safety relief devices are not authorized on multi-unit tank car tanks. Openings for safety relief devices shall be plugged or blank flanged.
B8	Packagings shall be made of nickel, stainless steel, or steel with nickel, stainless steel, lead or other suitable corrosion resistant metallic lining.
B9	Bottom outlets are not authorized.
B10	Packagings must be leak tight.
B11	Tank car tanks must have a test pressure of at least 300 psi (2,068.5 kPa). Cargo and portable tanks must have a design pressure of at least 175 psig (1,206.6 kPa). Pressure relief devices on any tank must be set to function at 175 psig (1,206.6 kPa).
B12	Tank car tanks shall be marked with the name of the lading in accordance with the requirements of § 172.330.
B13	For compressed gases, §§ 173.314 and 173.315 of this subchapter specify additional requirements.
B14	Each tank, except a multi-unit tank car tank, shall be insulated by completely covering it with at least 100 millimeters (3.94 inches) of cork or other suitable insulation material of sufficient thickness that the overall thermal conductance is not more than 0.080 Btu per hour per square foot per degree Fahrenheit differential.
B15	Packagings shall be protected with non-metallic linings impervious to the lading unless the tanks conform to the provisions of § 178.343-2(c) of this subchapter.
B16	The lading shall be completely covered with an inert gas.
B17	Packagings shall be made of aluminum.
B18	Open steel hoppers or bins are authorized.
B19	The hazardous material may not exceed 45% concentration in a non-volatile solvent.
B20	The hazardous material may not exceed 50% concentration in a non-volatile solvent.
B21	The hazardous material may not exceed 60% concentration in a non-volatile solvent.
B22	The hazardous material may not exceed 90% concentration in a non-volatile solvent.
B23	Tanks shall be made of steel that is rubber lined or unlined. Unlined tanks shall be passivated before being placed in service. If unlined tanks are washed out with water, they shall be repassivated prior to return to service. Lading in unlined tanks must be inhibited so that the corrosive effect on steel is not greater than that of hydrofluoric acid of 65% concentration.
B24	Molybdenum content of stainless steel may not exceed 0.5%.
B25	Packagings shall be made from monel or nickel or monel-lined or nickel-lined steel.
B26	Tanks shall be insulated. Insulation must be at least 4 inches (101.6mm) except that insulation thickness may be reduced to 2 inches (50.8 mm) over exterior heater coils. Interior heating coils are not authorized. The lading shall be immersed in water or blanketed with an inert gas and loaded at a temperature not exceeding 140°F (60°C). After unloading, the tank shall be filled to its entire capacity with an inert gas or with water having a temperature not exceeding 140°F (60°C). Before a tank car tank is offered for return movement, it shall be placarded with "FLAMMABLE SOLID-RESIDUE" placards as described in § 172.525. When lading is immersed in water, tanks may not have bottom outlets.
B27	Tanks must have a service pressure of 150 psig (1,034.3 kPa). Tank car tanks must have a test pressure rating of 200 psi (1,379 kPa). Lading shall be blanketed at all times with a dry inert gas at a pressure not to exceed 15 psig (103.4 kPa).
B28	Packagings shall be made of stainless steel.
B29	When the lading is transported in a molten state, tanks may be equipped with heating coils except that interior heating coils are prohibited. Standpipe heaters for tank cars are permitted.

Code	Special provisions
B30	MC 330 and MC 331 cargo tanks and DOT 51 portable tanks shall be made of stainless steel except that steel other than stainless steel may be used in accordance with the provisions of § 173.24b(c). Thickness of stainless steel for tank shell and heads for cargo tanks and portable tanks must be the greater of 0.300 inch (7.62 mm) or the thickness required for a tank with a design pressure at least equal to 1.5 times the vapor pressure of the lading at 115°F (46.1°C). Notwithstanding the provisions of § 173.244(a) of this subchapter, only the following tank car tanks are authorized: DOT 105J500W tank car tanks and DOT Class 106 and 110 multi-unit tank car tanks; DOT 105S300W tank car tanks built before April 1, 1989; and DOT 105A500W tank car tanks built before April 1,1989 and equipped with at least 10 inches (25.4 cm) of polyurethane foam insulation or with a thermal protection system meeting the requirements of § 179.105–4 of this subchapter.
B31	MC 330 and MC 331 cargo tanks and DOT 51 portable tanks shall be made of stainless steel except that steel other than stainless steel may be used in accordance with the provisions of § 173.24b(c). Thickness of stainless steel for tank shell and heads for cargo tanks and portable tanks must be the greater of 0.300 inch (7.62 mm) or the thickness required for a tank with a design pressure at least equal to 1.5 times the vapor pressure of the lading at 115°F (46.1°C). Bottom outlets are not authorized on tank car tanks. Notwithstanding the provisions of §§ 173.243(a) and 173.244(a) of this subchapter, only the following tank car tanks are authorized: DOT 105J300W, 112J340W, 112T340W and 114T340W tank car tanks; DOT Class 106 and 110 multi-unit tank car tanks; DOT 105A300W tank car tanks built before April 1, 1989; and, only for materials which do not meet the definition for a flammable gas (see § 173.115(a) of this subchapter), DOT 105J300ALW tank car tanks.
B32	MC 330 and MC 331 cargo tanks and DOT 51 portable tanks shall be made of stainless steel except that steel other than stainless steel may be used in accordance with the provisions of § 173.24b(c). Thickness of stainless steel for tank shell and heads for cargo tanks and portable tanks must be the greater of 0.250 inch (6.35 mm) or the thickness required for a tank with a design pressure at least equal to 1.3 times the vapor pressure of the lading at 115°F (46.1°C). Bottom outlets are not authorized on tank car tanks. Notwithstanding the provisions of §§ 173.243(a) and 173.244(a) of this subchapter, only the following tank car tanks are authorized: DOT 105J300W, 112J340W, 112T340W, 114J340W, and 105J300ALW tank car tanks; DOT Class 106 and 110 multi-unit tank car tanks; DOT 105A100W and 111A100W4 tank car tanks built before April 1, 1989; and DOT 111A100W1 and 111A100W2 that are insulated in accordance with § 179.200–4 of this subchapter, are equipped with safety relief valves in accordance with § 179.200–18 of this subchapter and were built before April 1, 1989.
B33	MC 330 or MC 331 cargo tanks and DOT 51 portable tanks shall be made of stainless steel except that steel other than stainless steel may be used in accordance with the provisions of § 173.24b(c). Thickness of stainless steel for tank shell and heads for cargo tanks and portable tanks must be the greater of 0.250 inch (6.35 mm) or the thickness required for a tank with a design pressure at least equal to 1.2 times the vapor pressure of the lading at 115°F (46.1°C). Bottom outlets are not authorized on tank car tanks. Notwithstanding the provisions of §§ 173.243(a) and 173.244(a) of this subchapter, only the following tank car tanks are authorized: DOT 105J300W, 112J340W, 112T340W, 114J340W, and 114T340W tank car tanks; DOT Class 106 and 110 multi-unit tanks; DOT 105A200W tank cars built before April 1, 1989; and, only for materials which do not meet the definition for a flammable gas (see § 173.115(a) of this subchapter), DOT 105J300ALW tank car tanks.
B34	MC 330 or MC 331 cargo tanks and DOT 51 portable tanks shall be made of stainless steel with a design pressure at least equal to 1.1 times the vapor pressure of the lading at 115°F (46.1°C). Steel other than stainless steel may be used in accordance with the provisions of § 173.24b(c).
B35	If LC50 is more than 200 ppm but not more than 1000 ppm, Note B31 applies. If LC50 is more than 1000 ppm but not more than 3000 ppm, Special Provision B33 applies. If LC50 is more than 3000 ppm but not more than 5000 ppm, Note B34 applies.
B36	Only DOT 105J500W tank car tanks or DOT Class 106 or 110 tank car tanks are authorized.
B37	The amount of nitric oxide charged into any tank car tank may not exceed 200 psig (1,379 kPa) at 70°F (21.1°C). The amount of nitric oxide charged into cargo or portable tanks may not exceed 200 psig (1,379 kPa) at 70°F (21.1°C) or 0.55 times tank design pressure (MAWP) whichever is less.
B38	If LC50 is more than 1000 ppm but not more than 3000 ppm, Note B31 applies. If LC50 is more than 3000 ppm but not more than 5000 ppm, Special Provision B33 applies.
B39	Mixtures with flashpoints less than 23°C (73.4°F) must bear FLAMMABLE placards as prescribed in Subpart F of Part 172.
B40	For liquid materials which are toxic by inhalation (see § 173.133(a)(2) of this subchapter), if LC50 is 200 ppm or less, Note B30 applies; if LC50 is more than 200 ppm but not more than 1000 ppm, Special Provision B32 applies.
B41	Notwithstanding the periodic retest intervals specified in Retest Table 1 of 173.31 of this subchapter, the retest interval for safety relief valves on each single-unit tank car tank is 2 years and the retest interval on the tank and interior heater systems, if any, is as follows: a. For a tank 10 years old or newer, 5 years; b. For a tank older than 10 years but not older than 22 years, 3 years; and c. For a tank older than 22 years, 1 year.
B42	Each DOT 105A, 105S and 105J tank car tank shall be stenciled DOT105A200W, DOT105S200W, or DOT 105J200W, respectively. Each tank car tank shall be equipped with a safety relief valve with a start-to-discharge pressure of 150 psig (1,034.3 kPa).
B43	For single unit tank car tanks built after June 30, 1982, tank anchor to tank shell fillet welds must be examined by a suitable non-destructive testing method to ensure that welds are free from cracks or other detrimental defects.
B44	All parts of valves and safety relief devices in contact with lading must be of a material which will not cause formation of acetylides.
B45	Safety relief valves must be equipped with stainless steel or platinum frangible discs approved by the AAR Committee on Tank Cars.
B46	The detachable protective housing for the loading and unloading valves of multi-unit tank car tanks must withstand tank test pressure and must be approved by the Director, OHMT.
B49	Tanks equipped with interior heater coils are not authorized. Single unit tank car tanks must have a safety relief valve set at no more than 225 psig (1551.4kPa).
B50	Each valve outlet of a multi-unit tank car tank must be sealed by a threaded solid plug or a threaded cap with inert luting or gasket material. Valves must be of stainless steel and the caps, plugs, and valve seats must be of a material that will not be deteriorated by contact with the lading.
B51	Tank car tanks must be marked "DISPERSANT GAS" or "REFRIGERANT GAS" or with the proper shipping name.
B52	Notwithstanding the provisions of § 173.24b of this subchapter, non-reclosing pressure relief devices are authorized on DOT 57 portable tanks.
B53	Packagings shall be made of either aluminum or stainless steel.

(4) *"H" codes.* These provisions apply only to transportation by highway: (Reserved.)

(5) *"N" codes.* These provisions apply only to non-bulk packagings:

Code	Special provisions
N1	For combination packagings, if glass inner packagings (including ampoules) are used, they must be packed with absorbent material in tightly closed metal receptacles before packing in outer packagings.
N2	For combination packagings, if glass inner packagings (including ampoules) are used, they must be packed with cushioning material in tightly closed metal receptacles before packing in outer packagings.
N3	Glass inner packagings are permitted in combination or composite packagings only if the hazardous material is free from hydrofluoric acid.
N4	For combination or composite packagings, glass inner packagings, other than ampoules, are not permitted.
N5	Glass materials of construction are not authorized for any part of a packaging which is normally in contact with the hazardous material.
N6	Battery fluid packaged with electric storage batteries, wet or dry, must conform to the packaging provisions of § 173.159, paragraphs (g) or (h), of this subchapter.
N11	For combination packagings, if plastic inner packagings are used, they must be packed in tightly closed metal receptacles before packing in outer packagings.
N12	Plastic packagings are not authorized.
N13	For combination packagings, if plastic bags are used, they must be packed in tightly closed metal receptacles before packing in outer packagings.
N14	Only plastic bags are permitted as inner packagings for combination packagings.
N15	Plastic materials of construction are not authorized for any part of a packaging which is normally in contact with the hazardous material.
N16	Plastic single packagings are not authorized.
N17	Plastic composite packagings are not authorized.
N25	Steel single packagings are not authorized.
N26	Steel packagings must be corrosion-resistant or have protection against corrosion.
N32	Aluminum materials of construction are not authorized for single packagings.
N33	Aluminum drums are not authorized.
N34	Aluminum materials of construction are not authorized for any part of a packaging which is normally in contact with the hazardous material.
N35	When aluminum or aluminum alloy materials of construction are used, they must be resistant to corrosion.
N36	Aluminum or aluminum alloy materials of construction are permitted only for halogenated hydrocarbons that will not react with aluminum.
N40	For combination packagings, when metal inner packagings are permitted, only specification cylinders constructed of metals which are compatible with the hazardous material may be used.
N41	Metal (other than aluminum) materials of construction are not authorized for any part of a packaging which is normally in contact with the hazardous material.
N42	Metal (other than aluminum) materials of construction are not authorized for single packagings.
N43	Metal drums are permitted as single packagings only if constructed of nickel or monel.
N44	Only metal packagings are authorized.
N45	For combination packagings, only copper cartridges are permitted as inner packagings when the hazardous material is not in dispersion.
N55	For combination packagings, fiber drums (1G) only are permitted as outer packagings.
N65	Outage must be sufficient to prevent cylinders or spheres from becoming liquid full at 55°C (130°F). The vacant space (outage) may be charged with a nonflammable nonliquefied compressed gas if the pressure in the cylinder or sphere at 55°C (130°F) does not exceed 125% of the marked service pressure.
N70	For combination packagings, only plywood boxes (4D) and fiberboard boxes (4G) are permitted as outer packagings.
N71	Combination packagings consisting of inner glass packagings of not over 1.0 liter (1.06 quarts) capacity each or inner metal packagings of not over 5.0 liters (5.28 quarts) capacity each, placed in strong outer packagings, are authorized. Packagings are not subject to the requirements of Part 178 of this subchapter.
N72	Packagings must be examined by the Bureau of Explosives and approved by the Director, OHMT.
N73	Packagings consisting of outer wooden or fiberboard boxes with inner glass, metal or other strong containers; metal or fiber drums; kegs or barrels; or strong metal cans are authorized and need not conform to the requirements of Part 178 of this subchapter.

Code	Special provisions
N74	Packages consisting of tightly closed inner containers of glass, earthenware, metal or polyethylene, capacity not over 0.5 kg (1.1 pounds) securely cushioned and packed in outer wooden barrels or wooden or fiberboard boxes, not over 15 kg (33.1 pounds) net weight, are authorized and need not conform to the requirements of Part 178 of this subchapter.
N75	Packages consisting of tightly closed inner packagings of glass, earthenware or metal, securely cushioned and packed in outer wooden barrels or wooden or fiberboard boxes, capacity not over 2.5 kg (5.51 pounds) net weight, are authorized and need not conform to the requirements of Part 178 of this subchapter.
N76	For materials of not more than 25 percent active ingredient by weight, packages consisting of inner metal packagings not greater than 250 mL (8.5 fluid ounces) capacity each, packed in strong outer packagings together with sufficient absorbent material to completely absorb the liquid contents are authorized and need not conform to the requirements of Part 178 of this subchapter.
N77	For materials of not more than two percent active ingredients by weight, packagings need not conform to the requirements of Part 178 of this subchapter, if liquid contents are absorbed in an inert material.
N78	Packages consisting of inner glass, earthenware, or polyethylene or other nonfragile plastic bottles or jars not over 0.5 kg (1.1 pounds) capacity each, or metal cans not over five pounds capacity each, packed in outer wooden boxes, barrels or kegs, or fiberboard boxes are authorized and need not conform to the requirements of Part 178 of this subchapter. Net weight of contents in fiberboard boxes may not exceed 65 pounds (29.5 kg). Net weight of contents in wooden boxes, barrels or kegs may not exceed 100 pounds (45.4 kg).
N79	Packages consisting of tightly closed metal inner packagings not over 0.5 kg (1.1 pounds) capacity each, packed in outer wooden or fiberboard boxes, or wooden barrels, are authorized and need not conform to the requirements of Part 178 of this subchapter. Net weight of contents may not exceed 15 kg (33.1 pounds).
N80	Packages consisting of one inner metal can, not over 2.5 kg (5.51 pounds) capacity, packed in an outer wooden or fiberboard box, or a wooden barrel, are authorized and need not conform to the requirements of Part 178 of this subchapter.

(6) *"R" codes.* These provisions apply only to transportation by rail:
(Reserved)

(7) *"T" codes.* These provisions apply only to transportation in IM portable tanks. They are divided into two groupings, one of which appears as the IM Tank Table in paragraph (c)(7)(i) of this section, and the second of which imposes specific requirements and appears in paragraph (c)(7)(ii) of this section.

(i) *IM Tank Table.* Column 1 lists the code for the special provisions as specified in Column 7 of the § 172.101 Table. Column 2 specifies the IM tank type, either IM 101 (§§ 178.270 and 178.271 of this subchapter) or IM 102 (§§ 178.270 and 178.272 of this subchapter). Column 3 specifies the minimum test pressure, in bars (1 bar=14.5 psig), at which the periodic hydrostatic testing required by § 173.32b of this subchapter must be conducted. Column 4 specifies either the section referenced for requirements for bottom openings or "Prohibited", which means bottom openings are prohibited. Column 5 specifies the section reference for requirements applicable to pressure relief devices.

IM Tank Table

Code	IM tank type	Minimum test pressure (bars)	Bottom outlets	Pressure relief devices
(1)	(2)	(3)	(4)	(5)
T1	102	1.5	§ 173.32c(g)(1)	§ 178.270–11(a)(1),(2).
T2	102	1.5	§ 173.32c(g)(2)	§ 178.270–11(a)(1),(2).
T7	101	2.65	§ 173.32c(g)(1)	§ 178.270–11(a)(1),(2).
T8	101	2.65	§ 173.32c(g)(2)	§ 178.270–11(a)(1),(2).
T9	101	2.65	Prohibited	§ 178.270–11(a)(1),(2).
T11	101	2.65	§ 173.32c(g)(2)	§ 178.270–11(a)(3).
T12	101	2.65	Prohibited	§ 178.270–11(a)(3).
T13	101	4	§ 173.32c(g)(1)	§ 178.270–11(a)(1),(2).
T14	101	4	§ 173.32c(g)(2)	§ 178.270–11(a)(1),(2).
T15	101	4	Prohibited	§ 178.270–11(a)(1),(2).
T16	101	4	§ 173.32c(g)(1)	§ 178.270–11(a)(3).
T17	101	4	§ 173.32c(g)(2)	§ 178.270–11(a)(3).
T18	101	4	Prohibited	§ 178.270–11(a)(3).
T20	101	6	§ 173.32c(g)(2)	§ 178.270–11(a)(1),(2).
T21	101	6	Prohibited	§ 178.270–11(a)(1),(2).
T23	101	6	§ 173.32c(g)(2)	§ 178.270–11(a)(3).
T24	101	6	Prohibited	§ 178.270–11(a)(3).
T28	101	10	Prohibited	§ 178.270–11(a)(1),(2).
T39	101	10	Prohibited	§ 178.270–11(a)(3).

(ii) *IM Tank special provisions.* These provisions apply only to transportation in IM portable tanks:

Code	Special provisions
T25	This hazardous material is not permitted for transport in IM portable tanks.
T26	Each tank must have a minimum shell thickness of 6.35mm (0.250 inch) mild steel.
T27	Each tank must have a minimum shell thickness of 8.0mm (0.315 inch) mild steel.
T29	The lading shall be completely covered with nitrogen or an inert gas.
T30	IM 102 portable tanks without bottom openings authorized for a hazardous material with a flash point of 32°F (0°C) or greater and a vapor pressure not greater than 9.5 psia (65.5 kPa) at 150°F (65.6°C).
T31	IM 102 portable tanks without bottom openings or with bottom openings conforming to § 173.32c(g)(2) of this subchapter are authorized for a hazardous material with a flash point of 32°F (0°C) or greater and a vapor pressure not greater than 9.5 psia (65.5 kPa) at 150°F (65.6°C).
T32	Each tank must have a minimum shell thickness of 10.0mm (0.394 inch) mild steel with at least 5.0mm (0.197 inch) lead lining.
T33	Dry phosphorus is not permitted. For transport in a molten state, the tank shall be insulated in accordance with Note T38. Air shall be eliminated from the interior of the tank. The tank may be heated, however, interior heating coils are prohibited.
T35	Each tank shall be equipped with reclosing (spring loaded) pressure relief valves set to discharge at pressures determined according to the pressure characteristics of the organic peroxide lading.
T36	Each tank shall be equipped with pressure relief devices with sufficient venting capacity to prevent the tank from bursting.

Code	Special provisions
T37	Tert-butyl hydroperoxide may not exceed 65% concentration in water, unless otherwise approved by the Director, OHMT. Each tank shall be made of aluminum of at least 99.5% purity, stainless steel or carbon steel. The material of construction must be compatible with the lading. The tank shall be equipped with pressure relief devices impervious to the lading. Aluminum tanks and carbon steel tanks shall be insulated in accordance with Note T38.
T38	Each tank shall be thermally insulated by completely covering it with at least 100 millimeters (3.94 inches) of cork or other suitable insulation material of sufficient thickness that the overall thermal conductance is not more than 0.080 Btu per hour per square foot per degree Fahrenheit differential.
T40	Each tank must have a minimum shell thickness of 10.0mm (0.394 inch) mild steel.
T41	Each tank must have a minimum shell thickness of 12.0mm (0.472 inch) mild steel.
T42	Transport in IM portable tanks is permitted only under conditions approved by the Director, OHMT

(8) *"W" codes.* These provisions apply only to transportation by water:

Code	Special provisions
W41	When offered for transportation by water, this material must be packaged in bales and be securely and tightly bound with rope, wire or similar means.

Subpart C—Shipping Papers

12. In § 172.200, paragraph (b) would be revised to read as follows:

§ 172.200 Applicability.

* * * * *

(b) This subpart does not apply to any material, other than a hazardous substance or waste, that is:

(1) Regulated only by air, water, or both (as indicated by the letter "A" or "W", or both, in Column 1 of the § 172.101 Table) when offered for transportation or transported in another mode of transport; or

(2) An ORM–D material, unless it is offered or intended for transportation, or transported, by aircraft.

§ 172.201 [Amended]

13. In § 172.201, in paragraph (a)(3), the word "subpart" would be changed to "subchapter" and paragraphs (a)(4)(i) and (a)(4)(ii) would be removed.

14. In § 172.202, paragraphs (a), (b), (c) and (d) would be revised and paragraph (f) would be added to read as follows:

§ 172.202 Description of hazardous material on shipping papers.

(a) The shipping description of a hazardous material on the shipping paper must include:

(1) The proper shipping name prescribed for the material in Column 2 of the § 172.101 Table;

(2) The hazard class prescribed for the material as shown in Column 3 of the § 172.101 Table:

(i) For Class 3, the description "Combustible liquid" must appear in parentheses immediately following the hazard class if the material is classed, under § 173.120(b) of this subchapter, as a combustible liquid.

(ii) Class names, IMO class and division numbers or subsidiary hazard classes may be entered in parentheses following the numerical hazard class;

(3) The identification number prescribed for the material as shown in Column 4 of the § 172.101 Table;

(4) The packing group, if any, prescribed for the material in Column 5 of the § 172.101 Table preceded by the letters "PG"; and

(5) Except for empty packagings, the total quantity (by weight, volume or as otherwise appropriate) of the hazardous material covered by the description.

(b) Except as provided in this subpart, the basic description specified in paragraphs (a) (1), (2), (3) and (4) of this section must be shown in sequence with no additional information interspersed. For example: "Gasoline, 3, UN1203, PG II".

(c) The total quantity of the material covered by one description must appear before or after, or both before and after, the description required and authorized by this subpart. The type of packaging and destination marks may be entered in any appropriate manner before or after the basic description. Abbreviations may be used to express units of measurement and types of packagings.

(d) Technical and chemical group names may be entered in parentheses between the proper shipping name and hazard class. An appropriate modifier, such as "contains" or "containing," may be used. For example: "Flammable liquids, n.o.s. (contains Xylene and Benzene), 3, UN1993, PG II".

* * * * *

(f) *Technical names.* If the material is described by an n.o.s. entry in the § 172.101 Table, the technical name of the material shall be entered in parentheses immediately following the proper shipping name. For example, "Corrosive liquids, n.o.s. (Caprylyl chloride), 8, UN1760, PG II". If the material is a mixture of two or more hazardous materials, the names of at least two components most predominately contributing to the hazard or hazards of the mixture shall be entered in parentheses. For example, "Flammable liquids, corrosive, n.o.s. (Methyl alcohol, Potassium hydroxide), 3, UN2924, PG II". The provisions of this paragraph do not apply:

(1) If the n.o.s. description for the material (other than a mixture of hazardous materials of different classes meeting the definitions of more than one hazard class) contains the name of the chemical element or group which is primarily responsible for the material being included in the hazard class indicated. For example: "Mercury compounds, solid, n.o.s., 6.1, UN2025, PG II".

(2) If the n.o.s. description for the material (which is a mixture of hazardous materials of different classes meeting the definition of more than one hazard class) contains the name of the chemical element or group responsible for the material meeting the definition of one of these classes. In such cases, only the technical name of the component that is not appropriately identified in the n.o.s description shall be entered in parentheses. For example: "Carbamate pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23 °C* (contains Xylene), 3(6.1), UN2758, PG II".

15. In § 172.203, paragraphs (i)(3) and (l) would be removed and paragraphs (c), (i)(2), (j) and (k)(4) would be revised to read as follows:

§ 172.203 Additional description requirements.

* * * * *

(c) *Hazardous substances.* (1) If the proper shipping name for a material that is a hazardous substance does not identify the constituents making it a hazardous substance, the name or names of such hazardous substance constituents as shown in the § 172.101 Table shall be entered in association with the basic description.

(2) The letters "RQ" shall be entered on the shipping paper either before or after, or both before and after, the basic description required by § 172.202 for each hazardous substance (see definition in § 171.8). For example: "RQ, Allyl alcohol, 3, UN1098, PG I"; or "Benzonitrile, 6.1, UN2224, PG II, RQ".

* * * * *

(i) * * *

(2) The entry "skin corrosive only" must be included in association with the basic description to authorize "under deck" stowage for Corrosive liquids, n.o.s. and Corrosive solids, n.o.s. that meet only the corrosion to skin criteria of § 173.136(a) of this subchapter.

(j) *Dangerous when wet material.* The words "Dangerous when wet" shall be entered on the shipping paper in association with the basic description for a material which meets the definition of a dangerous when wet material in § 173.124(c) of this subchapter.

(k) * * *

(4) For Division 2.3 materials and for materials which meet the definition for Division 6.1, Packing Group I, and which

are toxic by inhalation under the criteria specified in § 173.133(a)(2) of this subchapter, the words "Poison-Inhalation Hazard" shall be entered on the shipping paper in association with the shipping description. However, the word "Poison" need not be repeated if it otherwise appears in the shipping description.

Subpart D—Marking

16. Section 172.301 would be revised to read as follows:

§ 172.301 General marking requirements for non-bulk packagings.

(a) *Proper shipping name and identification number.* Except as otherwise provided by this subchapter, each person who offers for transportation a hazardous material in a non-bulk packaging shall mark the package with the proper shipping name and identification number (preceded by "UN" or "NA" as appropriate) for the material as shown in the § 172.101 Table. The proper shipping name for a hazardous waste (as defined in § 171.8 of this subchapter) is not required to include the word "waste" if the package bears the EPA marking prescribed by 40 CFR 262.32.

(b) *Technical names.* (1) In addition to the marking required by paragraph (a) of this section, a package containing a hazardous material, which is described by an n.o.s. entry in the § 172.101 Table, must be marked with the technical name of the material, in parentheses immediately following (or below) the proper shipping name. For example: "Corrosive liquids, n.o.s. (Caprylyl chloride), UN1760".

(2) If the material is a mixture of two or more hazardous materials, the names of at least two components most predominately contributing to the hazard or hazards of the mixture shall be entered in parentheses. For example: "Flammable liquids, corrosive, n.o.s. (Methanol, Potassium hydroxide), UN2924".

(3) The provisions of this paragraph do not apply:

(i) If the "n.o.s." description for the material (other than a mixture of hazardous materials of different classes meeting the definition of more than one hazard class) contains the name of the chemical element or group which is primarily responsible for the material being included in the hazard class indicated. For example: "Mercury compounds, solid, n.o.s., UN2025".

(ii) If the "n.o.s." description for the material (which is a mixture of hazardous materials of different classes meeting the definition of more than one hazard class) contains the name of the chemical element or group responsible for the material meeting the definition of one of these classes. In such cases, only the technical name of the component that is not appropriately identified in the "n.o.s." description is required to be entered in parentheses. For example: "Carbamate pesticides, liquid, flammable, toxic, n.o.s. (Xylene), UN2758".

(c) *Exemption packagings.* The outside of each package authorized by an exemption must be plainly and durably marked "DOT-E" followed by the exemption number assigned.

(d) *Previously marked packagings.* A package which has been previously marked as required for the material it contains and on which the marking remains legible, need not be remarked. (For empty packagings, see § 173.29 of this subchapter.)

(e) *Marking exceptions.* Identification numbers are not required on packages which contain only the following materials:

(1) Limited quantities as defined in § 171.8 of this subchapter;

(2) ORM-D materials.

17. Section 172.302 would be revised to read as follows:

§ 172.302 General marking requirements for bulk packagings.

(a) *Identification numbers.* Except as otherwise provided in this subpart, no person may offer for transportation or transport a hazardous material in a bulk packaging unless the packaging is marked as required by § 172.332 with the identification number specified for the material in the § 172.101 Table—

(1) On each side and each end, if the packaging has a capacity of 1,000 gallons (3,785.4 liters) or more, or

(2) On two opposing sides, if the packaging has a capacity of less than 1,000 gallons (3,785.4 liters).

(b) *Size of markings.* Except as otherwise provided, markings required by this subpart on bulk packagings must have a width of at least 6.0mm (0.24 inch) and a height of—

(1) 100mm (3.9 inches) for rail cars;

(2) 75mm (3.0 inches) for cargo tanks, and

(3) 50mm (2.0 inches) for other bulk packages.

(c) *Exemption packagings.* The outside of each bulk package used under the terms of an exemption must be plainly and durably marked "DOT-E" followed by the exemption number assigned.

(d) *Technical names.* Each bulk packaging marked with a proper shipping name which contains the term "n.o.s.", must be marked with the technical name of the hazardous material, in the manner prescribed in § 172.301(b).

(e) Each bulk packaging marked with a proper shipping name, common name or identification number as required by this subpart must remain marked when it is emptied unless it is—

(1) Sufficiently cleaned of residue and purged of vapors to remove any potential hazard; or

(2) Refilled, with a material requiring different markings or no markings, to such an extent that any residue remaining in the packaging is no longer hazardous.

(f) Specific requirements for marking portable tanks, cargo tanks, tank cars and multi-unit tank car tanks are prescribed in §§ 172.326, 172.328 and 172.330.

18. A new § 172.303 would be added to read as follows:

§ 172.303 Prohibited marking.

(a) No person may offer for transportation or transport a package which is marked with the proper shipping name or identification number of a hazardous material unless the package contains the identified hazardous material or its residue.

(b) This section does not apply to transportation of a package (or packaging) in a transport vehicle or freight container if the package (or packaging) is not visible during transportation and is loaded by the shipper and unloaded by the shipper or consignee.

19. Section 172.306 would be revised to read as follows:

§ 172.306 Consignee's or consignor's name and address.

Each person who offers for transportation a hazardous material in a non-bulk package shall mark that package with the name and address of the consignor or consignee except when the package is—

(a) Transported by highway only and will not be transferred from one motor carrier to another; or

(b) Part of a carload lot, truckload lot or freight container load, and the entire contents of the rail car, truck or freight container are shipped from one consignor to one consignee.

20. In § 172.308, paragraph (a)(3) would be added to read as follows:

§ 172.308 Authorized abbreviations.

(a) * * *

(3) Abbreviations which appear as authorized descriptions in Column 2 of

the § 172.101 Table are authorized. For example, "PCB", "2, 4–D", etc.

21. Section 172.312 would be revised to read as follows:

§ 172.312 Liquid hazardous materials in non-bulk packagings.

(a) Except as provided in this section, each non-bulk package having inner packagings containing liquid hazardous materials must be:

(1) Packed with closures upward, and

(2) Legibly marked with package orientation markings as specified in ISO Standard R780–1968 on two opposite vertical sides of the package with the arrows pointing in the correct upright direction.

(b) Except as otherwise prescribed in Part 173 of this subchapter, cylinders of liquefied compressed gas are not required to be marked "THIS SIDE UP" or "THIS END UP."

(c) Arrows for purposes other than indicating proper package orientation may not be displayed on a package containing a liquid hazardous material.

(d) Except when offered or intended for transportation by aircraft, packages containing flammable liquids in inner packagings of one liter or less prepared in accordance with § 173.150 (b) or (c) of this subchapter are excepted from the requirements of paragraph (a) of this section.

(e) When offered or intended for transportation by aircraft, packages containing flammable liquids in inner packagings of one liter or less prepared in accordance with § 173.150 (b) or (c) of this subchapter are excepted from the requirements of paragraph (a) of this section when packed with sufficient absorption material between the inner and outer packagings to completely absorb the liquid contents.

22. A new § 172.313 would be added to read as follows:

§ 172.313 Poisonous hazardous materials.

(a) For Division 2.3 materials and for poisonous liquids subject to the "Poison-Inhalation Hazard" shipping paper description of § 172.203(k)(4), the package containing the material shall be marked "Inhalation Hazard" in association with the required label(s) or placard(s). (See § 172.302(b) for size of markings on bulk packages.) Bulk packagings must be marked on two opposing sides.

(b) Each non-bulk plastic outer packaging used as a single or composite packaging for materials meeting the definition of Division 6.1 (in § 173.132 of this subchapter) shall be permanently marked, by embossment or other durable means, with the word "POISON" in letters at least 6.3mm (0.25 inch) in height. Additional text or symbols related to hazard warning may be included in the marking. The marking shall be located within 150mm (5.9 inches) of the closure of the packaging.

23. In § 172.316, paragraph (a) and the beginning of the first sentence in paragraph (c) preceding the word "certification" would be revised to read as follows:

§ 172.316 Packagings containing material classed as ORM-D or ORM-E.

(a) Each non-bulk packaging containing a material classed as ORM–D or ORM–E must be marked on at least one side or end with the appropriate ORM designation immediately following or below the proper shipping name of the material. The appropriate ORM designation must be placed within a rectangle that is approximately 6.3mm (0.25 inch) larger on each side than the designation. The appropriate designation for each ORM must be:

(1) ORM–D–AIR for an ORM–D that is prepared for air shipment and packaged in accordance with the provisions of § 173.27 of this subchapter.

(2) ORM–D for an ORM–D other than as described in paragraph (a)(1) of this section.

(3) ORM–E for an ORM–E.

* * * * *

(c) The marking ORM–D or ORM–E is the * * *.

24. Section 172.324 would be revised to read as follows:

§ 172.324 Hazardous substances in non-bulk packagings.

(a) If the proper shipping name for a material that is a hazardous substance does not identify the constituents making it a hazardous substance, the name or names of the hazardous substance constituents as shown in the § 172.101 Table shall be entered in association with the proper shipping name on each non-bulk packaging.

(b) The letters "RQ" shall be displayed in association with the proper shipping name on a non-bulk packaging that contains a hazardous substance.

25. Section 172.326 would be revised to read as follows:

§ 172.326 Portable tanks.

(a) *Shipping name.* No person may offer for transportation or transport a portable tank containing a hazardous material unless it is legibly marked on two opposing sides with the proper shipping name specified for the material in § 172.101.

(b) [Reserved]

(c) *Owner's name.* The name of the owner or of the lessee, if applicable, must be displayed on a portable tank that contains a hazardous material.

(d) If the identification number marking required by § 172.302(a) is not visible, a transport vehicle or freight container used to transport a portable tank must be marked on each side and each end as required by § 172.332 with the identification number specified for the material in the § 172.101 Table.

26. Section 172.328 would be revised to read as follows:

§ 172.328 Cargo tanks.

(a) *Providing and affixing identification numbers.* Unless a cargo tank is already marked with the identification numbers required by this subpart, the identification numbers must be provided or affixed as follows:

(1) A person who offers a motor carrier a hazardous material for transportation in a cargo tank shall provide the motor carrier the identification numbers on placards or shall affix orange panels containing the required identification numbers, prior to or at the time the material is offered for transportation.

(2) A person who offers a cargo tank containing a hazardous material for transportation shall affix the required identification numbers on panels or placards prior to or at the time the cargo tank is offered for transportation.

(b) [Reserved]

(c) *Required markings; Gases.* Except for certain nurse tanks which must be marked as specified in § 173.315(m) of this subchapter, each cargo tank transporting a Class 2 material subject to this subchapter must be marked, in lettering no less than 50mm (1.97 inches), on each side and each end with—

(1) The proper shipping name specified for the gas in the § 172.101 Table, or

(2) An appropriate common name for the material such as "Refrigerant Gas".

(d) *QT/NQT markings.* Each MC 330 and MC 331 cargo tank must be marked near the specification plate, in letters no less than 50mm (1.97 inches) in height, with—

(1) "QT", if the cargo tank is constructed of quenched and tempered steel, or

(2) "NQT", if the cargo tank is constructed of other than quenched and tempered steel.

27. In § 172.330, the phrase "or § 172.102 (when authorized)" would be removed from paragraphs (c)(2) and (e), the phrase "or § 172.102" would be

removed from paragraph (c)(1), paragraph (f) would be removed and paragraphs (a) and (b) would be revised to read as follows:

§ 172.330 Tank cars and multi-unit tank car tanks.

(a) *Shipping name.* No person may offer for transportation or transport a hazardous material—

(1) In a tank car unless the tank car is marked on each side, when required by § 172.102 or Part 173 of this subchapter, with the proper shipping name specified for the material in the § 172.101 Table or with a common name authorized in this subchapter for the material such as "Refrigerant Gas".

(2) In a multi-unit tank car tank, unless the tank is marked on two opposing sides, in letters and numerals no less than 50mm (2.0 inches) high, with the proper shipping name specified for the material in the § 172.101 Table or with a common name authorized for the material in this subchapter.

(b) A motor vehicle or rail car used to transport a multi-unit tank car tank containing a hazardous material must be marked on each side and each end, as required by § 172.332, with the identification number specified for the material in the § 172.101 Table.

* * * * *

28. In § 172.332, paragraph (c)(3) would be revised to read as follows:

§ 172.332 Identification number markings.

* * * * *

(c) * * *

(3) An identification number may be displayed only on a placard corresponding to the primary hazard class of the hazardous material.

* * * * *

§ 172.334 [Amended]

29. In § 172.334 the phrase "POISON GAS", would be removed from paragraph (a), and the phrase "or § 172.102 (when authorized)" would be removed from paragraph (b).

Subpart E—Labeling

30. Section 172.400 would be revised to read as follows:

§ 172.400 General labeling requirements.

(a) Each person who offers for transportation or transports a hazardous material in any of the following packages or containment devices, shall label the package or containment device with labels specified for the material in the § 172.101 Table and in this subpart:

(1) A non-bulk package;

(2) A portable tank of less than 1000 gallons (3,785.4 liters) capacity;

(3) A DOT Specification 106 or 110 multi-unit tank car tank; and

(4) An overpack, freight container or unit load device, of no greater than 640 cubic feet (18.1 cubic meters) capacity, which contains a package for which labels are required.

(b) Labeling is required for a hazardous material which meets one or more hazard class definitions, in accordance with Column 6 of the § 172.101 Table and the following table:

Hazard class division reference (§)	Label name	Label design or section
1.1	EXPLOSIVE 1.1	172.411
1.2	EXPLOSIVE 1.2	172.411
1.3	EXPLOSIVE 1.3	172.411
1.4	EXPLOSIVE 1.4	172.411
1.5	EXPLOSIVE 1.5	172.411
2.1	FLAMMABLE GAS	172.417
2.2	NON-FLAMMABLE GAS.	172.415
2.3	POISON GAS	172.416
3 (flammable liquid)	FLAMMABLE LIQUID	172.419
3 (combustible liquid)	(none)	
4.1	FLAMMABLE SOLID	172.420
4.2	SPONTANEOUSLY COMBUSTIBLE.	172.422
4.3	DANGEROUS WHEN WET	172.423
5.1	OXIDIZER	172.426
5.2	ORGANIC PEROXIDE	172.427
6.1 (Packing Groups I and II).	POISON	172.430
6.1 (Packing Group III)	KEEP AWAY FROM FOOD.	172.431
6.2 (international)	INFECTIOUS SUBSTANCE.	172.432
6.2 (domestic)	ETIOLOGIC AGENT	172.444
7 (see § 172.403)	RADIOACTIVE WHITE-I.	172.436
7	RADIOACTIVE YELLOW-II.	172.438
7	RADIOACTIVE YELLOW-III.	172.440
7 (empty packages, see § 173.427).	EMPTY	172.450
8	CORROSIVE	172.442
9	CLASS 9	172.446
ORM-D	(None)	
ORM-E	(None)	

30. A new § 172.400a would be added to read as follows:

§ 172.400a Exceptions from labeling.

(a) Notwithstanding the provisions of § 172.400, a label is not required on—

(1) A cylinder containing a compressed gas that is—

(i) Not poisonous;

(ii) Carried by a private or contract motor carrier;

(iii) Not overpacked; and

(iv) Durably and legibly marked in accordance with CGA Pamphlet C-7, Appendix A.

(2) A package or unit of military explosives (including ammunition) shipped by or on behalf of the DOD when in—

(i) Freight containerload, carload or truckload shipments, if loaded and unloaded by the shipper or DOD; or

(ii) Unitized or palletized break-bulk shipments by cargo vessel under charter to DOD if at least one required label is displayed on each unitized or palletized load.

(3) A package containing a hazardous material other than ammunition that is—

(i) Loaded and unloaded under the supervision of DOD personnel, and

(ii) Escorted by DOD personnel in a separate vehicle.

(4) A compressed gas cylinder permanently mounted in or on a transport vehicle.

(5) A freight container, an aircraft unit load device or a portable tank, which—

(i) Is placarded in accordance with Subpart F of this part, or

(ii) Conforms to paragraph (a)(3) or (b)(3) of § 172.512.

(6) An overpack or unit load device in or on which each different required label on packages of hazardous materials is visible.

(7) A package of low specific activity radioactive material, when transported under § 173.425(b) of this subchapter.

(8) A package containing Division 1.4, Compatibility Group S, material.

(b) Notwithstanding the provisions of § 172.402 of this subpart, a subsidiary hazard label corresponding to Class 3, Packing Group III or Class 8, Packing Group III (that is, a FLAMMABLE or CORROSIVE label, respectively) is not required to be displayed on a package containing a multiple hazard material, unless the package is offered or intended for transportation by aircraft or vessel.

(c) Certain exceptions to labeling requirements are provided for small quantities and limited quantities in applicable sections in Part 173 of this subchapter.

§ 172.401 [Amended]

32. In § 172.401, paragraph (d) would be removed.

33. Section 172.402 would be revised to read as follows:

§ 172.402 Additional labeling requirements.

(a) *Subsidiary hazard labels.* Notwithstanding the subsidiary labels specified in Column 6 of the § 172.101 Table, each package containing a material, other than a Class 2 material, meeting the definition of more than one hazard class shall be labeled with subsidiary hazard labels in accordance with the following table:

SUBSIDIARY HAZARD LABELS

Subsidiary hazard level (packing group)	Subsidiary hazard (class or division)						
	3	4.1	4.2	4.3	5.1	6.1	8
I	X	X	X	X	X	X	X
II	X	X	X	X	X	X	X
III	(1)	(3)	X	X	(3)	(3)	(2)

X Required for all modes.
[1] Required for transport by vessel only.
[2] Required for transport by aircraft only.
[3] Not required.

(b) *CARGO AIRCRAFT ONLY label.* Each person who offers for transportation or transports by aircraft a package containing a hazardous material which is authorized on cargo aircraft only shall label the package with a CARGO AIRCRAFT ONLY label specified in § 172.448.

34. Section 172.405 would be revised to read as follows:

§ 172.405 Authorized label modifications.

(a) For Classes 2, 3, 4, 5, 6, or 8, text indicating a hazard (for example FLAMMABLE LIQUID) is not required on a label when—

(1) The label otherwise conforms to the provisions of this subpart, and

(2) The hazard class or division number is displayed in the lower corner of a label corresponding to the primary hazard class of the material.

(b) Except as provided in paragraph (a) of this section, class and division numbers are not required on labels for Classes 2, 3, 4, 5, 6, 7, or 8. Class and division numbers should not be displayed on subsidiary hazard labels.

35. Section 172.406 would be revised to read as follows:

§ 172.406 Placement of labels.

(a) *General.* (1) Except as provided in paragraphs (b) and (e) of this section, each label required by this subpart must—

(i) Be printed on or affixed to a surface (other than the bottom) of the package or containment device containing the hazardous material; and

(ii) Be located on the same surface of the package as the proper shipping name marking, if the package dimensions are adequate.

(2) Except as provided in paragraph (e) of this section, duplicate labeling is not required on a package or containment device (such as to satisfy redundant labeling requirements).

(b) *Exceptions.* A label may be printed on or placed on a securely affixed tag, or may be affixed by other suitable means to:

(1) A package that contains no radioactive material and which has dimensions less than those of the required label;

(2) A compressed gas cylinder; and

(3) A package which has such an irregular surface that a label cannot be satisfactorily affixed.

(c) *Placement of multiple labels.* When primary and subsidiary hazard labels are required, they must be displayed next to each other. Placement conforms to this requirement if labels are within 150 mm (5.9 inches) of one another.

(d) Each label must be printed on or affixed to a background of contrasting color, or must have a dotted or solid line outer border.

(e) *Duplicate labeling.* When labeling is required, duplicate labels must be displayed on at least two sides or two ends (other than the bottom) of—

(1) Each non-bulk package or overpack having a volume of 64 cubic feet (1.8 cubic meters) or more;

(2) Each non-bulk package containing a radioactive material;

(3) Each DOT 106 or 110 multi-unit tank car tank. Labels must be displayed on each end;

(4) Each portable tank of less than 1000 gallons (3,785.4 liters) capacity; and

(5) Each freight container or aircraft unit load device having a volume of 64 cubic feet (1.8 cubic meters) or more, but less than 640 cubic feet (18.1 cubic meters). One of each required label must be displayed on or near the closure.

(f) *Obscured labels.* A label must be clearly visible and may not be obscured by markings or attachments.

36. Section 172.407 would be revised to read as follows:

§ 172.407 Label specifications.

(a) *Durability.* Each label, whether printed on or affixed to a package, must be durable and weather resistant. A label on a package must be able to withstand, without deterioration or a substantial change in color, a 30-day exposure to conditions incident to transportation that reasonably could be expected to be encountered by the labeled package.

(b) *Design.* (1) Except for size and color, the printing, inner border, and symbol on each label must be as shown in §§ 172.411 through 172.448, as appropriate.

(2) The dotted line border shown on each label is not part of the label specification, except when used as an alternative for the solid line outer border to meet the requirements of § 172.406(d).

(c) *Size.* (1) Each diamond (square-on-point) label prescribed in this subpart must be at least 100 mm (3.9 inches) on each side with each side having a solid line inner border 5.0 to 6.3 mm (0.20 to 0.25 inches) from the edge.

(2) The CARGO AIRCRAFT ONLY label must be a rectangle measuring at least 110 mm (4.3 inches) in height by 120 mm (4.7 inches) in width. The word "DANGER" must be shown in letters measuring at least 12.7 mm (0.5 inches) in height.

(3) Except as otherwise provided in this subpart, the hazard class number, or division number, as appropriate, must be at least 6.3 mm (0.25 inches) and not greater than 12.7 mm (0.5 inches).

(4) When text indicating a hazard is displayed on a label, the label name must be shown in letters measuring at least 7.6mm (0.30 inches) in height except that—

(i) For a SPONTANEOUSLY COMBUSTIBLE or DANGEROUS WHEN WET label, respectively, the words "Spontaneously" and "When Wet" must be shown in letters measuring at least 5.1mm (0.2 inches) in height.

(ii) For a KEEP AWAY FROM FOOD label, the word "HARMFUL" must be shown in letters measuring at least 7.6 mm (0.3 inches) in height.

(5) The symbol on each label must be proportionate in size to that shown in the appropriate section of this subpart.

(d) *Color.* (1) The background color on each label must be as prescribed in §§ 172.411 through 172.448, as appropriate.

(2) The symbol, text, numbers, and border must be shown in black on a label except that—

(i) White may be used on a label with a one color background of green, red or blue; and

(ii) White must be used for the text and class number for the CORROSIVE label.

(3) Black and any color on a label must be able to withstand, without substantial change, a 72-hour fadeometer test (for a description of equipment designed for this purpose, see ASTM G 23–69 (1975) or G 26–70).

(4) A color on a label, upon visual examination, must fall within the color tolerances displayed on the appropriate Label and Placard Color Tolerance Chart.

(i) A set of six charts, dated January 1973, for comparison with labels and placards surfaced with paint, lacquer, enamel, plastic or other opaque coatings, or ink, may be purchased from the Office of Hazardous Materials Transportation, U.S. Department of Transportation, Washington, DC 20590, for $5.50.

(ii) A set of six charts, dated January 1974, for comparison with labels and placards surfaced with ink, may be similarly purchased for $12.50.

(iii) Both sets of charts may be inspected in Room 8426, Nassif Building, 400 7th Street SW., Washington, DC 20590, or any of the offices of the Federal Highway Administration listed at 49 CFR 390.40.

(iv) The technical specifications for each chart are set forth in Appendix A to this part.

(5) The specified label color must extend to the edge of the label in the area designated on each label except the CORROSIVE, RADIOACTIVE YELLOW-II AND RADIOACTIVE YELLOW-III labels on which the color must extend only to the inner border.

(e) *Form identification.* A label may contain form identification information, including the name of its maker, provided that information is printed outside the solid line inner border in no larger than 10-point type.

(f) *Exceptions.* A label conforming to specifications in the UN Recommendations may be used in place of a corresponding label which conforms to the requirements of this subpart.

37. Section 172.411 would be revised to read as follows:

§ 172.411 EXPLOSIVE 1.1, 1.2, 1.3, 1.4 and 1.5 labels.

(a) Except for size and color, the EXPLOSIVE 1.1, EXPLOSIVE 1.2 and EXPLOSIVE 1.3 labels must be as follows:

(b) In addition to complying with § 172.407, the background color on the EXPLOSIVE 1.1, EXPLOSIVE 1.2 and EXPLOSIVE 1.3 labels must be orange. The "**" shall be replaced with the appropriate division number and compatibility group. The compatibility group letter must be the same size as the division number and must be shown as a capitalized Roman letter.

(c) Except for size and color, the EXPLOSIVE 1.4 and EXPLOSIVE 1.5 labels must be as follows:

EXPLOSIVE 1.4:

EXPLOSIVE 1.5:

(d) In addition to complying with § 172.407, the background color on the EXPLOSIVE 1.4 and EXPLOSIVE 1.5 labels must be orange. The "*" shall be replaced with the appropriate compatibility group. The compatibility group letter must be shown as a capitalized Roman letter measuring at least 12.7mm (0.5 inche) in height. Division numerals must measure at least 30mm (1.2 inche) in height and at least 5mm (0.2 inches) in width.

38. Section 172.415 would be revised to read as follows:

§ 172.415 NON-FLAMMABLE GAS label.

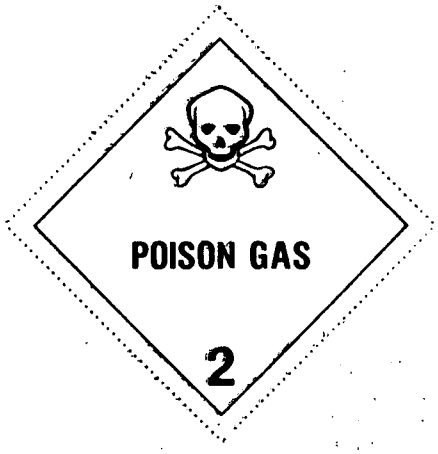
(a) Except for size and color, the NON-FLAMMABLE GAS label must be as follows:

(b) In addition to complying with § 172.407, the background color on the NON-FLAMMABLE GAS label must be green.

39. Section 172.416 would be revised to read as follows:

§ 172.416 POISON GAS label.

(a) Except for size and color, the POISON GAS label must be as follows:



(b) In addition to complying with § 172.407, the background color on the POISON GAS label must be white.

40. Section 172.417 would be revised to read as follows:

§ 172.417 FLAMMABLE GAS label.

(a) Except for size and color, the FLAMMABLE GAS label must be as follows:

(b) In addition to complying with § 172.407, the background color on the FLAMMABLE GAS label must be red.

41. Section 172.419 would be revised to read as follows:

§ 172.419 FLAMMABLE LIQUID label.

(a) Except for size and color the FLAMMABLE LIQUID label must be as follows:

(b) In addition to complying with § 172.407, the background color on the FLAMMABLE LIQUID label must be red.

42. Section 172.420 would be revised to read as follows:

§ 172.420 FLAMMABLE SOLID label.

(a) Except for size and color, the FLAMMABLE SOLID label must be as follows:

(b) In addition to complying with § 172.407, the background on the FLAMMABLE SOLID label must be white with vertical red stripes equally spaced on each side of a red stripe placed in the center of the label. The red vertical stripes must be spaced so that, visually, they appear equal in width to the white spaces between them. The symbol (flame) and text (when used) must be overprinted. The text "FLAMMABLE SOLID" may be placed in a white rectangle.

43. Section 172.422 would be revised to read as follows:

§ 172.422 SPONTANEOUSLY COMBUSTIBLE label.

(a) Except for size and color, the SPONTANEOUSLY COMBUSTIBLE label must be as follows:

(b) In addition to complying with § 172.407, the background color on the lower half of the SPONTANEOUSLY COMBUSTIBLE label must be red and the upper half must be white.

44. Section 172.423 would be revised to read as follows:

§ 172.423 DANGEROUS WHEN WET label.

(a) Except for size and color, the DANGEROUS WHEN WET label must be as follows:

(b) In addition to complying with § 172.407, the background color on the DANGEROUS WHEN WET label must be blue.

45. Section 172.426 would be revised as follows:

§ 172.426 OXIDIZER label.

(a) Except for size and color, the OXIDIZER label must be as follows:

(b) In addition to complying with § 172.407, the background color on the OXIDIZER label must be yellow.

46. Section 172.427 would be revised to read as follows:

§ 172.427 ORGANIC PEROXIDE label.

(a) Except for size and color, the ORGANIC PEROXIDE label must be as follows:

(b) In addition to complying with § 172.407, the background color on the ORGANIC PEROXIDE label must be yellow.

47. Section 172.430 would be revised as follows:

§ 172.430 POISON label.

(a) Except for size and color, the POISON label must be as follows:

(b) In addition to complying with § 172.407, the background on the POISON label must be white.

48. A new § 172.431 would be added to read as follows:

§ 172.431 KEEP AWAY FROM FOOD label.

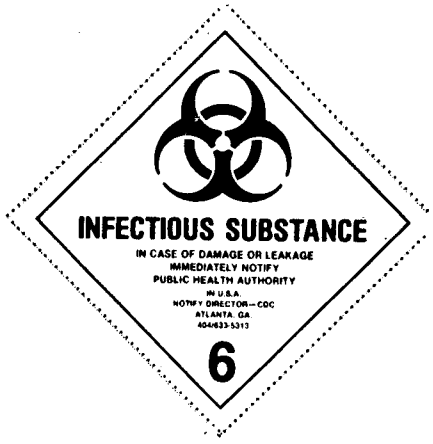
(a) Except for size and color, the KEEP AWAY FROM FOOD label must be as follows:

(b) In addition to complying with § 172.407, the background on the KEEP AWAY FROM FOOD label must be white.

49. Section 172.432 would be revised to read as follows:

§ 172.432 INFECTIOUS SUBSTANCE label.

(a) Except for size and color, the INFECTIOUS SUBSTANCE label must be as follows:



(b) In addition to complying with § 172.407, the background on the INFECTIOUS SUBSTANCE label must be white.

50. Section 172.436 would be revised to read as follows:

§ 172.436 RADIOACTIVE WHITE-I label.

(a) Except for size and color, the RADIOACTIVE WHITE-I label must be as follows:

(b) In addition to complying with § 172.407, the background on the RADIOACTIVE WHITE-I label must be white. The printing and symbol must be black, except for the "I" which must be red.

51. Section 172.438 would be revised to read as follows:

§ 172.438 RADIOACTIVE YELLOW-II label.

(a) Except for size and color, the RADIOACTIVE YELLOW-II must be as follows:

(b) In addition to complying with § 172.407, the background color on the RADIOACTIVE YELLOW-II label must be yellow in the top half and white in the lower half. The printing and symbol must be black, except for the "II" which must be red.

52. Section 172.440 would be revised to read as follows:

§ 172.440 RADIOACTIVE YELLOW-III label.

(a) Except for size and color, the RADIOACTIVE YELLOW-III label must be as follows:

(b) In addition to compying with § 172.407, the background color on the RADIOACTIVE YELLOW-III label must be yellow in the top half and white in the lower half. The printing and symbol must be black, except for the "III" which must be red.

53. Section 172.442 would be revised to read as follows:

§ 172.442 CORROSIVE label.

(a) Except for size and color, the CORROSIVE label must be as follows:

(b) In addition to complying with § 172.407, the background on the CORROSIVE label must be white in the top half and black in the lower half.

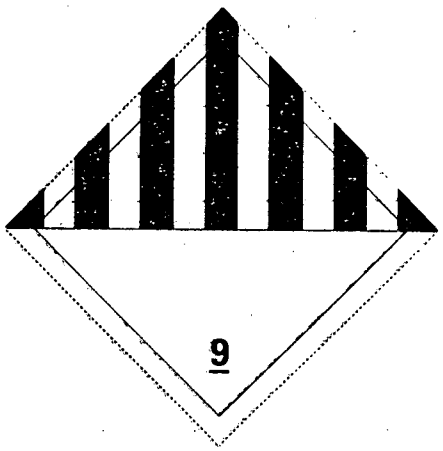
§ 172.444 [Amended]

54. In § 172.444, paragraphs (b) and (c) would be removed.

55. Section 172.446 would be added to read as follows:

§ 172.446 CLASS 9 label.

(a) Except for size and color, the CLASS 9 (miscellaneous hazardous materials) label must be as follows:



(b) In addition to complying with § 172.407, the background on the CLASS 9 label must be white with seven black vertical stripes on the top half. The black vertical stripes must be spaced, so that, visually, they appear equal in width to the six white spaces between them. The lower half of the label must be white with the class number 9 underlined and centered at the bottom.

56. Section 172.448 would be revised to read as follows:

§ 172.448 CARGO AIRCRAFT ONLY label.

(a) Except for size and color, the CARGO AIRCRAFT ONLY label must be as follows:

(b) The CARGO AIRCRAFT ONLY label must be black on an orange background.

Subpart F—Placarding

57. Section 172.500 would be revised to read as follows:

§ 172.500 Applicability of placarding requirements.

(a) Each person who offers for transportation or transports any hazardous material subject to this subchapter shall comply with the applicable placarding requirements of this subpart.

(b) This subpart does not apply to—

(1) Infectious substances;

(2) Hazardous materials classed as ORM-D or E or Class 9;

(3) Hazardous materials authorized by this subchapter to be offered for transportation as Limited Quantities when identified as such on shipping papers in accordance with § 172.203(b);

(4) Hazardous materials which are packaged as small quantities under the provisions of § 173.4 of this subchapter; and

(5) Combustible liquids in non-bulk packagings.

58. Section 172.502 would be revised to read as follows:

§ 172.502 Prohibited and permissive placarding.

(a) *Prohibited placarding.* Except as provided in paragraph (c) of this section, no person may affix or display on a bulk packaging, freight container, unit load device, motor vehicle or rail car any placard described in this subpart unless—

(1) The material being offered or transported is a hazardous material, and

(2) The placard represents a hazard of the hazardous material being offered or transported.

(b) No person may affix or display any sign or other device on a bulk packaging, freight container, unit load device, motor vehicle or rail car, that by its color, design, shape or content could be confused with any placard prescribed in this subpart.

(c) *Exceptions.* The restrictions in paragraphs (a) and (b) of this section do not apply to a bulk packaging, freight container, unit load device, motor vehicle or rail car which is placarded in conformance with the TDG Regulations, the IMDG Code or the UN Recommendations.

(d) The restrictions of paragraph (b) of this section do not apply to the display of an identification number on a white square-on-point configuration in accordance with § 172.336(b).

(e) *Permissive placarding.* Placards may be displayed for a hazardous material in accordance with this subpart even when not required if—

(1) The material and placards conform to the requirements of paragraph (a) of this section, and

(2) Neither an identification number, hazard class nor division number is displayed on a placard corresponding to a subsidiary hazard of the hazardous material.

59. Section 172.504 would be revised to read as follows:

§ 172.504 General placarding requirements.

(a) *General.* Except as otherwise provided in this subchapter, each bulk packaging, freight container, unit load device, motor vehicle or rail car containing any quantity of a hazardous material must be placarded on each side and each end with the type of placards specified in Tables 1 and 2 of this section and in accordance with other placarding requirements of this subpart, including the specifications for the placards named in the tables and described in detail in §§ 172.519 through 172.558.

(b) *DANGEROUS placard.* A freight container, unit load device, motor vehicle or rail car which contains non-bulk packagings with two or more categories of hazardous materials that require different placards specified in Table 2 may be placarded with DANGEROUS placards instead of the separate placarding specified for each of the materials in Table 2. However, when 5,000 pounds (2,267.9 Kg) or more of one category of material is loaded therein at one loading facility, the placard specified in Table 2 for that category must be applied.

(c) *Exception for less than 1,000 pounds.* For non-bulk packagings, when the gross weight of all hazardous materials covered by Table 2 is less than 1000 pounds (453.6 Kg), no placard is required on a freight container, unit load device, motor vehicle, or rail car for the Table 2 materials. This paragraph does not apply to transportation by aircraft or vessel, or to transport vehicles, freight containers and unit load devices subject to § 172.505.

(d) *Exception for empty non-bulk packages.* A non-bulk packaging that contains only the residue of a hazardous material covered by Table 2 of paragraph (e) of this section need not be included in determining placarding requirements.

(e) *Placarding tables.* Placards are specified for hazardous materials in accordance with the following tables:

TABLE 1

Category of material (hazard class or division number and additional description, as appropriate)	Placard name	Placard design section reference(§)
1.1	EXPLOSIVES 1.1	172.522
1.2	EXPLOSIVES 1.2	172.522
1.3	EXPLOSIVES 1.3	172.522
2.3 (poisonous gas)	POISON GAS	172.540
4.3	DANGEROUS WHEN WET.	172.548
6.1 (PG I inhalation hazard only).	POISON	172.554
7 (Radioactive Yellow III label only).	RADIOACTIVE	172.556

TABLE 2

Category of material (Hazard class or division number and additional description, as appropriate)	Placard name	Placard design section reference (§)
1.4	EXPLOSIVES 1.4	172.523
1.5	EXPLOSIVES 1.5	172.524
2.1 (flammable gas)	FLAMMABLE GAS	172.532
2.2 (nonflammable gas).	NON-FLAMMABLE GAS.	172.528
3 (flammable liquid)	FLAMMABLE	172.542
3 (combustible liquid)	COMBUSTIBLE	172.544
4.1	FLAMMABLE SOLID	172.546
4.2	SPONTANEOUSLY COMBUSTIBLE.	172.547
5.1	OXIDIZER	172.550
5.2	ORGANIC PEROXIDE	172.552
6.1 (PG I or II, other than PG I inhalation hazard).	POISON	172.554
6.1 (PG III)	(None)	
6.2	(None)	
8	CORROSIVE	172.558
9	(None)	
ORM-D	(None)	
ORM-E	(None)	

(f) *Additional placarding exceptions.*

(1) An EXPLOSIVES 1.2 placard is not required for Division 1.2 explosives on a motor vehicle, rail car, freight container or unit load device which contains Division 1.1 explosives, and is placarded with EXPLOSIVES 1.1 placards, as required.

(2) A FLAMMABLE placard may be used in place of a COMBUSTIBLE placard on a cargo tank, a portable tank or a compartmented tank car which contains both flammable and combustible liquids.

(3) A NON-FLAMMABLE GAS placard is not required on a motor vehicle which contains non-flammable gas if the motor vehicle also contains flammable gas and it is placarded with FLAMMABLE GAS placards, as required.

(4) An EXPLOSIVES 1.4, 1.5 or OXIDIZER placard is not required for Division 1.4, 1.5 or 5.1 materials on a freight container, unit load device, motor vehicle or rail car which also contains Division 1.1 or 1.2 explosives and is placarded with EXPLOSIVES 1.1 or 1.2 placards, as required.

(5) For transportation by motor vehicle or rail car only, an OXIDIZER placard is not required for Division 5.1 materials on a motor vehicle, rail car or freight container which also contains Division 1.5 explosives and is placarded with EXPLOSIVES 1.5 placards, as required.

(6) An EXPLOSIVES 1.4 placard is not required for Division 1.4, Compatibility Group S, materials.

60. Section 172.505 would be revised to read as follows:

§ 172.505 Multiple placarding.

(a) Each transport vehicle, portable tank, freight container or unit load device that contains a poisonous material subject to the "Poison-Inhalation Hazard" shipping description of § 172.203(k)(4) shall be placarded with POISON or POISON GAS placards, as appropriate, on each side and each end, in addition to the placards required by § 172.504. This requirement does not apply to non-bulk packages having primary receptacles of one liter (1.06 quarts) or less. Duplication of the POISON or POISON GAS placard is not required.

(b) Each transport vehicle, portable tank or freight container that contains 1,000 pounds (453.6 kg) or more gross weight of fissile or low specific activity uranium hexafluoride shall be placarded with RADIOACTIVE and CORROSIVE placards on each side and each end.

(c) Each transport vehicle, portable tank, freight container or unit load device that contains a material which has a subsidiary hazard of being dangerous when wet, as defined in § 173.124, shall be placarded with DANGEROUS WHEN WET placards, on each side and each end, in addition to the placards required by § 172.504.

§ 172.508 [Amended]

61. In paragraph (a) of § 172.508, the phrase "§§ 172.502 and 172.504 as these sections pertain to placarding the rail car" would be revised to read "this subpart."

62. In § 172.510 paragraph (b) would be removed and reserved and paragraph (a) would be revised to read as follows:

§ 172.510 Special placarding provisions: Rail.

(a) *Square background required.* (1) Each EXPLOSIVES 1.1 and EXPLOSIVES 1.2 placard affixed to a rail car must be placed on a square background as described in § 172.527.

(2) Each POISON, POISON-RESIDUE, POISON GAS, AND POISON GAS-RESIDUE placard affixed to a rail car containing a material which meets Division 2.3 or 6.1, Packing Group I, criteria for inhalation toxicity (see § 173.133 of this subchapter) must be placed on a square background as described in § 172.527.

(b) [Reserved]

* * * * *

§ 172.512 [Amended]

63. In § 172.512 the following changes would be made:

a. In paragraph (a)(1), the section reference "§ 172.504(c)(1)" would be revised to read "§ 172.504(c)".

b. In paragraph (a)(2), the phrase "paragraphs (c)(1) and (c)(2)" would be revised to read "paragraph (c)".

c. In paragraphs (b)(1) and (b)(2), the section references "§ 172.406(e)(3)" and "§ 172.406(e)", respectively, would be revised to read "Subpart E of this part, including § 172.406(e)."

64. Section 172.514 would be revised to read as follows:

§ 172.514 Bulk packagings other than tank cars.

(a) Each person who offers for transportation a bulk packaging, other than a tank car, which contains a hazardous material shall affix the placards specified for the material in §§ 172.504 and 172.505. However, a portable tank having a capacity of less than 1,000 gallons (3,785.4 liters)—

(1) May be placarded on only two opposite sides; or

(2) May be labeled instead of placarded, in accordance with Subpart E of this part.

(b) Each bulk packaging, other than a tank car, that is required to be placarded when it contains a hazardous material, must remain placarded when it is emptied, unless it is—

(1) Sufficiently cleaned of residue and purged of vapors to remove any potential hazard; or

(2) Refilled, with a material requiring different placards or no placards, to such an extent that any residue remaining in the packaging is no longer hazardous.

65. In § 172.516, the introductory text of paragraph (c) would be revised and subparagraph (c)(7) would be added to read as follows:

§ 172.516 Visibility and display of placards.

* * * * *

(c) Each placard on a transport vehicle, bulk packaging, freight container or aircraft unit load device must—

* * * * *

(7) Be affixed to a background of contrasting color, or must have a dotted or solid line outer border which contrasts with the background color.

* * * * *

66. Section 172.519 would be revised to read as follows:

§ 172.519 General specifications for placards.

(a) *Strength and durability.* Placards must conform to the following:

(1) A placard may be made of any plastic, metal or other material capable of withstanding, without deterioration or a substantial reduction in effectiveness, a 30-day exposure to open weather conditions.

(2) Each placard must be able to pass a 60 p.s.i. Mullen test.

(3) A placard made of tagboard must be at least equal to that designated commercially as white tagboard. Tagboard must have a weight of at least 175 pounds (90.7 kg) per ream of 24 by 36-inch (61.0 by 91.4 cm) sheets, waterproofing materials included.

(4) Reflective or retroreflective materials may be used on a placard if the prescribed colors, strength and durability are maintained.

(b) *Design.* (1) Except as provided in § 172.332, each placard must be as described in this subpart, and except for size and color, the printing, inner border and symbol must be as shown in §§ 172.521 through 172.558, as appropriate.

(2) The dotted line border shown on each placard is not part of the placard specification. However, a dotted or solid line outer border may be used when needed to indicate the full size of a placard that is part of a larger format or is on a background of a non-contrasting color.

(3) For Classes 2, 3, 4, 5, 6 or 8, text indicating a hazard (for example, "FLAMMABLE") is not required.

(4) For a placard corresponding to the primary hazard class of a material, the hazard class or division number must be displayed in the lower corner of the placard. However, no hazard class or division number may be displayed on a placard corresponding to a subsidiary hazard of the material.

(c) *Size.* (1) Each placard prescribed in this subpart must measure 273mm (10.75 inches) on each side and must have a solid line inner border 12.7mm (0.5 inches) from each edge.

(2) Except as otherwise provided in this subpart, the hazard class or division number, as appropriate, must be shown in numerals measuring at least 41.0mm (1.62 inches) in height.

(3) Except as otherwise provided in this subpart, when text indicating a hazard is displayed on a placard, the printing must be in letters measuring at least 45.0mm (1.77 inches) in height.

(d) *Color.* (1) The background color, symbol, text, numerals and inner border on a placard must be as specified in §§ 172.521 through 172.558, as appropriate.

(2) Black and any color on a placard must be able to withstand, without substantial change—

(i) A 72-hour fadeometer test (for a description of equipment designed for this purpose, see ASTM G 23–69 (1975) or ASTM G 26–70); and

(ii) A 30-day exposure to open weather.

(3) Upon visual examination, a color on a placard must fall within the color tolerances displayed on the appropriate Office of Hazardous Materials Label and Placard Color Tolerance Chart (see § 172.407(d)(4)).

(4) The placard color must extend to the inner border and may extend to the edge of the placard in the area designated on each placard except the color on the CORROSIVE and RADIOACTIVE placards (black and yellow, respectively) must extend only to the inner border.

(e) *Form identification.* A placard may contain form identification infor-mation, including the name of its maker, provided that information is printed outside of the solid line inner border in no larger than 10-point type.

(f) *Exceptions.* A placard conforming to specifications in the UN Recommendations or the TDG Regulations may be used in place of a corresponding placard which conforms to the requirements of this subpart.

67. Section 172.522 would be revised to read as follows:

§ 172.522 EXPLOSIVES 1.1, EXPLOSIVES 1.2 and EXPLOSIVES 1.3 placards.

(a) Except for size and color, the EXPLOSIVES 1.1, EXPLOSIVES 1.2 and

EXPLOSIVES 1.3 placards must be as follows:

(b) In addition to complying with § 172.519, the background color on the EXPLOSIVES 1.1, EXPLOSIVES 1.2 and EXPLOSIVES 1.3 placards must be orange. The "*" shall be replaced with the appropriate division number. The symbol, text, numerals and inner border must be black.

68. Section 172.523 would be revised to read as follows:

§ 172.523 EXPLOSIVES 1.4 placard.

(a) Except for size and color, the EXPLOSIVES 1.4 placard must be as follows:

(b) In addition to complying with § 172.519, the background color on the EXPLOSIVES 1.4 placard must be orange. The division numeral, 1.4, must measure at least 63.5mm (2.5 inches) in height. The text, numerals and inner border must be black.

69. Section 172.524 would be revised to read as follows:

§ 172.524 EXPLOSIVES 1.5 placard.

(a) Except for size and color, the EXPLOSIVES 1.5 placard must be as follows:

(b) In addition to complying with § 172.519, the background color on the EXPLOSIVES 1.5 placard must be orange. The division numeral, 1.5, must measure at least 63.5mm (2.5 inches) in height. The text, numerals and inner border must be black.

70. Section 172.528 would be revised to read as follows:

§ 172.528 NON-FLAMMABLE GAS placard.

(a) Except for size and color, the NON-FLAMMABLE GAS placard must be as follows:

(b) In addition to complying with § 172.519, the background color on the NON-FLAMMABLE GAS placard must be green. The letters in both words must be at least 38.1mm (1.5 inches) high. The symbol, text, class number and inner border must be white.

§ 172.530 [Removed]

71. Section 172.530 would be removed.

72. Section 172.532 would be revised to read as follows:

§ 172.532 FLAMMABLE GAS placard.

(a) Except for size and color, the FLAMMABLE GAS placard must be as follows:

(b) In addition to complying with § 172.519, the background color on the FLAMMABLE GAS placard must be red. The symbol, text, class number and inner border must be white.

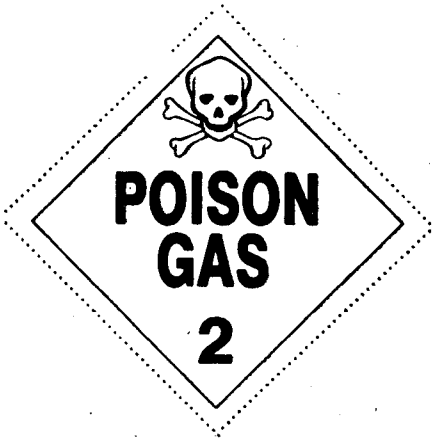
§ 172.536 [Removed]

73. Section 172.536 would be removed.

74. Section 172.540 would be revised to read as follows:

§ 172.540 POISON GAS placard.

(a) Except for size and color, the POISON GAS placard must be as follows:



(b) In addition to complying with § 172.519, the background color on the

POISON GAS placard must be white. The symbol, text, class number and inner border must be black.

75. Section 172.542 would be revised to read as follows:

§ 172.542 FLAMMABLE placard.

(a) Except for size and color, the FLAMMABLE placard must be as follows:

(b) In addition to complying with § 172.519, the background color on the FLAMMABLE placard must be red. The symbol, text, class number and inner border must be white.

(c) The word "GASOLINE" may be used in place of the word "FLAMMABLE" on a placard that is displayed on a cargo tank or a portable tank being used to transport gasoline by highway. The word "GASOLINE" must be shown in white.

76. Section 172.544 would be revised to read as follows:

§ 172.544 COMBUSTIBLE placard.

(a) Except for size and color, the COMBUSTIBLE placard must be as follows:

(b) In addition to complying with § 172.519, the background color on the COMBUSTIBLE placard must be red. The symbol, text, class number and inner border must be white. On a COMBUSTIBLE placard with a white bottom as prescribed by § 172.332(c)(4), the class number must be red or black.

(c) The words "FUEL OIL" may be used in place of the word "COMBUSTIBLE" on a placard that is displayed on a cargo tank or portable tank being used to transport by highway, fuel oil that is not classed as a flammable liquid. The words "FUEL OIL" must be shown in white.

77. Section 172.546 would be revised to read as follows:

§ 172.546 FLAMMABLE SOLID placard.

(a) Except for size and color, the FLAMMABLE SOLID placard must be as follows:

(b) In addition to complying with § 172.519, the background on the FLAMMABLE SOLID placard must be white with seven vertical red stripes. The stripes must be equally spaced, with one red stripe placed in the center of the label. Each red stripe and each white space between two red stripes must be 25.4mm (1.0 inches) wide. The letters in the word "SOLID" must be at least 38.1mm (1.5 inches) high. The symbol, text, class number and inner border must be black.

78. A new § 172.547 would be added to read as follows:

§ 172.547 SPONTANEOUSLY COMBUSTIBLE placard.

(a) Except for size and color, the SPONTANEOUSLY COMBUSTIBLE placard must be as follows:

(b) In addition to complying with § 172.519, the background color on the SPONTANEOUSLY COMBUSTIBLE placard must be red in the lower half and white in upper half. The letters in the word "SPONTANEOUSLY" must be at least 25.0 mm (0.98 inches) high. The symbol, text, class number and inner border must be black.

79. Section 172.548 would be revised to read as follows:

§ 172.548 DANGEROUS WHEN WET placard.

(a) Except for size and color, the DANGEROUS WHEN WET placard must be as follows:

(b) In addition to complying with § 172.519, the background color on the DANGEROUS WHEN WET placard must be blue. The letters in the words "WHEN WET" must be at least 25.4mm (1.0 inches) high. The symbol, text, class number and inner border must be white.

80. Section 172.550 would be revised to read as follows:

§ 172.550 OXIDIZER placard.

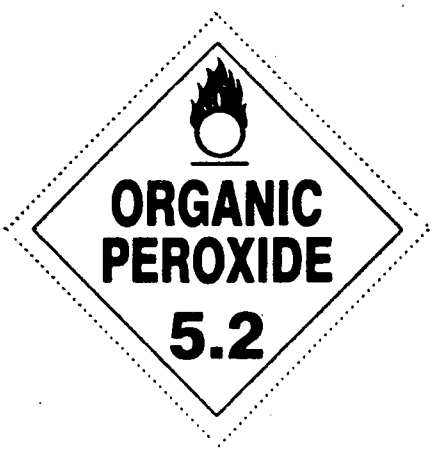
(a) Except for size and color, the OXIDIZER placard must be as follows:

(b) In addition to complying with § 172.519, the background color on the OXIDIZER placard must be yellow. The symbol, text, division number and inner border must be black.

81. Section 172.552 would be revised to read as follows:

§ 172.552 ORGANIC PEROXIDE placard.

(a) Except for size and color, the ORGANIC PEROXIDE placard must be as follows:



(b) In addition to complying with § 172.519, the background color on the ORGANIC PEROXIDE placard must be yellow. The symbol, text, division number and inner border must be black.

82. Section 172.554 would be revised to read as follows:

§ 172.554 POISON placard.

(a) Except for size and color, the POISON placard must be as follows:

(b) In addition to complying with § 172.519, the background on the POISON placard must be white. The symbol, text, class number and inner border must be black.

83. Section 172.556 would be revised to read as follows:

§ 172.556 RADIOACTIVE placard.

(a) Except for size and color, the RADIOACTIVE placard must be as follows:

(b) In addition to complying with § 172.519, the background color on the RADIOACTIVE placard must be white in the lower portion with a yellow triangle in the upper portion. The base of the yellow triangle must be 28.6mm ±5mm (1.13 inches ±0.20 inches) above the placard horizontal center line. The symbol, text, class number and inner border must be black.

84. Section 172.558 would be revised to read as follows:

§ 172.558 CORROSIVE placard.

(a) Except for size and color, the CORROSIVE placard must be as follows:

(b) In addition to complying with § 172.519, the background color on the CORROSIVE placard must be black in the lower portion with a white triangle in the upper portion. The base of the white triangle must be 38.1mm ±5mm (1.5 inches) above the placard horizontal center line. The text and class number must be white. The symbol and inner border must be black.

Appendix B—[Reserved]

85. Appendix B to Part 172 would be removed and reserved.

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

86. The authority citation for Part 173 would continue to read as follows:

Authority: 49 U.S.C. 1803, 1804, 1805, 1806, 1807, 1808; 49 CFR Part 1, unless otherwise noted.

87. In § 173.1, paragraph (d) would be added as follows:

§ 173.1 Purpose and scope.

* * * * *

(d) In general, the Hazardous Materials Regulations (HMR) contained in this subchapter are based on the Recommendations of the United Nations Committee of Experts on the Transport of Dangerous Goods and are consistent with international regulations issued by the International Civil Aviation Organization and the International Maritime Organization. However, the HMR are not consistent in all respects with the UN Recommendations, the ICAO Technical Instructions or the IMDG Code, and compliance with the HMR will not guarantee acceptance by regulatory bodies outside of the United States.

88. Section 173.2 would be revised as follows:

§ 173.2 Hazardous materials classes and index to hazard class definitions.

The hazard class of a hazardous material is indicated either by its class (or division) number, its class name, or by the letters "ORM-D" or "ORM-E". The following table lists class numbers, division numbers, class or division names and those sections of this subchapter which contain definitions for classifying hazardous materials, including forbidden materials.

Class number	Division number (if any)	Name of class or division	49 CFR reference for definitions
None		Forbidden materials	173.21
None		Forbidden explosives	173.53
1	1.1	Explosives (with a mass explosion hazard).	173.50
1	1.2	Explosives (with a projection hazard).	173.50
1	1.3	Explosives (with predominately a fire hazard).	173.50
1	1.4	Explosives (with no significant blast hazard).	173.50
1	1.5	Very insensitive explosives; blasting agents.	173.50
2	2.1	Flammable gas	173.115
2	2.2	Non-flammable compressed gas.	173.115
2	2.3	Poisonous gas	173.115
3		Flammable and combustible liquids.	173.120
4	4.1	Flammable solids	173.124
4	4.2	Spontaneously combustible materials.	173.124
4	4.3	Dangerous when wet materials.	173.124
5	5.1	Oxidizers	173.128
5	5.2	Organic peroxides	173.128
6	6.1	Poisonous materials	173.132
6	6.1	Irritating materials	173.381
6	6.2	Etiologic or infectious substances.	173.134
7		Radioactive materials	173.403
8		Corrosive materials	173.136
9		Miscellaneous hazardous materials.	173.140
None		Other regulated materials: ORM-D and ORM-E.	173.144

89. Section 173.2a would be added to read as follows:

§ 173.2a Classification of a material having more than one hazard.

(a) *Materials not subject to precedence of hazard ranking.* (1) A material with more than one hazard which is specifically identified and classed in the § 172.101 Table is not subject to the precedence of hazard ranking of this section (unless that material does not pose the hazard of the class assigned in the § 172.101 Table, and is not preceded, in Column 1 of the Table, with a "+" symbol).

(2) *Class 1.* An explosive shall be classed and approved in accordance with Subpart C of this part.

(3) *Division 5.2.* A material meeting the definition in § 173.128 for organic peroxide shall be classed in Division 5.2.

(4) *Division 6.2.* A material meeting the definition in § 173.134 for etiologic agent shall be classed in Division 6.2.

(5) *Class 7-limited quantities.* A limited quantity radioactive material that meets the definitions for more than one hazard class shall be classed in accordance with § 173.421–2.

(b) *Precedence of hazard.* Except as otherwise provided in this section, a material meeting the definitions for more than one hazard class as defined in this part shall be classed according to the highest applicable hazard class of the following hazard classes, which are listed in descending order of hazard:

(1) Class 7 (radioactive materials, except limited quantities).

(2) Division 2.3 (poisonous gases).

(3) Division 2.1 (flammable gases).

(4) Division 2.2 (nonflammable gases).

(5) Class 3 (flammable liquids and combustible liquids) or 8 (corrosive materials) or Division 4.1 (flammable solids), 4.2 (spontaneously combustible materials), 4.3 (dangerous when wet materials), 5.1 (oxidizers) or 6.1 (poisonous liquids or solids). Materials meeting more than one of these hazards shall be assigned a hazard class in accordance with paragraph (c) of this section.

(6) Class 9 (miscellaneous hazardous materials).

(7) ORM-E (hazardous wastes and hazardous substances).

(c) *Precedence of hazard table.* A material meeting the definitions for more than one hazard class for Classes 3 and 8 and Divisions 4.1, 4.2, 4.3, 5.1 and 6.1 shall be assigned a hazard class based on the following table:

PRECEDENCE OF HAZARD TABLE

[Hazard Class and Packing Group]

Hazard Class and packing group	4.2	4.3	5.1 * I	5.1 * II	5.1 * III	6.1 I(i)	6.1 I(d)	6.1 I(o)	6.1 II	6.1 III	8 I(l)	8 I(s)	8 II(l)	8 II(s)	8 III(l)	8 III(s)
3 I			3	3	3	6.1	3	3	3	3	3	(1)	3	(1)	3	(1)
3 II			3	3	3	6.1	3	3	3	3	8	(1)	3	(1)	3	(1)
3 III			3	3	3	6.1	6.1	6.1	6.1	(2)3	8	(1)	8	(1)	3	(1)
4.1 I *	4.2	4.3	4.1	4.1	4.1	6.1	6.1	4.1	4.1	4.1	(1)	4.1	(1)	4.1	(1)	4.1
4.1 II **	4.2	4.3	4.1	4.1	4.1	6.1	6.1	6.1	4.1	4.1	(1)	4.1	(1)	4.1	(1)	4.1
4.1 III **	4.2	4.3	4.1	4.1	4.1	6.1	6.1	6.1	6.1	4.1	(1)	8	(1)	8	(1)	4.1
4.2 I		4.2	4.2	4.2	4.2	6.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
4.2 II		4.2	4.2	4.2	4.2	6.1	6.1	4.2	4.2	4.2	4.2	8	4.2	4.2	4.2	4.2
4.2 III		4.3	5.1	5.1	4.2	6.1	6.1	6.1	6.1	4.2	8	8	8	8	4.2	4.2
4.3 I			5.1	4.3	4.3	6.1	6.1	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
4.3 II			5.1	4.3	4.3	6.1	6.1	4.3	4.3	4.3	8	8	4.3	4.3	4.3	4.3

PRECEDENCE OF HAZARD TABLE—Continued

[Hazard Class and Packing Group]

Hazard Class and packing group	4.2	4.3	5.1 * I	5.1 * II	5.1 * III	6.1 I(i)	6.1 I(d)	6.1 I(o)	6.1 II	6.1 III	8 I(l)	8 I(s)	8 II(l)	8 II(s)	8 III(l)	8 III(s)
4.3 III			5.1	5.1	4.3	6.1	6.1	6.1	6.1	4.3	8	8	8	8	4.3	4.3
5.1 I *						6.1	6.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
5.1 II *						6.1	6.1	5.1	5.1	5.1	8	8	5.1	5.1	5.1	5.1
5.1 III *						6.1	6.1	6.1	6.1	5.1	8	8	8	8	5.1	5.1
6.1 I(i)											6.1	6.1	6.1	6.1	6.1	6.1
6.1 I(d)											8	6.1	6.1	6.1	6.1	6.1
6.1 I(o)											8	6.1	6.1	6.1	6.1	6.1
6.1 II(i)											8	6.1	6.1	6.1	6.1	6.1
6.1 II(d)											8	6.1	8	6.1	6.1	6.1
6.1 II(o)											8	8	8	6.1	6.1	6.1
6.1 III											8	8	8	8	8	8

(i) Inhalation Toxicity
(d) Dermal Toxicity
(o) Oral Toxicity
(l) Liquid
(s) Solid
[1] An impossible combination.
[2] For pesticides only, 6.1.
* There are no established criteria for determining packing groups for liquids in Division 5.1. Degree of hazard for these materials should be assessed by analogy with similar materials identified in the § 172.101 Table, allocating the materials to Packing Group I (high hazard), Packing Group II (medium hazard) or Packing Group III (low hazard).
** Materials in Division 4.1 other than self-reactive materials and water wetted explosives.

90. Section 173.3 would be revised to read as follows:

§ 173.3 Packaging and exceptions.

(a) The packaging of hazardous materials for transportation by air, highway, rail, or water must be as specified in this part. Methods of manufacture, packing, and storage of hazardous materials, that affect safety in transportation, must be open to inspection by a duly authorized representative of the initial carrier or of the Department. Methods of manufacture and related functions necessary for completion of a DOT specification or UN standard packaging must be open to inspection by a representative of the Department.

(b) The regulations setting forth packaging requirements for a specific material apply to all modes of transportation unless otherwise stated, or unless exceptions from packaging requirements are authorized.

(c) *Salvage drums.* Packages of hazardous materials that are damaged or found leaking and hazardous materials that have spilled or leaked may be placed in a metal or plastic removable head salvage drum that is compatible with the lading and shipped for repackaging or disposal under the following conditions:

(1) The drum must be a UN 1A2, 1B2, 1N2 or 1H2 drum marked for the performance standard commensurate with the packing group of the material it is to contain. Maximum capacity of the drum may not exceed 450 liters (118.88 gallons).

(2) Each drum shall be provided when necessary with sufficient cushioning and absorption material to prevent excessive movement of the damaged package and to absorb all free liquid. All cushioning and absorbent material used in the drum must be compatible with the hazardous material.

(3) Each drum shall be marked with the proper shipping name of the material inside the defective packaging and the name and address of the consignee. In addition, the drum shall be marked "Salvage Drum".

(4) Each drum shall be labeled as prescribed for the respective material.

(5) The shipper shall prepare shipping papers in accordance with Subpart C of Part 172 of this subchapter.

(6) The overpack requirement of § 173.25 does not apply to drums used in accordance with this paragraph.

91. Section 173.3a would be revised to read as follows:

§ 173.3a Poisonous liquids which are toxic by inhalation.

Notwithstanding the requirements of Part 172 and Part 173 of this subchapter, any hazardous material that meets the definition of Class 6, Division 6.1, Packing Group I, for inhalation toxicity (See §§ 173.132 and 173.133) shall be packaged in non-bulk packagings in accordance with § 173.226 or § 173.227, as appropriate, or in bulk packagings in accordance with § 173.244 and shall be described on shipping papers, marked, labeled, and placarded in accordance with §§ 172.203(k)(4), 172.313(a), 172.402(a)(5) and 172.505(a), of this subchapter respectively.

92. Section 173.4 would be revised to read as follows:

§ 173.4 Exceptions for small quantities.

(a) Small quantities of Class 3, Division 4.1, Division 5.1, Division 5.2, Class 8, and Division 6.1 materials, and Class 7 materials that also meet the definition of one or more of these hazard classes, are not subject to any other requirements of this subchapter if:

(1) The maximum quantity of material per inner receptacle is limited to:

(i) Thirty (30) milliliters for authorized liquids, other than Division 6.1, Packing Group I, materials;

(ii) Thirty (30) grams for authorized solids, other than Division 6.1, Packing Group I, materials;

(iii) One (1) gram for authorized materials classed as Division 6.1, Packing Group I; and

(iv) An activity level not exceeding that specified in §§ 173.421, 173.422 or 173.424, as appropriate, for a package containing a Class 7 material.

(2) With the exception of temperature sensing devices, each inner receptacle:

(i) Is not liquid-full at 55 °C (131 °F), and

(ii) Is constructed of plastic having a minimum thickness of no less than 0.008-inch (0.2 millimeters), or earthenware, glass, or metal;

(3) Each inner receptacle with a removable closure has its closure held securely in place with wire, tape, or other positive means;

(4) Unless equivalent cushioning and absorbent material surrounds the inside packaging, each inner receptacle is securely packed in an inside packaging with cushioning and absorbent material that:

(i) Will not react chemically with the material, and

(ii) Is capable of absorbing the entire contents (if a liquid) of the receptacle;

(5) The inside packaging is securely packed in a strong outside packaging;

(6) The completed package, as demonstrated by prototype testing, is capable of sustaining—

(i) Each of the following free drops made from a height of 1.8 meters (5.91 feet) directly onto a solid unyielding surface without breakage or leakage from any inner receptacle and without a substantial reduction in the effectiveness of the package:

(A) One drop flat on bottom;

(B) One drop flat on top;

(C) One drop flat on the long side;

(D) One drop flat on the short side; and

(E) One drop on a corner at the junction of three intersecting edges; and

(ii) A compressive load in pounds, determined by multiplying by two the maximum horizontal cross section of the package (in square inches) in the position in which it would normally be transported, without a substantial reduction in effectiveness; the load shall be applied continuously during a period of 24 hours, uniformly against the top and bottom of the package which is in the position in which it is intended to be normally transported.

Note.—Each of the above tests may be performed on a different, but identical, package; i.e., all tests need not be performed on the same package.

(7) Placement of the material in the package or packing different materials in the package does not result in a violation of § 173.21;

(8) The gross weight of the completed package does not exceed 65 pounds (29.5 kg);

(9) The shipper certifies conformance with this section by marking the outside of the package with the statement: "This package conforms to conditions and limitations specified in 49 CFR 173.4";

(10) The package is not opened or otherwise altered until it is no longer in commerce; and

(11) The package, unless specifically approved by the Director, OHMT, does not contain a material assigned any of the following identification numbers associated with the hazardous materials description in the § 172.101 Table:

1092	1491	2626
1131	1504	2813
1259	1749	2845
1380	1798	2924
1397	1831	2925
1419	1873	9191
1422	2031	9193
1432	2032	
1433	2495	

(b) A package containing a Class 7 material also must conform with the requirements of § 173.421 (a) through (e), or § 173.422 (a) through (f), as appropriate. After May 2, 1987, a package containing a Class 7 material may not be offered for transportation aboard a passenger-carrying aircraft unless that material is intended for use in, or incident to, research, medical diagnosis or treatment.

§ 173.5 [Amended]

93. In § 173.5, quantity references would be revised as follows:

a. In paragraph (a)(2), the reference to "1 gallon" would be changed to "4 liters (4.2 quarts)" and the reference to "25 pounds" would be changed to "15 kg (33.1 pounds)".

b. In paragraph (a)(3) the reference to "100 pounds" would be changed to "50 kg (110.2 pounds)".

c. In paragraph (b) the reference to "55 gallons" would be changed to "220 L (58.1 gallons)".

§ 173.6 [Removed]

94. Section 173.6 would be removed.

§ 173.7 [Amended]

95. In § 173.7, in paragraphs (b) and (d), the word "radioactive" would be changed to "Class 7".

96. Section 173.9 would be revised as follows:

§ 173.9 Cars, truck bodies or trailers containing lading which has been fumigated or treated with Class 3, Division 2.1, 2.3, or 6.1 materials.

(a) Delivery for transportation by railcarrier of any rail car, freight container, truck body, or trailer containing lading which has been fumigated or treated with Class 3 or Division 2.1 materials is prohibited until 48 hours have elapsed after such fumigation or treatment, or until the railcar, freight container, truck body or trailer has been ventilated so as to remove any danger of fire or explosion due to the presence of flammable vapors.

(b) Any railcar, freight container, truck body or trailer containing lading which has been fumigated or treated with Division 6.1 or Division 2.3 materials, such as carbolic acid, liquid or solid, chlorpicrin, hydrocyanic acid, methyl bromide, etc., must be placarded on each door or near thereto with the FUMIGANT placard prescribed in paragraph (c) of this section.

(c) *FUMIGANT placard.* The FUMIGANT placard must consist of red letters on a white background which is at least 25 cm (9.8 inches) wide and 20 cm (7.9 inches) high. It must contain the name of the fumigant and other text as follows:

DANGER

The lading of this car has been
FUMIGATED or
TREATED
with

(Name of poisonous liquid, solid, or gas)

BEFORE UNLOADING, open both doors and DO NOT ENTER until car is free of gas. REMOVE ALL POISONOUS MATERIAL before release of empty car.

(d) See § 174.615 of this subchapter for requirements for cleaning fumigated cars.

§ 173.10 [Amended]

97. In § 173.10, terms would be revised as follows:

a. In paragraph (a) the term "flammable gas" would be changed to "Division 2.1 material" and the term "flammable liquid" would be changed to "Class 3 material".

b. In paragraph (b) the term "compressed gas" would be changed to "Class 2 material".

c. In paragraph (e), the phrase "Flammable liquids and flammable gases" would be changed to "Class 3 and Division 2.1 materials."

98. Section 173.12 would be revised to read as follows:

§ 173.12 Exceptions for shipment of waste materials.

(a) *Open head drums.* If a hazardous material that is a hazardous waste is required by this subchapter to be shipped in a closed head drum (i.e., a drum with a 7.0 cm (2.75 inches) or less bung opening) and the hazardous waste contains solids or semisolids that make its placement in a closed head drum impracticable, an equivalent (except for closure) open head drum may be used for the hazardous waste.

(b) *"Lab packs".* Waste materials classed as Class or Division 3, 4.1, 4.2, 4.3, 5.1, 6.1, 8, 9 or ORM-E are excepted

from the specification packaging requirements of this subchapter if packaged in combination packagings in accordance with this paragraph and transported for disposal or recovery by private or contract motor carrier by highway only. In addition, a generic description from the § 172.101 Table may be used in place of specific chemical names, when two or more chemically compatible waste materials in the same hazard class are packaged in the same outside packaging. Additional packaging requirements are as follows:

(1) The outer packaging must be a 1A2 or 1B2 metal drum, a 1D plywood drum, a 1G fiber drum or a 1H2 plastic drum;

(2) The inner packagings must be either glass not exceeding 4 liters (4.2 quarts) rated capacity or metal or plastic not exceeding 20 liters (21.1 quarts) rated capacity;

(3) Each outer packaging may contain only one class of hazardous material;

(4) Inner packagings containing liquid must be surrounded by a chemically compatible absorbent material in sufficient quantity to absorb the total liquid contents;

(5) Gross weight of the complete package may not exceed 205 kg (451.9 lbs); and

(6) Materials meeting the definition of Division 6.1, Packing Group I, or Division 4.2, Packing Group I, may not be packaged or described under the provisions of this paragraph.

(c) *Reuse of packagings.* A previously used packaging may be reused for the shipment of hazardous waste to designated facilities, not subject to the reconditioning and reuse provisions contained in § 173.28 and Part 178 of this subchapter, under the following conditions:

(1) Except as authorized by this paragraph, the waste must be packaged in accordance with this part and offered for transportation in accordance with the requirements of this subchapter.

(2) Transportation is performed by highway only.

(3) A package is not offered for transportation less than 24 hours after it is finally closed for transportation, and each package is inspected for leakage and is found to be free from leaks immediately prior to being offered for transportation.

(4) Each package is loaded by the shipper and unloaded by the consignee, unless the motor carrier is a private or contract carrier.

(5) The packaging may be used only once under this paragraph and may not be used again for shipment of hazardous materials except in accordance with § 173.28.

Subpart B—Preparation of Hazardous Materials for Transportation

99. Section 173.21 would be revised as follows:

§ 173.21 Forbidden materials and packages.

Unless otherwise provided in this subchapter, the offering for transportation or transportation of the following is forbidden:

(a) Materials that are designated "Forbidden" in Column 3 of the § 172.101 Table.

(b) Forbidden explosives as defined in § 173.51 of this part.

(c) Electrical devices which are likely to create sparks or generate a dangerous quantity of heat, unless packaged in a manner which precludes such an occurrence.

(d) For carriage by aircraft, any package which has a magnetic field of more than 0.00525 gauss measured at 15 feet (4.6 meters) from any surface of the package.

(e) A material in the same packaging, freight container, or overpack with another material, the mixing of which is likely to cause a dangerous evolution of heat, flammable or poisonous gases or vapors, or to produce corrosive materials.

(f) A package containing a material which is likely to decompose or polymerize at a temperature of 130 °F (54.4 °C) or less with an evolution of a dangerous quantity of heat or gas unless stabilized or inhibited in a manner that will preclude such evolution, subject to the following:

(1) For organic peroxides, the decomposition temperature of 130 °F (54.4 °C) does not apply if the controlled temperature requirements specified in Chapter 11 of the UN Recommendations are applied to determine when refrigeration is required, and refrigeration is approved as required by paragraph (f)(3) of this section.

(2) The determination of whether a material is forbidden under this paragraph may be made by using the Self Accelerating Decomposition Temperature (SADT) Test published by the Organic Peroxide Producers Safety Division (OPPSD).

(3) Refrigeration may be used as a means of stabilization only when approved by the Director, OHMT. For status of approvals previously issued by the Bureau of Explosives, see § 171.19 of this subchapter.

(g) Packages which give off a flammable gas or vapor, released from a material not otherwise subject to this subchapter, likely to create a flammable mixture with air in a transport vehicle.

(h) Packages containing materials (other than those classed as explosive) which will detonate in a fire.

(1) For purposes of this paragraph, "detonate" means an explosion in which the shock wave travels through the material at a speed greater than the speed of sound.

(2) When tests are required to evaluate the performance of a package under the provisions of this paragraph, the testing must be done or approved by one of the agencies specified in § 173.86.

(i) Except as noted in paragraph (i)(1) of this section, a package containing a cigarette lighter, or other similar device, equipped with an ignition element and containing fuel.

(1) A cigarette lighter or similar device subject to this paragraph may be shipped if the design of the device and its packaging has been examined by the Bureau of Explosives and specifically approved by the Director, OHMT. The examination of cigarette lighters and similar devices containing gaseous fuel will include scrutiny for compliance with § 173.308 of this part. For the status of approvals previously issued by the Bureau of Explosives, see § 171.19 of this subchapter.

100. In § 173.23, paragraph (a) would be revised as follows:

§ 173.23 Previously authorized packaging.

(a) When the regulations specify a packaging with a specification marking prefix of "DOT," a packaging marked prior to January 1, 1970, with the prefix of "ICC" may be used in its place if the packaging otherwise conforms to applicable specification requirements.

* * * * *

101. Section 173.24 would be revised as follows:

§ 173.24 General requirements for packagings and packages.

(a) *Applicability.* Except as otherwise provided in this subchapter, the provisions of this section apply to—

(1) Bulk and non-bulk packagings;

(2) New packagings and packagings which are reused; and

(3) Specification and non-specification packagings.

(b) Each package used for the shipment of hazardous materials under this subchapter shall be designed, constructed, maintained, filled, its contents so limited, and closed, so that under conditions normally incident to transportation—

(1) Except as otherwise provided in this subchapter, there will be no release of hazardous materials to the environment;

(2) The effectiveness of the packaging will not be significantly reduced; and

(3) There will be no mixture of gases or vapors in the package which could, through any credible spontaneous increase of heat or pressure, significantly reduce the effectiveness of the packaging.

(c) *Authorized packagings.* A packaging is authorized for a hazardous material only if—

(1) The packaging is prescribed or permitted for the hazardous material in a packaging section specified for that material in Column 8 of the § 172.101 Table and conforms to applicable requirements in the special provisions of Column 7 of the § 172.101 Table and, for specification packagings (including UN standard packagings), the specification requirements in Parts 178 and 179 of this subchapter; or

(2) The packaging is permitted under and conforms to provisions contained in §§ 171.11, 171.12, 171.12a, 173.3, 173.4, 173.5, 173.6, 173.7, or 176.11 of this subchapter.

(d) *DOT specification and UN standard packagings.* For DOT specification packagings (including UN standard packagings), conformance to the applicable specifications in Parts 178 and 179 of this subchapter is required in all details. For performance-oriented packagings covered by Subpart L of Part 178 of this subchapter, each packaging must be capable of meeting the performance test requirements specified in Subpart M of Part 178 of this subchapter for the applicable packing group shown in Column 5 of the § 172.101 Table.

(e) *Compatibility.* (1) Even though certain packagings are specified in this Part, it is, nevertheless, the responsibility of the person offering a hazardous material for transportation to ensure that such packagings are compatible with their lading. This particularly applies to corrosivity, permeability, softening, premature aging and embrittlement.

(2) Packaging materials and contents must be such that there will be no significant chemical or galvanic reaction between the materials and contents of the package.

(3) *Plastic packagings and receptacles.* (i) Plastic used in packagings and receptacles must be of a type compatible with the lading and may not be permeable to an extent that a hazardous condition is likely to occur during transportation, handling or refilling.

(ii) Each plastic packaging or receptacle which is used for liquid hazardous materials must be capable of withstanding without failure the procedure specified in Appendix B of this part ("Procedure for Testing Chemical Compatibility and Rate of Permeation in Plastic Packagings and Receptacles"). The maximum rate of permeation of hazardous lading through or into the plastic packaging or receptacles may not exceed 0.5 percent for materials meeting the definition of a Division 6.1 material according to § 173.132 and 2.0 percent for other hazardous materials, when subjected to a temperature no lower than—

(A) 18 °C (64 °F) for 180 days in accordance with Test Method 1;

(B) 50 °C (122 °F) for 28 days in accordance with Test Method 2; or

(C) 60 °C (140 °F) for 14 days in accordance with Test Method 3.

(iii) Alternative procedures or rates of permeation are permitted if they yield a level of safety equivalent to or greater than that provided by paragraph (e)(3)(ii) of this section and are specifically approved by the Director, OHMT.

(4) *Mixed contents.* (i) Hazardous materials may not be packed or mixed together in the same outer packaging with other hazardous or nonhazardous materials if such materials are capable of reacting dangerously with each other and causing—

(A) Combustion or dangerous evolution of heat;

(B) Evolution of flammable, poisonous or asphyxiant gases;

(C) Formation of corrosive materials; or

(D) Formation of unstable materials.

(f) *Closures.* (1) Closures on packagings shall be so designed and closed that under conditions (including the effects of temperature and vibration) normally incident to transportation—

(i) Except as provided in paragraph (g) of this section, there is no release of hazardous materials to the environment from the opening to which the closure is applied; and

(ii) The closure is secure and leakproof.

(2) Except as otherwise provided in this subchapter, a closure (including gaskets or other closure components, if any) used on a specification packaging must conform to all applicable requirements of the specification.

(g) *Venting.* Venting of packagings, to reduce internal pressure which may develop by the evolution of gas from the contents, is permitted only when—

(1) Transportation by aircraft is not involved;

(2) Except as otherwise provided in this subchapter, the evolved gases are not toxic, flammable or asphyxiant gases;

(3) The packaging is designed so as to preclude a significant release of hazardous materials from the receptacle; and

(4) For shipments in bulk packagings, venting is authorized for the specific hazardous material by a special provision in the § 172.101 Table or by the applicable bulk packaging specification in Part 178 of this subchapter.

(h) *Outage and filling limits—(1) General.* When filling packagings and receptacles for liquids, sufficient ullage (outage) must be left to ensure that neither leakage nor permanent distortion of the packaging or receptacle will occur as a result of an expansion of the liquid caused by temperatures likely to be encountered during transportation. Liquids must not completely fill a receptacle at a temperature of 55 °C (131 °F) or less.

(2) *Compressed gases and cryogenic liquids.* Filling limits for compressed gases and cryogenic liquids are specified in §§ 173.301 through 173.306 for cylinders and §§ 173.314 through 173.319 for bulk packagings.

(i) *Air transportation.* Packages offered or intended for transportation by aircraft must conform to the general requirements for transportation by aircraft in § 173.27.

102. Section 173.24a would be added, as follows:

§ 173.24a Additional general requirements for non-bulk packagings and packages.

(a) *Packaging design*—(1) *Closures.* A closure device must be so designed that it is unlikely that it can be incorrectly or incompletely closed, and must be such that it may be checked easily to determine that it is completely closed. Except as provided in § 172.312 of this subchapter, a combination packaging containing liquid hazardous materials must be packed so that closures on inner receptacles are upright.

(2) *Friction.* The nature and thickness of the outer packaging must be such that friction during transportation is not likely to generate an amount of heat sufficient to alter dangerously the chemical stability of the contents.

(3) *Securing and cushioning.* Inner packagings of combination packagings must be so packed, secured and cushioned to prevent their breakage or leakage and to control their movement within the outer packaging under conditions normally incident to transportation. Cushioning material must not be capable of reacting dangerously with the contents of the inner packagings.

(4) *Metallic devices.* Nails, staples and other metallic devices shall not protrude into the interior of the outer packaging in such a manner as to be likely to damage inner packagings or receptacles.

(5) *Vibration.* Each non-bulk package must be capable of withstanding, without rupture or leakage, the vibration test procedure specified in Appendix C of this Part ("Procedure for Base Level Vibration Testing").

(b) *Non-bulk packaging filling limits.* (1) A single or composite non-bulk packaging may be filled with a liquid hazardous material only when the specific gravity of the material does not exceed that marked on the packaging, or a specific gravity of 1.2 if not marked.

(2) A single or composite non-bulk packaging may not be filled with a solid hazardous material to a gross mass greater than the maximum gross mass marked on the packaging.

(3) Packagings tested as prescribed in § 178.605 of this subchapter and marked with the hydrostatic test pressure as prescribed in § 178.503(a)(5) of this subchapter may be used for liquids only when the vapor pressure of the liquid conforms to one of the following:

(i) The vapor pressure must be such that the total pressure in the packaging (i.e., the vapor pressure of the liquid plus the partial pressure of air or other inert gases, less 100 kPa (14.5 psi)) at 55 °C (131 °F), determined on the basis of a maximum degree of filling in accordance with subparagraph (1) of this paragraph and a filling temperature of 15 °C (59 °F), will not exceed two-thirds of the marked test pressure;

(ii) The vapor pressure at 50 °C (122 °F) must be less than four-sevenths of the sum of the marked test pressure plus 100 kPa (14.5 psi); or

(iii) The vapor pressure at 55 °C (131 °F) must be less than two-thirds of the sum of the marked test pressure plus 100 kPa (14.5 psi).

(c) *Mixed contents.* (1) An outer non-bulk packaging may contain more than one hazardous material only when—

(i) The inner and outer packaging used for each hazardous material conforms to the relevant packaging sections of this part applicable to each of the hazardous materials;

(ii) The package as prepared for shipment meets the performance tests prescribed in Part 178 for the packing group indicating the highest order of hazard for the hazardous materials contained in the package;

(iii) Corrosive materials in bottles are further packed in securely closed inner receptacles before packing in outer packagings; and

(iv) For transportation by aircraft, the total net quantity does not exceed the lowest permitted maximum net quantity per package as shown in Column 9a or 9b, as appropriate, of the § 172.101 Table. The permitted maximum net quantity must be calculated in kilograms if a package contains both a liquid and a solid.

(2) A packaging containing inner packagings of Division 6.2 materials may not contain other hazardous materials, except dry ice.

103. Section 173.24b would be added, as follows:

§ 173.24b Additional general requirements for bulk packagings and packages.

(a) *Pressure relief devices on bulk packagings.* Except when installed in series with a pressure relief valve, a non-reclosing pressure relief device may not be used on a bulk packaging containing a hazardous material that is flammable or poisonous or both.

(b) *Outage and filling limits*—(1) *Tank car and multi-unit tank car tank filling limits.* (i) Hazardous materials may not be loaded into the dome of a tank car.

(ii) If the dome of the tank car does not provide sufficient outage, then vacant space must be left in the shell to make up the required outage.

(iii) Liquids must be so loaded in tank cars and multi-unit tank car tanks that the outage is at least one percent of the total capacity of the tank and dome at the reference temperature of 115 °F (46.1 °C) for uninsulated tanks and 105 °F (40.6 °C) for insulated tanks. Tanks must not be liquid full at 131 °F (55 °C).

(2) *Cargo tank and portable tank filling limits.* The outage in a cargo tank, portable tank, or compartment thereof must be at least one percent of the total capacity of the tank or compartment at the reference temperature of 115 °F (46.1 °C) for uninsulated tanks and 105 °F (40.6 °C) for insulated tanks. Tanks must not be liquid full at 131 °F (55 °C).

(3) *Bulk packagings for liquids toxic by inhalation.* For a liquid which meets the definition for Division 6.1, Packing Group I, based on inhalation toxicity, the outage in a bulk packaging must be at least five percent of the total capacity of the tank or compartment at the reference temperature of 115 °F (46 °C) for uninsulated tanks and 105 °F (40.6 °C) for insulated tanks.

(c) *Equivalent steel.* Where the regulations permit steel other than stainless steel to be used in place of a specified stainless steel (for example, as in § 172.102 of this subchapter, special provision B30), the minimum thickness for the steel must be obtained from one of the following formulas, as appropriate: Formula for metric units:

$e_1 = (10e_o/Rm_1 A_1)^{1/3}$

Formula for non-metric units:

$e_1 = (112.3e_o/Rm_1 A_1)^{1/3}$

where:

e_o = Required thickness of the reference stainless steel in millimeters or inches, for metric units or non-metric units, respectively;

e_1 = Equivalent thickness of the non-stainless steel in millimeters or inches, for metric units or non-metric units, respectively;

Rm_1 = Specified minimum tensile strength of the non-stainless steel (from the appropriate specification in Part 178 of this subchapter) in deka-newtons per square millimeter or pounds per square inch, for metric units or non-metric units, respectively;

A_1 = Specified minimum percentage elongation of the non-stainless steel (from the appropriate specification in Part 178 of this subchapter) multiplied by 100 (for example, 20% times 100 equals 20).

(d) *Heating coils.* Tank car tanks used for materials meeting the definition for Division 2.3 or for Division 6.1, Packing Group I, based on inhalation toxicity, may not be equipped with interior or exterior heating coils.

104. In § 173.25, paragraph (b) would be removed, paragraph (a)(3) would be revised and paragraph (a)(5) would be added as follows:

§ 173.25 Authorized packages and overpacks.

(a) * * *

(3) Each package subject to the orientation marking requirements of § 172.312 of this subchapter is packed in the overpack with its filling holes up and the overpack is marked with package orientation marking arrows on two opposite vertical sides of the overpack with the arrows pointing in the correct direction of orientation.

* * * * *

(5) Packages containing corrosive or oxidizing materials in Packing Group I may not be overpacked with any other materials.

* * * * *

105. Section 173.26 would be revised as follows:

Section 173.26 Quantity limitations.

When quantity limitations do not appear in the packaging requirements of this subchapter, the permitted gross weight or capacity authorized for a packaging is as shown in the packaging specification or standard in Part 178 or 179, as applicable, of this subchapter.

106. Section 173.27 would be revised as follows:

§ 173.27 General requirements for transportation by aircraft.

(a) The requirements of this section are in addition to the requirements in § 173.24 and apply to packages offered or intended for transportation by aircraft. Notwithstanding any Packing Group III performance level specified in Column 5 of the § 172.101 Table, the required performance level for packages containing Class 4, 5, or 8 materials, when offered or intended for transportation by aircraft, is at the Packing Group II performance level, unless otherwise excepted from performance requirements in Subpart E of this part.

(b) *Packages authorized on board aircraft.* (1) When Column 9a of the § 172.101 Table indicates that a material is "Forbidden", that material may not be offered for transportation or transported by passenger-carrying aircraft.

(2) When Column 9b of the § 172.101 Table indicates that a material is "Forbidden", that material may not be offered for transportation or transported by aircraft.

(3) The maximum quantity of hazardous material in a package that may be offered for transportation or transported by passenger-carrying aircraft or cargo aircraft may not exceed that quantity prescribed for the material in Column 9a or 9b, respectively, of the § 172.101 Table.

(4) A package containing a hazardous material which is authorized on cargo aircraft but not on passenger aircraft must be labeled with the CARGO AIRCRAFT ONLY label required by § 172.402(b) of this subchapter and may not be offered for transportation or transported on passenger-carrying aircraft.

(c) *Pressure requirements.* (1) Packagings must be designed and constructed to prevent leakage that may be caused by changes in altitude and temperature during transportation by aircraft.

(2) Packagings for which retention of liquid is a basic function must be capable of withstanding without leakage the greater of—

(i) An internal pressure which produces a pressure of not less than 75 kPa (10.88 psi) for liquids in Packing Group III of Class 3 or Division 6.1, or 95 kPa (13.8 psi) for other liquids; or

(ii) A pressure related to the vapor pressure of the liquid to be conveyed, determined by one of the following:

(A) The total pressure measured in the receptacle (i.e., the vapor pressure of the material and the partial pressure of air or other inert gases, less 100 kPa (14.5 psi)) at 55 °C (131 °F), multiplied by a safety factor of 1.5; determined on the basis of a filling temperature of 15 °C (59 °F) and a degree of filling such that the receptacle is not completely liquid full at a temperature of 55 °C (131 °F) or less;

(B) 1.75 times the vapor pressure at 50 °C (122 °F) less 100 kPa (14.5 psi); or

(C) 1.5 times the vapor pressure at 55 °C (131°) less 100 kPa (14.5 psi).

(3) Notwithstanding the provisions of subparagraph (2) of this paragraph—

(i) Hazardous materials may be contained in an inner packaging which does not itself meet the pressure requirement provided that the inner packaging is packed within a supplementary packaging which does meet the pressure requirement and other applicable packaging requirements of this subchapter.

(ii) Packagings which are subject to the hydrostatic pressure test and marking requirements of §§ 178.605 and 178.503 through (a)(5), respectively, of this subchapter must have a marked test pressure of not less than 250 kPa (36.3 psi) for liquids in Packing Group I, 80 kPa (11.6 psi) for liquids in Packing Group III of Class 3 or Division 6.1, and 100 kPa (14.5 psi) for other liquids.

(d) *Closures.* Stoppers, corks or other such friction-type closures must be held securely, tightly and effectively in place by positive means.

(e) *Absorbent materials.* Except as otherwise provided in this subchapter, liquids in Packing Group I or II of Class 3, 4, 5, 6, or 8, when in glass or earthenware inner packagings, must be packaged using material capable of absorbing and not likely to react dangerously with the liquid. Absorbent material is not required if the inner packagings are so protected that breakage of them and leakage of their contents from the outer packaging is not likely to occur under normal conditions of transportation and is not required for packagings containing liquids in Packing Group III for transport on cargo aircraft only. Where absorbent material is required and an outer packaging is not liquid-tight, a means of containing the liquid in the event of leakage must be used in the form of a leakproof liner, plastic bag or other equally efficient means of containment. Where absorbent material is required, the quantity and disposition of it in each outer packaging must be as follows:

(1) For packagings containing liquids in Packing Group I for transport on passenger-carrying aircraft, each packaging must contain sufficient absorbent material to absorb the contents of all inner packagings containing such liquids;

(2) For packagings containing liquids in Packing Group I for transport on cargo aircraft only and packagings containing liquids in Packing Group II for transport on passenger aircraft, each package must contain sufficient absorbent material to absorb the contents of any one of the inner packagings containing such liquids and, where they are of different sizes and quantities, sufficient absorbent material to absorb the contents of the inner packaging containing the greatest quantity of liquid.

(f) *Combination packagings.* Unless otherwise specified in this Part, or in § 171.11 of this subchapter, when combination packagings are offered for transportation by aircraft, inner packagings must conform to the quantity limitations set forth in Table 1 for transport on passenger-carrying aircraft and Table 2 for transport on cargo aircraft only, as follows:

TABLE 1.—MAXIMUM NET CAPACITY OF INNER PACKAGINGS FOR TRANSPORTATION ON PASSENGER-CARRYING AIRCRAFT

Maximum net quantity per package from column 9a of the § 172.101 table	Maximum authorized net capacity of inner packagings	
	Glass, earthenware or fiber inner packagings	Metal or plastic inner packagings
Liquids:		
Not greater than 0.5L	0.5L	0.5L.
Greater than 0.5L, not greater than 1L.	0.5L	1L.
Greater than 1L, not greater than 5L.	1L	5L.
Greater than 5L, not greater than 60L.	2.5L	10L.
Greater than 60L, not greater than 220L.	5L	25L.
Greater than 220L	No limit.	No limit.
Solids:		
Not greater than 5 kg	0.5 kg	1 kg.
Greater than 5 kg, not greater than 25 kg.	1 kg	2.5 kg.
Greater than 25 kg, not greater than 200 kg.	5 kg	10 kg.
Greater than 200 kg	No limit	No limit.

TABLE 2.—MAXIMUM NET CAPACITY OF INNER PACKAGINGS FOR TRANSPORTATION ON CARGO AIRCRAFT ONLY

Maximum net quantity per package from column 9b of the § 172.101 Table	Maximum authorized net capacity of inner packagings	
	Glass, earthenware or fiber inner packagings	Metal or plastic inner packagings
Liquids:		
Not greater than 2.5L	1L	1L.
Greater than 2.5L, not greater than 30L.	2.5L	2.5L.
Greater than 30L, not greater than 60L.	5L	10L.
Greater than 60L, not greater than 220L.	5L	25L.
Greater than 220L	No limit	No limit.
Solids:		
Not greater than 15 kg	1 kg	2.5 kg.
Greater than 15 kg, not greater than 50 kg.	2.5 kg	5 g.
Greater than 50 kg, not greater than 200 kg.	5 kg	10 kg.

TABLE 2.—MAXIMUM NET CAPACITY OF INNER PACKAGINGS FOR TRANSPORTATION ON CARGO AIRCRAFT ONLY—Continued

Maximum net quantity per package from column 9b of the § 172.101 Table	Maximum authorized net capacity of inner packagings	
	Glass, earthenware or fiber inner packagings	Metal or plastic inner packagings
Greater than 200 kg	No limit	No limit.

(g) *Cylinders.* For any cylinder containing hazardous materials and incorporating valves, sufficient protection must be provided to prevent operation of and damage to, the valves during transportation, by one of the following methods:

(1) By equipping each cylinder with securely attached valve caps or protective headrings; or

(2) By boxing or crating the cylinder.

(h) *Tank cars and cargo tanks.* Tank cars and cargo tanks containing hazardous materials may not be transported aboard aircraft.

107. Section 173.28 would be revised as follows:

§ 173.28 Reuse, reconditioning and remanufacture of packagings.

(a) *Reuse.* Packagings and receptacles used more than once must be in such condition, including closure devices and cushioning materials, that they conform in all respects to the prescribed requirements of this subchapter, including the following provisions and limitations:

(1) Before reuse, each packaging must be inspected and must not be reused unless free from rupture, corrosion, other damage or incompatible residue;

(2) Before reuse, packagings subject to the leakproofness test with air prescribed in § 178.604 shall be—

(i) Retested using an internal air pressure (gauge) of at least 48 kilopascals (7.0 pounds); and

(ii) Marked as required by paragraph (b) of this section and § 178.503(c) of this subchapter;

(3) Packagings made of paper, plastic film, textile or fiberboard are not authorized for reuse; and

(4) Metal and plastic drums, jerricans and the metal or plastic outer packagings of composite packagings are authorized for reuse only when they are marked in millimeters with the minimum thickness of the packaging material and conform to the following minimum construction criteria:

Marked, or rated, capacity (net mass) not over	Minimum thickness of packaging material	
	Metal drum or jerrican	Plastic drum or jerrican
20L (20 kg)	0.6 mm (0.024 in.)	1.2 mm (0.047 in.)
40L (40 kg)	0.7 mm (0.028 in.)	1.8 mm (0.071 in.)
120L (120 kg)	0.9 mm (0.035 in.)	2.2 mm (0.087 in.)
220L (220 kg)	1.0 mm (0.039 in.)	2.2 mm (0.087 in.)
450L (400 kg)	1.8 mm (0.071 in.)	5.0 mm (0.197 in.)

(5) Plastic inner packagings of composite packagings must have a minimum thickness of 1.5mm (0.059 inch).

(b) *Reconditioning.* For the purpose of this subchapter, reconditioning is the repair, replacement of non-integral packaging components (such as removable gaskets, closure devices, cushioning material, etc.) or leakproofness testing of non-bulk packagings, other than cylinders. A person who reconditions a packaging manufactured under the provisions of Subpart L of Part 178 of this subchapter, shall mark that packaging as required by § 178.503(c) of this subchapter. The marking is the certification of the reconditioner that the packaging conforms to the standard for which it is marked and that all functions performed by the reconditioner which are prescribed by this subchapter have been performed in compliance with this subchapter.

(c) *Remanufacture.* For the purpose of this subchapter, remanufacture is the conversion of a non-specification, non-bulk packaging to a DOT specification or UN standard, the conversion of a packaging meeting one specification or standard to another specification or standard (for example, conversion of 1A1 non-removable head drums to 1A2 removable head drums) or the replacement of integral structural packaging components (such as non-removable heads on drums). A person who remanufactures a non-bulk packaging to conform to a specification or standard in Part 178 of this subchapter is subject to the requirements of Part 178 as a manufacturer.

108. Section 173.29 would be revised as follows:

§ 173.29 Empty packagings.

(a) Except as otherwise provided in this section, an empty packaging containing only the residue of a hazardous material shall be offered for transportation and transported in the same manner as when it previously contained a greater quantity of that hazardous material.

(b) Notwithstanding the requirements of paragraph (a) of this section, an empty packaging is not subject to any other requirements of this subchapter if it conforms to the following provisions:

(1) Any hazardous material shipping name and identification number markings, and any hazard warning labels or placards are removed or obliterated. This provision does not apply to transportation in a transport vehicle or a freight container if the packaging is not visible during transportation and the packaging is loaded by the shipper and unloaded by the shipper or consignee;

(2) The packaging—

(i) Is unused; or

(ii) Is sufficiently cleaned of residue and purged of vapors to remove any potential hazard; or

(iii) Is refilled with a material which is not hazardous to such an extent that any residue remaining in the packaging no longer poses a hazard; or

(iv) Contains only the residue of—

(A) A Class 9 or ORM–D material; or

(B) An ORM–E material which no longer meets the definition in § 171.8 of this subchapter for either a hazardous substance or a hazardous waste; or

(C) A nonflammable gas with no subsidiary hazard at a pressure less than 40 psia; (275.8 kPa) at 70 °F (21 °C); and

(3) Any material contained in the packaging does not meet the definitions in § 171.8 of this subchapter for either a hazardous substance or a hazardous waste.

(c) A non-bulk packaging containing only the residue of a hazardous material covered by Table 2 of § 172.504 of this subchapter—

(1) Does not have to be included in determining the applicability of the placarding requirements of Subpart F of Part 172 of this subchapter; and

(2) Is not subject to the shipping paper requirements of this subchapter when collected and transported by a contract or private carrier for reconditioning, remanufacture or reuse.

(d) Notwithstanding the stowage requirements in Columns 10a and 10b of the § 172.101 Table for transportation by vessel, an empty drum or cylinder may be stowed on deck or under deck.

(e) Specific provisions for describing an empty packaging on a shipping paper appear in § 172.203(e) of this subchapter.

(f) An empty tank car must conform to the placarding requirements specified in § 172.510(c) of this subchapter.

109. In § 173.31, in paragraph (a)(1) the words "dangerous articles" would be revised to read "hazardous materials" and in paragraph (c), footnote ᵛ would be removed from Retest Table 1 and from the footnotes following the table. In

addition, paragraphs (a)(5), (a)(6), (a)(7), (a)(8), (a)(9), and (a)(10) would be revised and paragraphs (a)(11) through (a)(13) would be added, as follows:

§ 173.31 Qualification, maintenance, and use of tank cars.

(a) * * *

(5) Each DOT specification tank car shall be equipped with a coupler vertical restraint system in accordance with § 179.14 of this subchapter.

(6) After December 31, 1987, each non-specification tank car shall be equipped with a coupler vertical restraint system in accordance with § 179.14 of this subchapter.

(7) Pressure relief devices on tank car tanks must be of a type and design approved by the AAR Committee on Tank Cars and be made of metal not subject to deterioration by the lading.

(8) A Specification DOT-106A or 110A multi-unit tank car tank may be offered for transportation aboard a passenger vessel only as authorized in § 173.32(a)(4).

(9) Lading temperature must be within the tank design temperature range.

(10) Tank test pressure must be equal to or greater than the greatest of the following:

(i) 160 percent of the sum of lading vapor pressure at the reference temperature of 46.1 °C (115 °F) for uninsulated tanks or 40.6 °C (105 °F) for insulated tanks plus static head plus gas padding pressure in the ullage space or dome of tank;

(ii) 133 percent of the maximum loading or unloading pressure, whichever is greater; or

(iii) The minimum pressure prescribed by the specification in Part 179 of this subchapter or for the specific hazardous material in the applicable packaging section in Subpart F or G of this part.

(11) Air pressure may not be used to load or unload any lading which may create an enriched mixture within the flammability range of the lading in the vapor space of the tank.

(12) Unless otherwise specifically provided for in this subchapter, tank car tanks used for materials meeting the definition for Division 6.1 liquids, Packing Group I or II, Class 2 gases, or Class 3 or 4 liquids must be equipped with reclosing pressure relief devices having adequately sized venting capacity.

(13) For tanks used to transport materials with a primary or secondary hazard of Class 8 which are to be reused for Class 2 materials, both tank and pressure relief valves shall be retested prior to loading with the Class 2 material.

* * * * *

110. In § 173.32 paragraph (a)(6) and paragraphs (q) through (u) would be added as follows:

§ 173.32 Qualification, maintenance and use of portable tanks.

(a) * * *

(6) A DOT 51 portable tank may be used where DOT 56 or DOT 57 type portable tanks or DOT 60 portable tanks are authorized. A DOT 60 portable tank may be used where DOT 56 or DOT 57 type portable tanks are authorized. A higher integrity tank used instead of a specified portable tank must meet the same design profile; e.g., a DOT 51 portable tank must be lined, if used instead of a lined DOT 60 portable tank.

* * * * *

(q) *Loading requirements.* A portable tank may not be loaded with a hazardous material that—

(1) Has a lading density exceeding the tank's design maximum density, or

(2) Is warmer or colder than the tank's design temperature range.

(r) Tank design pressure must be equal to or greater than the greatest of the following:

(1) 120 percent of the sum of lading vapor pressure plus static head plus gas padding pressure in the ullage space or dome of tank;

(2) The maximum loading or unloading pressure, whichever is greater; or

(3) The pressure prescribed for the specific hazardous material in Subpart F or G of this part, or in Part 172, as applicable.

(s) Where a DOT 60 or marine portable tank is authorized, minimum tank design pressure is 25 psi (172.4 kPa) for any liquid lading that meets more than one hazard class definition, unless otherwise specified.

(t) Air pressure may not be used to load or unload any lading which may create an enriched mixture within the flammability range of the lading in the vapor space of the tank.

(u) A portable tank in service for a Class 3 or 4 material, or Division 6.1 liquid, must be equipped with a reclosing pressure relief valve having adequately-sized venting capacity.

111. In § 173.32c, paragraphs (a), (b), (g)(2) and (o) would be revised to read as follows:

§ 173.32c Use of Specification IM portable tanks.

(a) No person may offer a hazardous material for transportation in an IM portable tank except as authorized by this subchapter.

(b) Except as otherwise provided in this subpart, an IM portable tank may not be used for the transportation of a hazardous material unless it meets the requirements of this subchapter.

* * * * *

(g) * * *

(2) When this paragraph is specified for a hazardous material by the IM Tank Table in § 172.102 of this subchapter, each filling or discharge connection located below the normal liquid level of the tank, or compartment thereof, has three serially-mounted closures consisting of an internal discharge valve capable of being closed from a location remote from the valve itself, an external valve, and a bolted blank flange or other suitable, liquid-tight closure on the outlet side of the external valve.

* * * * *

(o) An IM 101 tank may be used whenever an IM 102 tank is authorized provided it meets the requirements for pressure relief devices, bottom outlets and any other special provisions specified for the IM 102 tank in § 172.102 of this subchapter.

§ 173.32d [Removed]

112. Section 173.32d would be removed.

113. In 173.33, paragraphs (l) through (q) would be added, as follows:

§ 173.33 Qualification, maintenance and use of cargo tanks.

* * * * *

(l) A cargo tank may not be loaded with a hazardous material that:

(1) Has a density exceeding the tank's design maximum density; or

(2) Is warmer or colder than the tank design temperature range.

(m) Tank design pressure must be equal to or greater than the greatest of the following:

(1) 120 percent of the sum of lading vapor pressure plus static head plus gas padding pressure in the ullage space or dome of tank;

(2) The maximum loading or unloading pressure, whichever is greater; or

(3) The pressure prescribed in Subpart F or G of this part, for the specific hazardous material as applicable, including—

(i) For compressed gases and certain refrigerated liquids, the pressure prescribed in § 173.315; and

(ii) For cryogenic liquids, the pressure prescribed in § 173.318.

(n) An MC 331 type cargo tank may be used where MC 306, MC 307 or MC 312 type cargo tanks are authorized. An MC 307 or MC 312 type cargo tank may be used where MC 306 type cargo tanks are authorized. A higher integrity tank used in lieu of a specified tank must meet the

same design profile (for example, an MC 331 cargo tank must be lined if used in place of a lined MC 312 cargo tank.)

(o) Unless otherwise specified, where MC 307 and MC 312 cargo tanks are authorized, minimum tank design pressure is 25 psi (172.4 kPa) for any liquid lading that meets more than one hazard class definition.

(p) Air pressure may not be used to load or unload any lading which may create an enriched mixture within the flammability range of the lading in the vapor space of the tank. (See § 173.33(b)(3).)

(q) A cargo tank in service for a Class 3 or 4 material or Division 6.1 liquid must be equipped with a reclosing pressure relief valve having adequately-sized venting capacity. (See § 173.33(d)(1) and (2).)

114. A new § 173.40 would be added, to read as follows:

§ 173.40 General packaging requirements for poisonous materials required to be packaged in cylinders.

When this section is referenced in the packaging section for a hazardous material elsewhere in this part, the following requirements are applicable to cylinders used for that material:

(a) *Authorized cylinders.* A cylinder must conform to one of the specifications for cylinders in Subpart C of Part 178 of this subchapter, except that Specification 8, 8AL and 39 cylinders are not authorized.

(b) *Outage and pressure requirements.* The pressure of the hazardous material at 55 °C (131 °F) must not exceed the service pressure of the cylinder. Sufficient outage shall be provided so that the cylinder will not be liquid full at 55 °C (131 °F).

(c) *Closures.* Each cylinder must be closed with a plug or valve conforming to the following:

(1) Each plug or valve must have a taper-threaded connection directly to the cylinder and be capable of withstanding the test pressure of the cylinder;

(2) Each valve must be of the packless type with non-perforated diaphragm, except that for corrosive materials, a valve may be of the packed type provided the assembly is made gas-tight by means of a seal cap with gasketed joint attached to the valve body or the cylinder to prevent loss of material through or past the packing;

(3) Each valve outlet must be sealed by a threaded cap or threaded solid plug, and

(4) Cylinder, valves, plugs, outlet caps, luting and gaskets must be compatible with each other and with the lading.

(d) *Additional protection.* Additional protection requirements for thin-walled cylinders and for cylinders equipped with valves are as follows:

(1) Each cylinder which has a wall thickness at any point of less than 2.03 mm (0.080 inch) and each cylinder which does not have fitted valve protection must be overpacked in a 4C1, 4D, 4F, 4G, 4H1 or 4H2 box. The box must conform to overpack provisions in § 173.25. Box and valve protection must be of sufficient strength to protect all parts of the cylinder and valve, if any, from deformation and breakage resulting from a drop of 2.0 meters (6.56 ft) or more onto a concrete floor, impacting at an orientation most likely to cause damage.

(2) Each cylinder equipped with a valve, if not overpacked in a box in accordance with paragraph (d)(1) of this section, must be equipped with a protective cap or other means of valve protection sufficient to protect the valve from deformation and breakage resulting from a drop of 2.0 meters (6.56 ft) or more onto a concrete floor, impacting at an orientation most likely to cause damage.

(e) *Interconnection.* Cylinders may not be interconnected.

115. In Part 173, Subparts D, E and F would be revised as follows:

Subpart D—Definitions, Classification, Packing Group Assignments and Exceptions for Hazardous Materials Other Than Class 1 and Class 7

Sec.

Subpart E—Non-bulk Packaging for Hazardous Materials Other Than Class 1 and Class 7

Subpart F—Bulk Packaging for Hazardous Materials Other Than Classes 1 and 7

Subpart D—Definitions, Classification, Packing Group Assignments and Exceptions for Hazardous Materials Other Than Class 1 and Class 7.

§ 173.115 Class 2, Divisions 2.1, 2.2, and 2.3—Definitions.

(a) *Division 2.1 (Flammable gas).* (1) For the purpose of this subchapter, a "flammable gas" (Division 2.1) means any material which is a gas at 20 °C (68 °F) or less and 1 atmosphere (atm) of pressure (a material which has a boiling point of 20 °C (68 °F) or less at 1 atm) which—

(i) Is ignitable at 1 atm when in a mixture of 13% or less by volume with air; or

(ii) Has a flammable range at 1 atm with air of at least 12% regardless of the lower limit.

(2) The limits specified in paragraph (a)(1) of this section shall be determined at 1 atmosphere of pressure and a temperature of 20 °C (68 °F) in accordance with ASTM E681-79 Standard Test Method for Limits of Flammability of Chemicals.

(b) *Division 2.2 (non-flammable compressed gas—including compressed gas, liquefied gas, pressurized cryogenic gas and compressed gas in solution).* For the purpose of this subchapter, a "non-flammable compressed gas" (Division 2.2) means any material (or mixture) which—

(1) Exerts in the packaging a pressure of 40 psia (275.8 kPa) at 21.1 °C (70 °F) or, regardless of the pressure at 21.1 °C (70 °F), exerts in the container a pressure of 104 psia (717.1 kPa) at 54.4 °C (130 °F); and

(2) Does not meet the definition of Division 2.1 or 2.3.

(c) *Division 2.3 (Poisonous gas).* For the purpose of this subchapter, "poisonous gas" (Division 2.3) means a material which is a gas at 20 °C (68 °F) or less and one atmosphere of pressure (a material which has a boiling point of 20 °C (68 °F) or less at 1 atmosphere and which—

(1) Is known to be so toxic to humans as to pose a hazard to health during transportation, or

(2) In the absence of adequate data on human toxicity, is presumed to be toxic to humans because when tested on laboratory animals it has an LC50 less than 5000 ppm (see § 173.132(b)(3)).

(d) *Non-liquefied compressed gas.* A "non-liquefied compressed gas" means a gas, other than in solution, which in a packaging under the charged pressure is entirely gaseous at a temperature of 20 °C (68 °F).

(e) *Liquefied compressed gas.* A "liquefied compressed gas" means a gas which in a packaging under the charged pressure, is partially liquid at a temperature of 20 °C (68 °F).

(f) *Compressed gas in solution.* A "compressed gas in solution" is a non-liquefied compressed gas which is dissolved in a solvent.

(g) *Cryogenic liquid.* A "cryogenic liquid" means a refrigerated liquefied gas having a boiling point colder than −130 °F (−90 °C) at one atmosphere, absolute. A material meeting this definition is subject to requirements of this subchapter without regard to whether it meets the definition of a non-flammable compressed gas in paragraph (b) of this section. Each cryogenic liquid is partially described as "(* * *, refrigerated liquid (cryogenic liquid))" in the § 172.101 Table.

(h) *Flammable range.* The term "flammable range" means the difference between the minimum and maximum volume percentages of the material in air that forms a flammable mixture.

(i) *Service pressure.* The term "service pressure" means the authorized pressure marking on the packaging. For example, for a cylinder marked "DOT 3A1800", the service pressure is 1800 psig.

(j) *Refrigerant gas or Dispersant gas.* The terms "Refrigerant gas" or "Dispersant gas" apply to all nonpoisonous refrigerant gases, dispersant gases (fluorocarbons) listed in §§ 172.101, 173.304(a)(2), 173.314(c), 173.315(a)(1) and 173.315(h), and mixtures thereof, or any other compressed gas meeting one of the following:

(1) A nonflammable mixture containing not less than 50% fluorocarbon content, having a vapor pressure not exceeding 260 psig (1792.7 kPa) at 130 °F (54.4 °C).

(2) A flammable mixture containing not less than 50% fluorocarbon content, not over 40% by weight of a flammable component, having a vapor pressure not exceeding 260 psig (1792 kPa) at 130 °F (54.4 °C).

§ 173.116 Class 2—Assignment of Packing Group.

(a) The packing group of a Class 2, Division 2.3 material is assigned in Column 5 of the § 172.101 Table. There are no packing groups for Divisions 2.1 and 2.2. When the § 172.101 Table provides more than one packing group for a Division 2.3 material, or indicates that the packing group be determined on the basis of the grouping criteria for Division 2.3, the packing group shall be determined by applying the following criteria:

Packing group	Inhalation toxicity
IA	LC50 less than or equal to 200 ppm
IB	LC50 greater than 200 ppm and less than or equal to 1000 ppm
II	LC50 greater than 1000 ppm and less than or equal to 3000 ppm
III	LC50 greater than 3000 ppm or less than or equal to 5000 ppm

(b) The criteria specified in paragraph (a) of this section are represented graphically in § 173.133, Figure 1.

§ 173.120 Class 3—Definitions.

(a) *Flammable liquid.* (1) For the purpose of this subchapter, a "flammable liquid" (Class 3) means any liquid having a flash point of not more than 60.5 °C (141 °F) with the following exceptions:

(i) Any liquid meeting one of the definitions specified in § 173.115 of this part.

(ii) Any mixture having one or more components with a flash point greater than 60.5 °C (141 °F) or higher, that

makes up at least 99 percent of the total volume of the mixture.

(2) For the purposes of this subchapter, a distilled spirit of 140 proof or lower is considered to have a flash point no lower than 23 °C (73 °F).

(b) *Combustible liquid.* (1) For the purpose of this subchapter, a "combustible liquid" (Class 3) means—

(i) Any liquid that does not meet the definition of any other hazard class specified in this subchapter and has a flash point above 60.5 °C (141 °F) and below 93.3 °C (200 °F); or

(ii) Any material that does not meet the definition of any other hazard class specified in this subchapter, has a flash point of 93.3 °C (200 °F) or greater and is offered for transportation or transported as a liquid at a temperature at or above its flash point.

(2) If a material has a flash point at or above 93.3 °C (200 °F) and does not meet the definition of a combustible liquid or any other hazard class, then it is not subject to the requirements of this subchapter.

(3) Except when offered or intended for transportation by vessel or aircraft, a flammable liquid with a flash point at or above 38 °C (100 °F) that does not meet the definition of any other hazard class may be reclassed as a combustible liquid.

(c) *Flash point.* (1) "Flash point" means the minimum temperature at which a liquid gives off vapor within a test vessel in sufficient concentration to form an ignitable mixture with air near the surface of the liquid. It shall be determined as follows:

(i) For a homogeneous, single-phase, liquid having a viscosity less than 45 S.U.S. at 38 °C (100 °F) that does not form a surface film while under test, one of the following test procedures shall be used:

(A) Standard Method of Test for Flash Point by Tag Closed Tester (ASTM D56–79); or

(B) Standard Methods of Test for Flash Point of Liquids by Setaflash Closed Tester (ASTM D3278–78).

(ii) For a liquid other than one meeting all of the criteria of paragraph (c)(1)(i) of this section, one of the following test procedures shall be used:

(A) Standard Method of Test for Flash Point by Pensky-Martens Closed Tester (ASTM D93–80). For cutback asphalt, use Method B of ASTM 93–80 or alternate tests authorized in this standard; or

(B) Standard Methods of Test for Flash Point of Liquids by Setaflash Closed Tester (ASTM D3278–78).

(2) For a liquid that is a mixture of compounds that have different volatility and flash points, its flash point shall be determined as specified in paragraph (c)(1) of this section, on the material in the form in which it is to be shipped. If it is determined by this test that the flash point is higher than 20 °F (−6.7 °C) a second test shall be made as follows: A portion of the mixture shall be placed in an open beaker (or similar container) of such dimensions that the height of the liquid can be adjusted so that the ratio of the volume of the liquid to the exposed surface area is 6 to 1. The liquid shall be allowed to evaporate under ambient pressure and temperature (20 to 25 °C) for a period of 4 hours or until 10 percent by volume has evaporated, whichever comes first. A flash point is then run on a portion of the liquid remaining in the evaporation container and the lower of the two flash points shall be the flash point of the material.

(3) For flash point determinations by Setaflash closed tester, the glass syringe specified need not be used as the method of measurement of the test sample if a minimum quantity of 2 milliliters is assured in the test cup.

(d) If experience or other data indicate that the hazard of a material is greater or less than indicated by the criteria specified in paragraphs (a) and (b) of this section, the Director, OHMT, may revise the classification or make the material subject or not subject to the requirements of Parts 170–189 of this subchapter:

§ 173.121 Class 3—Assignment of Packing Group.

(a) The packing group of a Class 3 material is as assigned in Column 5 of the § 172.101 Table. When the § 172.101 Table provides more than one packing group for a hazardous material, or indicates that the packing group is to be determined on the basis of the grouping criteria for Class 3, the packing group shall be determined by applying the following criteria:

Packing group	Flash point (closed-cup)	Initial boiling point
I		<35 °C (95 °F)
II	<23 °C (73 °F)	>35 °C (95 °F)
III	>23 °C, <60.5 °C (141 °F)	>35 °C (95 °F)

(b) *Criteria for inclusion of viscous Class 3 materials in Packing Group III.*

(1) Viscous Class 3 materials in Packing Group II with a flash point of less than 23 °C (73 °F) may be grouped in Packing Group III provided that—

(i) Less than 3 percent of the clear solvent layer separates in the solvent separation test;

(ii) The mixture contains not more than 5 percent of substances in Packing Group I or II of Division 6.1 or Class 8, or not more than 5 percent of substances in Packing Group I of Class 3 requiring a POISON or CORROSIVE subsidiary label;

(iii) The capacity of the packaging is not more than 30 L (7.9 gallons); and

(iv) The viscosity and flash point are in accordance with the following table:

Flowtime in seconds		Flash point in degrees C
4 mm Cup	8 mm Cup	
Over 20		Over 17.
Over 60		Over 10.
Over 100		Over −5.
Over 160		Over −1.
Over 220	Over 17	Over −5.
	Over 40	No lower limit.

(2) The methods by which the tests referred to in paragraph (b)(1) shall be performed are as follows:

(i) *Viscosity Test.* The flowtime in seconds is determined at 23 °C (73 °F) using the ISO Standard cup with a 4.0 millimeters (0.16 inches) jet (ISO–2431–72). Where the flowtime exceeds 200 seconds, a second test is carried out using the ISO standard cup but modified to take a jet of 8 millimeters (0.31 inches) diameter.

(ii) *Solvent Separation Test.* This test is carried out at 23 °C (73 °F) using a 100.0 milliliters (3.38 ounces) measuring cylinder of the stoppered type of approximately 25.0 centimeters (9.84 inches) total height and of a uniform internal diameter of approximately 30 millimeters (1.18 inches) over the calibrated section. The sample should be stirred to obtain a uniform consistency, and poured in up to the 100 milliliter mark. The stopper should be inserted and the cylinder left standing undisturbed for 24 hours. After 24 hours, the height of the upper separated layer should be measured and the percentage of this layer as compared with the total height of the sample calculated.

§ 173.124 Class 4, Divisions 4.1, 4.2 and 4.3—Definitions.

(a) *Division 4.1 (Flammable solid).* For the purpose of this subchapter, "flammable solid" (Division 4.1) means any solid material, other than one in Class 1, which, under the conditions normally incident to transportation, is readily combustible, or may cause or contribute to fire through friction. This division includes wetted explosives, self-reactive materials, readily combustible solids and solids which may cause or contribute to a fire through friction.

(b) *Division 4.2 (Spontaneously combustible material).* For the purpose of this subchapter, "spontaneously combustible material" (Division 4.2) means a material which is likely to heat

spontaneously under conditions normally incident to transportation, or to heat up in contact with air and being then likely to catch fire. This class includes pyrophoric liquids. A "pyrophoric liquid" means a liquid that ignites spontaneously in dry or moist air at or below 54.5 °C (130.1 °F).

(c) *Division 4.3 (Dangerous when wet materials).* For the purpose of this subchapter, "dangerous when wet material" (Division 4.3) means a material that, by interaction with water, is liable to become spontaneously flammable or to give off flammable gases in dangerous quantities.

(d) Criteria for evaluating materials for inclusion in Class 4 are set forth in Chapter 14 of the UN Recommendations.

§ 173.125 Class 4—Assignment of Packing Group.

The packing group of Class 4 materials shall be as assigned in Column 5 of the § 172.101 table. Criteria for assignment of packing groups are set forth in Chapter 14 of the UN Recommendations.

§ 173.128 Class 5, Divisions 5.1 and 5.2—Definitions.

(a) *Division 5.1 (Oxidizer).* For the purpose of this subchapter, "oxidizer" (Division 5.1) means a material such as a chlorate, permanganate, inorganic peroxide, or a nitrate, that yields oxygen readily to stimulate the combustion of organic matter.

(b) *Division 5.2 (Organic peroxide).* For the purpose of this subchapter "organic peroxide" (Division 5.2) means an organic compound containing the bivalent –0–0– structure and which may be considered a derivative of hydrogen peroxide where one or more of the hydrogen atoms have been replaced by organic radicals unless:

(1) The material meets the definition of an explosive as prescribed in Subpart C of this part, in which case it must be classed as an explosive,

(2) The material is forbidden to be offered for transportation according to § 172.101 or § 173.21 of this subchapter,

(3) It is determined that the predominant hazard of the material containing an organic peroxide is other than that of an organic peroxide, or

(4) The Director, OHMT, has determined that the material does not present a hazard in transportation.

(c) Criteria for evaluating materials for inclusion in Class 5 are set forth in Chapter 11 of the UN Recommendations.

§ 173.129 Class 5—Assignment of Packing Group.

The packing group of a Class 5 material shall be as assigned in Column 5 of the § 172.101 Table.

§ 173.132 Class 6, Division 6.1—Definitions.

(a) For the purpose of this subchapter, "poisonous materials" (Division 6.1) means a material, other than a gas, which is known to be so toxic to humans as to afford a hazard to health during transportation, or which, in the absence of adequate data on human toxicity, is presumed to be toxic to humans because it falls within any one of the following categories when tested on laboratory animals:

(1) *Oral Toxicity.* A liquid with an LD_{50} for acute oral toxicity of not more than 500 mg/kg or a solid with an LD_{50} for acute oral toxicity of not more than 200 mg/kg.

(2) *Dermal Toxicity.* A material with an LD_{50} for acute dermal toxicity of not more than 1000 mg/kg.

(3) *Inhalation Toxicity.* (i) A dust or mist with an LC_{50} for acute toxicity on inhalation of not more than 10 mg/L; or

(ii) A material with a saturated vapor concentration in air at 20 °C (68 °F) of more than one-fifth of the LC_{50} for acute toxicity on inhalation of vapors and with an LC_{50} for acute toxicity on inhalation of vapors of not more than 5000 ml/m³.

(b) For the purposes of this subchapter—

(1) LD_{50} for acute toxicity means that dose of the material administered which is most likely to cause death within 14 days in half of both male and female young adult albino rats. The number of animals tested must be sufficient to give a statistically significant result and be in conformity with good pharmacological practices. The result is expressed in mg/kg body mass.

(2) LD_{50} for acute dermal toxicity means that dose of the material which, administered by continuous contact for 24 hours with the bare skin of an albino rabbit, is most likely to cause death within 14 days in half of the animals tested. The number of animals tested must be sufficient to give a statistically significant result and be in conformity with good pharmacological practices. The result is expressed in mg/kg body mass.

(3) LC_{50} for acute toxicity on inhalation means that concentration of vapor, mist, or dust which, administered by continuous inhalation for one hour to both male and female young adult albino rats, is most likely to cause death within 14 days in half of the animals tested. If the material is administered to the animals as a dust or mist, more than 90 percent of the particles available for inhalation in the test must have a diameter of 10 microns or less if it is reasonably foreseeable that such concentrations could be encountered by a human during transport. The result is expressed in mg/L of air for dusts and mists or in mL/m³ of air (parts per million) for vapors. See § 173.133(b) for LC_{50} determination for mixtures and for limit tests.

(i) When provisions of this subchapter require the use of the LC_{50} for acute toxicity on inhalation of dusts and mists based on a one-hour exposure and such data is not available, the LC_{50} for acute toxicity on inhalation based on a four-hour exposure may be multiplied by four and the product substituted for the one-hour LC_{50} for acute toxicity on inhalation.

(ii) When the provisions of this subchapter require the use of the LC_{50} for acute toxicity on inhalation of vapors based on a one-hour exposure and such data is not available, the LC_{50} for acute toxicity on inhalation based on a four-hour exposure may be multiplied by two and the product substituted for the one-hour LC_{50} for acute toxicity on inhalation.

(c) The foregoing categories shall not apply if the Director, OHMT has determined that the physical characteristics of the material or its probable hazards to humans as shown by documented experience indicate that the material will not cause serious sickness or death.

§ 173.133 Division 6.1—Assignment of Packing Group.

(a) The packing group of Division 6.1 materials shall be as assigned in Column 5 of the § 172.101 Table. When the § 172.101 Table provides more than one packing group for a hazardous material, the packing group shall be determined by applying the following criteria:

(1) The packing group assignment for routes of administration other than inhalation of vapors shall be in accordance with the following table:

Packing group	Oral toxicity LD_{50} (mg/kg)	Dermal toxicity LD_{50} (mg/kg)	Inhalation toxicity by dusts and mists LC_{50} (mg/L)
I	≤15	≤40	≤0.5
II	>5, ≤50	>40, ≤1200	>0.5, ≤2
III	solids: >50, ≤200. liquids: >50, ≤500.	>200, ≤1000	>2, ≤10

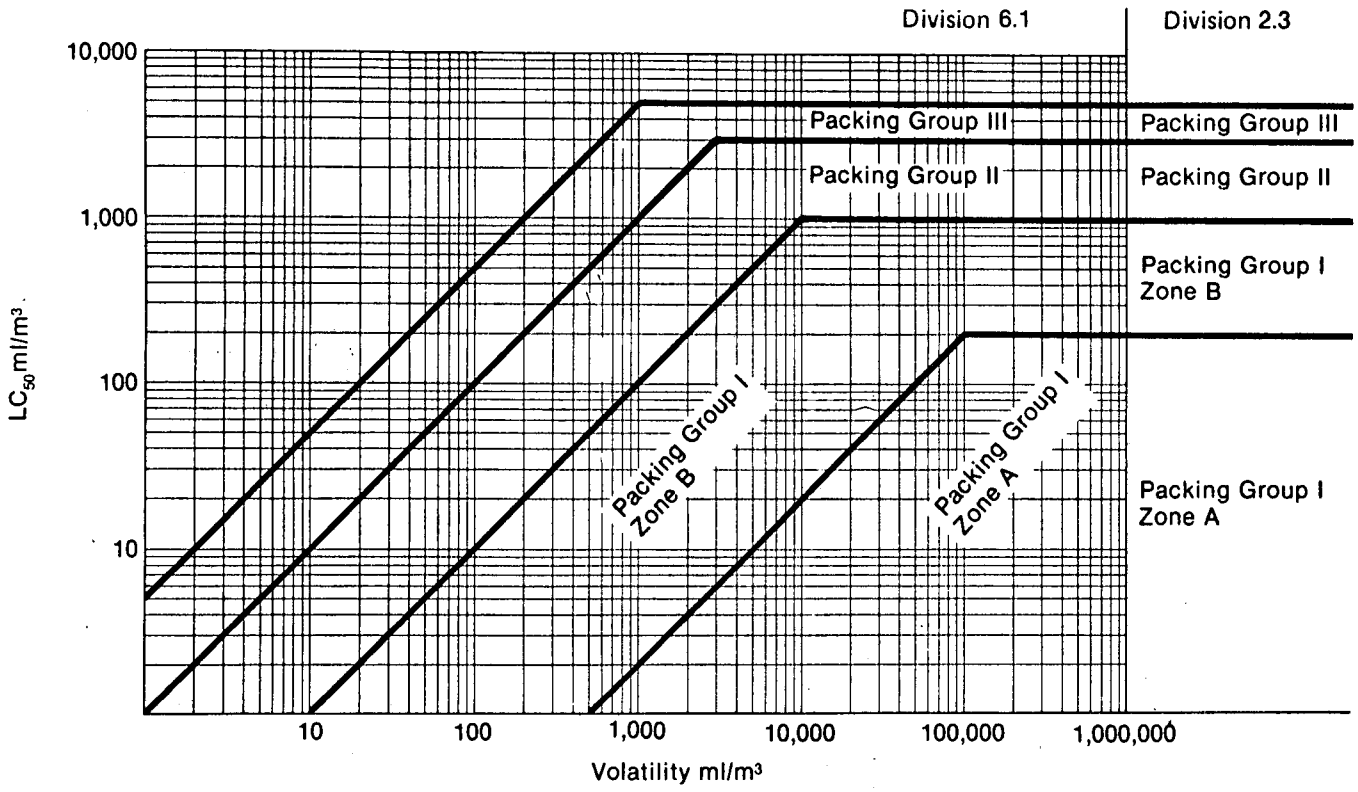
(2) The packing group assignment based on inhalation of vapors shall be in accordance with the following table:

Packing group	Vapor concentration and toxicity
I, Zone A	V >500 LC_{50} and LC_{50} <200 mL/M³.
I, Zone B	V >10 LC_{50}; LC_{50} <1000 mL/m³; and the criteria for Packing Group I, Zone A are not met.
II	V >LC_{50}; LC_{50} <3000 mL/m³; and the criteria for Packing Group I are not met.
III	V >.2 LC_{50}; LC_{50} <5000 mL/m³; and the criteria for Packing Groups I and II are not met.

Note.—V is the saturated vapor concentration in air of the material in mL/m³ at 20 °C and standard atmospheric pressure.

These criteria are represented graphically in Figure 1:

Figure 1
Inhalation Toxicity: Packing Group Borderlines



(3) When the packing group determined by applying these criteria is different for two or more (oral, dermal or inhalation) routes of administration, the packing group assigned to the material shall be that indicated for the highest degree of toxicity for any of the routes of administration.

(4) Notwithstanding the provisions of this paragraph, the packing group of a tear gas substance is as assigned in Column 5 of the § 172.101 Table.

(b) The packaging groups for Division 6.1 mixtures that are poisonous (toxic) by inhalation may be determined by one of the following methods:

(1) Where LC_{50} data is available on each of the poisonous (toxic) substances comprising the mixture—

(i) The LC_{50} of the mixture is estimated using the formula:

$$LC50\ (mixture) = \frac{1}{\sum_{i=1}^{n} \frac{f_i}{LC50_i}}$$

where:

f_i = mole fraction of the i^{th} component substance of the liquid

LC_{50i} = mean lethal concentration of the i^{th} component substance in ml/m ^{3}

(ii) The volatility of each component substance is estimated using the formula:

$$V_i = P_i \times \frac{10^6}{760} \text{ ml/m}^3$$

where:

P_i = partial pressure of the i^{th} component substance in mmHg at 20 °C and one atmosphere pressure

(iii) The ratio of the volatility to the LC_{50} is calculated using the formula:

$$R = \sum_{i=1}^{n} \frac{V_i}{LC50_i}$$

(iv) Using the calculated values LC_{50} (mixture) and R, the packaging group for the mixture is determined:

Packaging group	Ratio of volatility and LC_{50}
I, Zone A	R ≥500 and LC_{50} (mixture) ≤200 ml/m³.
I, Zone B	R ≥10 and LC_{50} (mixture) <1000 ml/m³; and the criteria for Packing Group I, Zone A, are not met.
II	R ≥1 and LC_{50} (mixture) ≤3000 ml/m³; and the criteria for Packing Group I are not met.
III	R ≥⅛ and LC_{50} (mixture) ≤5000 ml/m³; and the criteria for Packing Groups I and II are not met.

(2) In the absence of LC_{50} data on the poisonous (toxic) constituent substances, the mixture may be assigned a packaging group based on the following simplified threshold toxicity tests. When these threshold tests are used, the most restrictive packaging group must be determined and used for the transportation of the mixture.

(i) A mixture is assigned to Packaging Group I, Zone A only if both the following criteria are met:

(A) A sample of the liquid mixture is vaporized and diluted with air to create a test atmosphere of 200 ml/m³ vaporized mixture in air. Ten albino rats (five male and five female) are exposed to the test atmosphere for one hour and observed for fourteen days. If five or more of the animals die within the fourteen day observation period, the mixture is presumed to have an LC_{50} equal to or less than 200 ml/m³.

(B) A sample of the vapor in equilibrium with the liquid mixture is diluted with 499 equal volumes of air to form a test atmosphere. Ten albino rats (five male and five female) are exposed to the test atmosphere for one hour and observed for fourteen days. If five or more of the animals die within the fourteen day observation period, the mixture is presumed to have a volatility equal to or greater than 500 times the mixture LC_{50}.

(ii) A mixture is assigned to Packaging Group I, Zone B only if both the following criteria are met, and the mixture does not meet the criteria for Packaging Group I, Zone A:

(A) A sample of the liquid mixture is vaporized and diluted with air to create a test atmosphere of 1000 ml/m³ vaporized mixture in air. Ten albino rats (five male and five female) are exposed to the test atmosphere for one hour and observed for fourteen days. If five or more of the animals die within the fourteen day observation period, the mixture is presumed to have an LC_{50} equal to or less than 1000 ml/m³.

(B) A sample of the vapor in equilibrium with the liquid mixture is diluted with 9 equal volumes of air to form a test atmosphere. Ten albino rats (five male and five female) are exposed to the test atmosphere for one hour and observed for fourteen days. If five or more of the animals die within the fourteen day observation period, the mixture is presumed to have a volatility equal to or greater than 10 times the mixture LC_{50}.

(iii) A mixture is assigned to Packaging Group II only if both the following criteria are met, and the mixture does not meet the criteria for Packaging Group I (Zone A or B):

(A) A sample of the liquid mixture is vaporized and diluted with air to create a test atmosphere of 3000 ml/m³ vaporized mixture in air. Ten albino rats (five male and five female) are exposed to the test atmosphere for one hour and observed for fourteen days. If five or more of the animals die within the fourteen day observation period, the mixture is presumed to have an LC_{50} equal to or less than 3000 ml/m³.

(B) A sample of the vapor in equilibrium with the liquid mixture is used to form a test atmosphere. Ten albino rats (five male and five female) are exposed to the test atmosphere for one hour and observed for fourteen days. If five or more of the animals die within the fourteen day observation period, the mixture is presumed to have a volatility equal to or greater than the mixture LC_{50}.

(iv) A mixture is assigned to Packaging Group III only if both the following criteria are met, and the mixture does not meet the criteria for Packaging Groups I (Zone A or B) or II:

(A) A sample of the liquid mixture is vaporized and diluted with air to create a test atmosphere of 5000 ml/m³ vaporized mixture in air. Ten albino rats (five male and five female) are exposed to the test atmosphere for one hour and observed for fourteen days. If five or more of the animals die within the fourteen day observation period, the mixture is presumed to have an LC_{50} equal to or less than 5000 ml/m³.

(B) The vapor pressure of the liquid mixture is measured and if the vapor pressure is equal to or greater than 1000 ml/m³, the mixture is presumed to have a volatility equal to or greater than ⅛ the mixture LC_{50}.

§ 173.134 Class 6, Division 6.2—Definitions.

(a) For the purpose of this subchapter—

(1) An "infectious substance" (Division 6.2) means a viable microorganism, or its toxin, which causes or may cause human disease, and is limited to those agents listed in 42 CFR 72.3 of the regulations of the Department of Health and Human Services. The terms "infectious substance" and "etiologic agent" are synonymous.

(2) A "diagnostic specimen" means any human or animal material including, but not limited to, excreta, secreta, blood, and its components, tissue, and tissue fluids, being shipped for purposes of diagnosis.

(3) A "biological product" means a material prepared and manufactured in accordance with the provisions of 9 CFR Part 102 (Licensed veterinary biological products), 21 CFR Part 601 (Licensing), 21 CFR 312.1 (Conditions for exemption of new drugs for investigational use), 9 CFR Part 103 (Biological products for experimental treatment of animals), or 21 CFR 312.9 (New drugs for investigational use in laboratory research animals or in vitro tests), and which in accordance with these provisions, may be shipped in interstate commerce.

(b) The requirements of this subpart supplement the requirements of the Department of Health and Human Services contained in 42 CFR Part 72.

(c) Packing groups are not assigned to Division 6.2 materials.

§ 173.136 Class 8—Definitions.

(a) For the purpose of this subchapter, "corrosive material" (Class 8) means a liquid or solid that causes visible destruction or irreversible alterations in human skin tissue at the site of contact, or a liquid that has a severe corrosion rate on steel or aluminum, in accordance with the following criteria:

(1) A material is considered to be destructive or to cause irreversible alteration in human skin tissue if, when tested on the intact skin of an albino rabbit by the technique described in Appendix A to this part, the structure of the tissue at the site of contact is destroyed or changed irreversibly after an exposure period of 4 hours or less.

(2) A liquid is considered to have a severe corrosion rate if its corrosion rate exceeds 6.25mm (0.246 inches) a year on steel (SAE 1020) or aluminum (nonclad 7075–T6) at a test temperature of 55 °C (131 °F). An acceptable test is described in NACE Standard TM–01–69.

(b) If human experience or other data indicate that the hazard of a material is greater or less than indicated by the results of the tests specified in paragraph (a) of this section, the Department may revise its classification or make the material subject to the requirements of this subchapter.

§ 173.137 Class 8—Assignment of Packing Group.

The packing group of Class 8 material is as indicated in Column 5 of the § 172.101 Table. When the § 172.101 Table provides more than one packing group for a hazardous material, the packing group shall be determined by applying the following criteria:

(a) *Packing Group I.* Substances that cause visible necrosis of the skin tissue at the site of contact when tested on the intact skin of an animal for a period of not more than 3 minutes.

(b) *Packing Group II.* Substances, other than those meeting Packing Group I criteria, that cause visible necrosis of the skin tissue at the site of contact when tested on the intact skin of an animal for a period of not more than 60 minutes.

(c) *Packing Group III.* Substances, other than those meeting Packing Group I or II criteria—

(1) That cause visible necrosis of the skin tissue at the site of contact when tested on the intact skin of an animal for a period of not more than 4 hours; or

(2) Which have a corrosion rate on steel or aluminum surfaces exceeding 6.25 mm (0.246 inches) a year at a test temperature of 55 °C (131 °F).

§ 173.140 Class 9—Definitions.

(a) For the purpose of this subchapter, "miscellaneous hazardous material" (Class 9) means a material which presents a hazard during transport, but which is not included in any other hazard class. Included in this class is any material which has an anesthetic, noxious or other similar property which could cause extreme annoyance or discomfort to a flight crew member so as to prevent the correct performance of assigned duties.

§ 173.141 Class 9—Assignment of Packing Group.

The packing group of a Class 9 material is as indicated in Column 5 of the § 172.101 Table.

§ 173.144 Other Regulated Materials (ORM)—Definitions.

(a) For the purpose of this subchapter, "ORM–D material" means a material such as a consumer commodity which, though otherwise subject to the regulations of this subchapter, presents a limited hazard during transportation due to its form, quantity and packaging. It must be a material for which exceptions are provided in the § 172.101 Table. Each ORM–D material or category of ORM–D material is listed in the § 172.101 Table.

(b) For the purpose of this subchapter, "ORM–E material" means a material that is not included in any other hazard class, but is subject to the requirements of this subchapter because it meets the definition in § 171.8 of this subchapter for a hazardous substance or a hazardous waste.

§ 173.145 Other Regulated Materials—Assignment of Packing Group.

(a) The packing group of an ORM–E material is as indicated in Column 5 of the § 172.101 Table.

(b) Packing groups are not assigned to ORM–D materials.

§ 173.150 Exceptions for Class 3 (flammable and combustible liquids).

(a) *General.* Exceptions for hazardous materials shipments in the following paragraphs are permitted only if this section is referenced for the specific hazardous material in the § 172.101 Table of this subchapter and the material does not meet the definition of another hazard class.

(b) *Limited quantities.* Limited quantities of flammable liquids (Class 3) are excepted from labeling, unless offered or intended for transportation by aircraft, and the specification packaging requirements of this subchapter when packaged in combination packagings according to this paragraph. In addition, shipments of limited quantities are not subject to Subpart F (Placarding) of Part 172 of this subchapter. Each package must conform to the packaging requirements of Subpart B of this part and may not exceed 30 kilograms (66.1 pounds) gross weight. The following combination packagings are authorized:

(1) For flammable liquids in Packing Group I, inner packagings not over 0.5 liter (0.53 quart) net capacity each, packed in strong outer packagings;

(2) For flammable liquids in Packing Group II, inner packagings not over 1.0 liters (1.06 quarts) net capacity each, packed in strong outer packaging; and

(3) For flammable liquids in Packing Group III, inner packagings not over 4.0 liters (1.06 gallons) net capacity each, packed in strong outer packagings.

(c) *Consumer commodities.* A limited quantity which conforms to the provisions of paragraph (b) of this section and is a "consumer commodity" as defined in § 171.8 of this subchapter, may be renamed "Consumer commodity" and reclassed as ORM–D material. In addition to the exceptions provided by paragraph (b), shipments of ORM–D materials are not subject to the shipping paper requirements of Subpart C of Part 172, unless offered or intended for transportation by aircraft, and are eligible for the exceptions provided in § 173.156.

(d) *Alcoholic beverages.* Alcoholic beverages (wine and distilled spirits as defined in 27 CFR 4.10 and 5.11) in packagings of four liters or less are not subject to the requirements of this subchapter.

(e) *Aqueous solutions of alcohol.* An aqueous solution containing 24 percent or less alcohol by volume and no other hazardous material—

(1) May be reclassed as a combustible liquid; and

(2) Is not subject to the requirements of this subchapter if it contains no less than 50 percent water.

(f) *Combustible liquids.* (1) Except for transportation by vessel or aircraft, a flammable liquid with a flash point at or above 38 °C (100 °F) may be reclassed as a combustible liquid.

(2) Unless otherwise stated for a specific material, the requirements in this subchapter do not apply to a material classed as a combustible liquid in a non-bulk packaging unless the combustible liquid is a hazardous substance or a hazardous waste.

(3) A combustible liquid that is a hazardous substance or a hazardous waste, in a non-bulk packaging, and a combustible liquid in a bulk packaging is not subject to the requirements of this subchapter except those pertaining to:

(i) Shipping papers, waybills, switching orders, and hazardous waste manifests;

(ii) Marking of packages;

(iii) Display of identification numbers on bulk packages;

(iv) Placarding of bulk packagings;

(v) Carriage aboard aircraft and vessels (for packaging requirements for transport by vessel see § 176.340 of this subchapter);

(vi) Reporting incidents as prescribed by §§ 171.15, 171.16, and 171.17 of this subchapter;

(vii) Packaging requirements of Subpart B of this part; and

(viii) The requirements of §§ 173.1, 173.21, 173.24, 173.24a, 173.24b, 174.1, 177.804, 177.817, and 177.834 of this subchapter.

(4) A combustible liquid that is not a hazardous substance or a hazardous waste is not subject to the requirements of this subchapter if it is a mixture of one or more components that—

(i) Have a flash point at or above 93.30 °C (200 °F),

(ii) Comprise at least 99 percent of the volume of the mixture, and

(iii) Is not offered for transportation or transported as a liquid at a temperature at or above its flash point.

§ 173.151 Exceptions for Division 4.1 (flammable solids).

(a) *General.* Exceptions for hazardous materials shipments in the following paragraphs are permitted only if this section is referenced for the specific hazardous material in the § 172.101 Table of this subchapter.

(b) *Limited quantities of Division 4.1 flammable solids.* Limited quantities of flammable solids (Division 4.1) in Packing Groups II and III are excepted from labeling, unless offered or intended for transportation by aircraft, and the specification packaging requirements of this subchapter when packaged in combination packagings according to this paragraph. In addition, shipments of limited quantities are not subject to Subpart F (Placarding) of Part 172 of this subchapter. Each package must conform to the packaging requirements of Subpart B of this part and may not exceed 30 kilograms (66.1 pounds) gross weight. The following combination packagings are authorized:

(1) For flammable solids in Packing Group II, inner packagings not over 1.0 kilogram (2.20 pounds) net capacity each, packed in strong outer packagings; and

(2) For flammable solids in Packing Group III, inner packagings not over 5.0 kilograms (11.02 pounds) net capacity each, packed in strong outer packagings.

(c) *Consumer commodities.* A limited quantity which conforms to the provisions of paragraph (b) of this section, and charcoal briquettes in packagings not exceeding 30 kilograms (66.1 pounds) gross weight, may be renamed "Consumer commodity" and reclassed as ORM-D material, if the material is a "consumer commodity" as defined in § 171.8 of this subchapter. In addition to the exceptions provided by paragraph (b) of this section, shipments are not subject to the shipping paper requirements of Subpart C of Part 172, unless offered or intended for transportation by aircraft, and are eligible for the exceptions provided in § 173.156.

§ 173.152 Exceptions for Division 5.1 (oxidizers) and Division 5.2 (organic peroxides).

(a) *General.* Exceptions for hazardous materials shipments in the following paragraphs are permitted only if this section is referenced for the specific hazardous material in the § 172.101 Table of this subchapter.

(b) *Limited quantities.* Limited quantities of oxidizers (Division 5.1) and organic peroxides (Division 5.2) in Packing Groups II and III are excepted from labeling, unless offered or intended for transportation by aircraft, and the specification packaging requirements of this subchapter when packaged in combination packagings according to this paragraph. In addition, shipments of these limited quantities are not subject to Subpart F of Part 172 (Placarding) of this subchapter. Each package must conform to the packaging requirements of Subpart B of this part and may not exceed 30 kilograms (66.1 pounds) gross weight. The following combination packagings are authorized:

(1) For oxidizers in Packing Group II, inner packagings not over 1.0 liter (1.06 quarts) net capacity each for liquids or not over 1.0 kilogram (2.20 pounds) net capacity each for solids, packed in strong outer packagings.

(2) For oxidizers in Packing Group III, inner packagings not over 4.0 L (1.06 gallons) net capacity each for liquids or not over 5.0 kilograms (11.02 pounds) net capacity each for solids, packed in strong outer packagings.

(3) For organic peroxides in Packing Groups II and III, inner packagings not over 30 milliliters (1.0 ounce) net capacity for liquids or 30 grams (1.1 ounces) net capacity for solids, packed in strong outer packagings.

(c) *Consumer commodities.* A limited quantity which conforms to the provisions of paragraph (b) of this section and is a "consumer commodity" as defined in § 171.8 of this subchapter, may be renamed "Consumer commodity" and reclassed as ORM-D material. In addition to the exceptions provided by paragraph (b), shipments are not subject to the shipping paper requirements of Subpart C of Part 172, unless offered or intended for transportation by aircraft, and are eligible for the exceptions provided in § 173.156.

§ 173.153 Exceptions for Division 6.1 (poisonous materials).

(a) *General.* Exceptions for hazardous materials shipments in the following paragraphs are permitted only if this section is referenced for the specific hazardous material in the § 172.101 Table of this subchapter.

(b) *Limited quantities of Division 6.1 materials.* Limited quantities of poisonous materials (Division 6.1) in Packing Group III are excepted from the specification packaging requirements of this subchapter when packaged in combination packagings according to this paragraph. In addition, shipments of these limited quantities are not subject to Subpart F of Part 172 (Placarding) of this subchapter. Each package must conform to the packaging requirements of Subpart B of this part and may not exceed 30 kilograms (66.1 pounds) gross weight. The following combination packagings are authorized:

(1) For poisonous liquids, inner packagings not over 4.0 liters (1.06 gallons) net capacity each, packed in strong outer packagings; and

(2) For poisonous solids, inner packagings not over 5.0 kilograms (11.02 pounds) net capacity each, packed in strong outer packagings.

(c) *Consumer commodities.* The following provisions apply to consumer commodities:

(1) A limited quantity which conforms to the provisions of paragraph (b) of this section and is a "consumer commodity" as defined in § 171.8 of this subchapter, may be renamed "Consumer commodity" and reclassed as ORM-D material.

(2) A poisonous material which is a drug or medicine and is a "consumer commodity" as defined in § 171.8 of this subchapter, may be renamed "Consumer commodity" and reclassed as ORM-D material if packaged in a combination packaging not exceeding 30 kilograms (66.1 pounds) with inner packagings not over 250 milliliters (8.5 ounces) net capacity for liquids or 250 grams (8.8 ounces) net capacity for solids packed in strong outer packagings. Each package must conform to the packaging requirements of Subpart B of this part.

(3) Packages of ORM-D material are excepted from the specification packaging requirements of this subchapter and from the labeling requirements of Subpart E of Part 172. Shipments of ORM-D material are eligible for the exceptions provided in § 173.156 and in paragraph (b) of this section and are not subject to the shipping paper requirements of Subpart C of Part 172, unless offered or intended for transportation by aircraft.

§ 173.154 Exceptions for Class 8 (corrosive materials).

(a) *General.* Exceptions for hazardous materials shipments in the following paragraphs are permitted only if this section is referenced for the specific hazardous material in the § 172.101 Table of this subchapter.

(b) *Limited quantities.* Limited quantities of corrosive materials (Class 8) in Packing Groups II and III are excepted from labeling, unless offered or intended for transportation by aircraft, and the specification packaging requirements of this subchapter when packaged in combination packagings according to this paragraph. In addition, shipments of these limited quantities are not subject to Subpart F (Placarding) of Part 172 of this subchapter. Each package must conform to the packaging requirements of Subpart B of this part and may not exceed 30 kilograms (66.1 pounds) gross weight. The following combination packagings are authorized:

(1) For corrosive materials in Packing Group II, in inner packagings not over 1.0 liters (1.06 quarts) net capacity each for liquids or not over 1.0 kilograms (2.2 pounds) net capacity each for solids, packed in strong outer packagings.

(2) For corrosive materials in Packing Group III, in inner packagings not over 4.0 liters (1.06 gallons) net capacity each for liquids or not over 5.0 kilograms (11.02 pounds) net capacity each for solids, packed in strong outer packagings.

(c) *Consumer commodities.* A limited quantity which conforms to the provisions of paragraph (b) of this section and is a "consumer commodity" as defined in § 171.8 of this subchapter may be renamed "Consumer commodity" and reclassed as ORM-D material. In addition to the exceptions provided by paragraph (b) of this section, shipments of ORM-D materials are not subject to the shipping paper requirements of Subpart C of Part 172, unless offered or intended for transportation by aircraft, and are eligible for the exceptions provided in § 173.156.

(d) *Materials corrosive to aluminum or steel only.* Except for a hazardous substance or a hazardous waste, a material classed as a Class 8, Packing Group III, material solely because of its corrosive effect—

(1) On aluminum is not subject to any other requirements of this subchapter when transported by motor vehicle or rail car in a packaging constructed of materials that will not react dangerously with or be degraded by the corrosive material;

(2) On steel is not subject to any other requirements of this subchapter when transported by motor vehicle or rail car in a bulk packaging constructed of materials that will not react dangerously with or be degraded by the corrosive material.

§ 173.155 Exceptions for Class 9 (miscellaneous hazardous materials).

(a) *General.* Exceptions for hazardous materials shipments in the following paragraphs are permitted only if this section is referenced for the specific hazardous material in the § 172.101 Table of this subchapter.

(b) *Limited quantities.* Limited quantities of miscellaneous hazardous materials (Class 9) are excepted from the specification packaging requirements of this subchapter when packaged in combination packagings according to this paragraph. In addition, shipments of these limited quantities are not subject to Subpart F (Placarding) of Part 172 of this subchapter. Each package must conform to the packaging requirements of Subpart B of this part and may not exceed 30 kilograms (66.1 pounds) gross weight. The following combination packagings are authorized:

(1) For liquids, inner packagings not over 4.0 liters (1.06 gallons) net capacity each, packed in strong outer packagings.

(2) For solids, inner packagings not over 5.0 kilograms (11.02 pounds) net capacity each, packed in strong outer packagings.

(c) *Consumer commodities.* A limited quantity which conforms to the provisions of paragraph (b) of this section and is a "consumer commodity" as defined in § 171.8 of this subchapter, may be renamed "Consumer commodity" and reclassed as ORM-D material. In addition to the exceptions provided by paragraph (b), shipments of ORM-D materials are not subject to the shipping paper requirements of Subpart C of Part 172, unless offered or intended for transportation by aircraft, and are eligible for the exceptions provided in § 173.156.

§ 173.156 Exceptions for ORM materials.

(a) *General.* Exceptions for hazardous materials shipments in the following paragraphs are permitted only if this section is referenced for the specific hazardous material in the § 172.101 Table or in a packaging section in this part.

(b) *ORM-D.* Packagings for ORM-D materials are specified according to hazard class in §§ 173.150 through 173.155 and in § 173.306. In addition to other exceptions specified for ORM-D materials in this part, strong outer packagings as specified in this part and the marking requirements specified in § 172.316 of this subchapter are not required for materials classed as ORM-D when unitized in cages, carts or similar overpacks and when transported by a private or contract motor carrier from a distribution center to a retail outlet.

(c) *ORM-E.* Limited quantities of ORM-E materials are excepted from the specification packaging requirements of this subchapter when packaged according to this paragraph. Each package must conform to the packaging requirements of Subpart B of this part and may not exceed 30 kilograms (66.1 pounds) gross weight. The following combination packagings are authorized:

(1) For liquids, inner packagings not over 4.0 liters (1.06 gallons) net capacity each, packed in strong outer packagings; and

(2) For solids, inner packagings not over 5.0 kilograms (11.02 pounds) net capacity each, packed in strong outer packagings.

Subpart E—Non-Bulk Packaging for Hazardous Materials Other Than Class 1 and Class 7

§ 173.158 Nitric Acid.

(a) Nitric acid exceeding 40 percent concentration may not be packaged with any other material.

(b) Nitric acid in any concentration which does not contain sulfuric acid or hydrochloric acid as impurities, when offered for transportation by rail, highway, or water shall be packaged in specification containers as follows:

(1) 1A1 stainless steel drums are authorized, subject to the following limitations:

(i) Stainless steel used in drums must conform to the following thicknesses:

Nominal (marked) capacity (in liters) of 1A1 drum	Minimum thickness (in millimeters) of stainless steel
55	0.9
115	1.2
210	1.5
450	2.0

(ii) Drums weighing less than 85 percent of their original tare weight may not be used.

(iii) Type 304 or other grades of equivalent corrosion-resistant steels in the as-welded condition are permissible for nitric acid concentrations up to and including 78 percent.

(iv) For all concentrations of nitric acid, the following are permissible:

(A) Type 304 heat-treated (quenched in water at 1900°F.), or

(B) Stabilized Type 347 in the as-welded condition, or

(C) Stabilized Type 347 stress-relieved (1550–1650°F), or

(D) Stabilized Type 347 heat-treated (quenched in water at 1900°F), or

(E) Other grades of equivalent corrosion resistance.

(v) All parts of drum exposed to lading must be capable of withstanding the corrosive effect of nitric acid to the extent that 65 percent boiling nitric acid does not penetrate the metal more than 0.0381 mm (0.0015 inch) per month. (ASTM A 262 may be used for a suitable corrosion test procedure.)

(vi) In addition to marking required by § 178.503 of this subchapter, the following marks, in lettering of at least ½ inch (12.7 mm) height, must be placed on drums used to transport nitric acid:

(A) The type of steel used in body and head sheets as identified by American Iron and Steel Institute type number, and, in addition, the letters HT following the steel designation on containers subject to stress relieving or heat treatment during manufacture.

(B) The thickness in millimeters of metal in thinnest part. When the thickness of metal in the body differs from that in the head, both must be indicated with slanting line between and with the gauge of the body indicated first.

(C) Original tare weight in kilograms, preceded by the letters "TW."

An example of the markings required by paragraph (b)(1)(vi) (A), (B), and (C) of this section "304HT/1.9/2.7/TW55."

(2) 4H1 expanded plastics outer packagings with glass inner receptacles of not greater than 2.5 liters (2.64 quarts) capacity each. No more than four 2.5 liter inner receptacles may be packed in one outer packaging.

(c) Nitric acid of 80 percent or greater concentration which does not contain sulfuric acid or hydrochloric acid as impurities, when offered for transportation by rail, highway, or water may be packaged in 1B1 aluminum drums.

(d) Nitric acid of 90 percent or greater concentration, when offered for transportation by rail, highway, or water may be packaged in 4C1, 4C2, 4D or 4F wooden boxes with inner packagings consisting of glass bottles further individually overpacked in tightly closed metal packagings. Glass bottles must be of 2.5 liters (2.64 quarts) or less capacity and cushioned within the metal packagings.

(e) Nitric acid of less than 90 percent concentration, when offered for transportation by rail, highway, or water may be packaged in 4C1, 4C2, 4D or 4F wooden boxes with inside glass packagings of not over 2.5 liters (2.64 quarts) capacity each.

(f) Nitric acid of 70 percent or less concentration, when offered for transportation by rail, highway, or water, may be packaged as follows:

(1) In composite packagings 6PA1, 6PA2, 6PB1, 6PB2, 6PC, 6PD1, 6PH1, or 6PH2.

(2) In 4H1 expanded plastic boxes with inner glass packagings of not over 2.5 liters (2.64 quarts) each.

(g) Nitric acid of more than 70 percent concentration, when offered for transportation by cargo aircraft only, must be packaged in combination packagings with 1A2, 1B2, 1D, 1G, 1H2, 3H2, 4C1, 4C2, 4D, 4F or 4G outer packagings with glass or earthenware inner packagings of not over 1 liter (2.11 pints) or glass ampoules of not over 0.5 liter (1.06 pints).

(h) Nitric acid of less than 70 percent concentration, when offered for transportation in cargo aircraft only must be packaged in combination packagings with 1A2, 1B2, 1D, 1G, 1H2, 3H2, 4C1, 4C2, 4D, 4F or 4G outer packagings with inner packagings of—

(1) Glass or earthenware not over 2.5 liter (2.64 quarts) capacity;

(2) Plastic not over 2.5 liter (2.64 quarts) capacity; or

(3) Glass ampoule not over 0.5 liter (1.06 pints) capacity.

§ 173.159 Batteries, wet.

(a) Electric storage batteries, containing electrolyte acid or alkaline corrosive battery fluid, must be completely protected so that short circuits will be prevented; they may not be packed with other materials except as provided in §§ 173.220 and 173.222 of this part and paragraphs (h) and (i) of this section.

(b) The following specification packagings are authorized for batteries packed without other materials:

(1) 4C1, 4C2, 4D, or 4F wooden boxes.

(2) 4G fiberboard boxes.

(c) The following non-specification packagings are authorized for batteries packed without other articles:

(1) Electric storage batteries protected against short circuits and firmly secured to skids or pallets capable of withstanding the shocks normally incident to transportation, are authorized for transportation by rail, highway, or water. The height of the completed unit must not exceed 1½ times the width of the skid or pallet. The unit must be capable of withstanding, without damage, a superimposed weight equal to two times the weight of the unit or, if the weight of the unit exceeds 2,000 pounds (907.2 kg), a superimposed weight of 4,000 pounds (1814.4 kg). Battery terminals must not be relied upon to support any part of the superimposed weight.

(2) Electric storage batteries weighing 500 pounds (226.8 kg) or more, consisting of carriers' equipment, may be shipped by rail when mounted on suitable skids and protected against short circuits. Such shipments must not be offered in interchange service.

(3) One to three batteries not over 25 pounds (11.3 kg) each packed in outer boxes. The maximum authorized gross weight is 75 pounds (34.0 kg).

(4) Not more than four batteries not over 15 pounds (6.8 kg) each, packed in strong outer fiberboard or wooden boxes. Batteries must be securely cushioned and packed to prevent short circuits. The maximum authorized gross weight is 65 pounds (29.5 kg).

(5) Not more than five batteries not over 10 pounds (4.5 kg) each, packed in strong outer fiberboard or wooden boxes. Batteries must be securely cushioned and packed to prevent short circuits. The maximum authorized gross weight is 65 pounds (29.5 kg).

(6) Single batteries not exceeding 75 pounds (34.0 kg) each, packed in 5-sided slipcovers or in completely closed fiberboard boxes. Slipcovers and boxes must be of solid or double-faced corrugated fiberboard of at least 200 pounds (9.07 kg) Mullen test strength. The slipcover or fiberboard box must fit snugly and provide inside top clearance of at least ½ inch (1.27 cm) above battery terminals and filler caps with reinforcement in place. Assembled for shipment, the bottom edges of the slipcover must come to within one inch (2.54 cm) of the bottom of the battery. The completed package (battery and box or slipcover) must be capable of withstanding a top-to-bottom compression test of at least 500 pounds (226.8 kg) without damage to battery terminals, cell covers or filler caps.

(d) Nonspillable wet electric storage batteries capable of withstanding the following two tests without leakage of battery fluid are excepted from all other requirements of this subchapter when

protected against short circuits and securely packaged:

(1) *Vibration test.* The battery must be rigidly clamped to the platform of a vibration machine and a simple harmonic motion having an amplitude of 0.8 mm (0.03 inch), with a 1.6 mm (0.06 mm) maximum total excursion must be applied. The frequency must be varied at the rate of 1 Hz/min between the limits of 10 Hz to 55 Hz. The entire range of frequencies and return must be traversed in 95 ± 5 minutes for each mounting position (direction of vibrator) of the battery. The battery must be tested in three mutually perpendicular positions (to include testing with fill openings and vents, if any, in an inverted position) for equal time periods.

(2) *Pressure differential test.* Following the vibration test, the battery must be stored for six hours at 24 °C ± 4 °C (75.2 °F ± 7.2 °F) while subjected to a pressure differential of at least 88 kPa (12.8 psi). The battery must be tested in three mutually perpendicular positions (to include testing with fill openings and vents, if any, in an inverted position) for at least six hours in each position.

(e) Electric storage batteries containing electrolyte or corrosive battery fluid are not subject to the requirements of this subchapter for carriage by highway or rail if all of the following requirements are met:

(1) No other hazardous materials may be transported in the same vehicle,

(2) The batteries must be loaded or braced so as to prevent damage and short circuits in transit,

(3) Any other material loaded in the same vehicle must be blocked, braced, or otherwise secured to prevent contact with or damage to the batteries, and

(4) The transport vehicle may not carry material shipped by any person other than the shipper of the batteries.

(f) Electric storage batteries, containing electrolyte or corrosive battery fluid in a coil from which it is injected into the battery cells by a gas generator and initiator assembled with the battery, and which are nonspillable under the criteria of paragraph (d) of this section, are excepted from other requirements of this subchapter when examined by the Bureau of Explosives and approved by the Director, OHMT.

(g) Electrolyte, acid, or alkaline corrosive battery fluid, packed with storage batteries wet or dry, must be packed in one of the following specification packagings:

(1) In 4C1, 4C2, 4D, or 4F wooden boxes with inner receptacles of glass, not over 4.0 liters (1.06 gallons) each with not over 8.0 liters (2.11 gallons) total in each outside container. Inside containers must be well-cushioned and separated from batteries by a strong solid wooden partition. The completed package must conform to Packing Group III requirements.

(2) Electrolyte, acid, or alkaline corrosive battery fluid included with storage batteries and filling kits may be packed in strong plywood or wooden boxes when shipments are made by, for, or to the Departments of the Army, Navy, or Air Force of the United States. Packagings must conform to military specifications. The electrolyte, acid, or alkaline corrosive battery fluid must be packed in polyethylene bottles of not over 1.0 liter (1.06 quarts) capacity each. Not more than 24 bottles, securely separated from storage batteries and kits, may be shipped in each package.

(3) In 4G fiberboard boxes with not more than 12 inside packagings of polyethylene or other material resistant to the lading, each not over 2.0 liters (2.11 quarts) capacity each. Completed packages must conform to Packing Group III requirements. Inner packagings must be adequately separated from the storage battery. The maximum authorized gross weight is 65 pounds (29.5 kg). These packages are not authorized for transportation by aircraft.

(h) Dry storage batteries or battery charger devices may be packaged in 4G fiberboard boxes with inner receptacles containing battery fluid. Completed packagings must conform to Packing Group III requirements. Not more than 12 inner receptacles may be packed in one outer box. The maximum authorized gross weight is 75 pounds (34.0 kg).

§ 173.160 Bombs, smoke, non-explosive (corrosive).

Bombs, smoke, non-explosive, may be shipped provided they are without ignition elements, bursting charges, detonating fuses or other explosive components. They must be packaged in wooden (4C1, 4C2), plywood (4D) or reconstituted wood (4F) boxes, or plywood drums (1D), which meet Packing Group II requirements.

§ 173.161 Chemical kits.

(a) Except as otherwise provided, chemical kits must be packed, marked, and labeled as prescribed by this subchapter for the specific corrosive materials contained therein.

(b) Chemical kits containing limited quantities of corrosive liquids in inner receptacles of not over 6 fluid ounces (177.4 mL) capacity each are excepted from labeling (except when offered for transportation by air) and the specification packaging requirements of this subchapter if all of the following requirements are met:

(1) The kit may contain only corrosive liquids for which packaging exceptions are provided in the § 172.101 table.

(2) The kit must be a strong wooden or metal outer packaging, or must be packed in a strong wooden or metal packaging.

(3) The corrosive liquids must be cushioned with sufficient absorbent material to completely absorb the contents of the individual containers, and must be protected from damage by other materials in the kit.

(4) The contents of the kit must be of a nature and packed so there will be no possibility of the mixture of contents causing dangerous evolution of heat or gas.

In addition, these shipments are not subject to Subpart F of Part 172 of this subchapter (Placarding), to Part 174 (Carriage by rail) of this subchapter except § 174.24 (Shipping papers) and to Part 177 (Carriage by highway) of this subchapter except § 177.817 (Shipping papers).

(c) Except as provided in paragraph (b) of this section, chemical kits must be packed in 4G fiberboard boxes with inner glass receptacles of not over one liter (1.06 quart) capacity each, securely cushioned and separated from other inside containers. The contents of the kit must be of such a nature and so packed that there will be no possibility of the mixture of contents causing dangerous evolution of heat or gas.

§ 173.162 Gallium.

Gallium metal must be packaged in packagings intended to contain liquids consisting of semi-rigid plastic inner packagings of not more than 2.5 kg (5.51 pounds) net capacity each, individually enclosed in a sealed leak-tight bag of strong puncture-resistant material. The sealed bags must be packed in wooden (4C1, 4C2), plywood (4D), reconstituted wood (4F), fiberboard (4G) or plastic (4H1, 4H2) boxes or in fiber (1G) or steel (1A2) drums, which are lined with leak-tight, puncture-resistant material. Bags and liner material must be chemically resistant to gallium. If it is desired to maintain the gallium in a completely solid state, the above packaging may be overpacked in a strong, water-resistant outer packaging which contains dry ice or other means of refrigeration. If a refrigerant is used, all of the above materials used in the packaging of gallium must be chemically and physically resistant to the refrigerant and must have impact resistance at the low temperatures of the refrigerant employed. If dry ice is used, the outer packaging must permit the release of carbon dioxide gas. Completed

packaging must meet Packing Group I requirements for transportation by aircraft and Packing Group III requirements for transportation by vessel.

§ 173.163 Hydrogen fluoride.

Hydrogen fluoride (hydrofluoric acid, anhydrous) must be shipped in Specification 3, 3A, 3AA, 3B, 3C, 3E, 4, 4A, 25, or 38 cylinders; or Specification 4B, 4BA, 4BW or 4C cylinders, if they are not brazed. Filling density must not exceed 85 percent of the water weight capacity of the cylinder. Cylinders used exclusively in this service may, in lieu of the periodic hydrostatic retest required by § 173.34(e), be given a complete external visual inspection as described in CGA Pamphlet C–6, at the time such periodic retest becomes due. Such inspections shall be made on cylinders cleaned to bare metal. The results shall be recorded on a data sheet, completed copies of which shall be kept as prescribed in § 173.34(e)(5). Items which must be checked and recorded on these data sheets are: Date of inspection (month and year); DOT specification number; cylinder identification (registered symbol and serial number, date of manufacture, and if needed for adequate identification, ownership symbol); tare weight; physical condition (record specifically any leakage, corrosion, gouges, dents or digs in shell or heads, broken or damaged footring or protective ring or fire damage); disposition of cylinders (returned to service, to cylinder manufacturer for repairs, or scrapped). A cylinder which passes the inspection prescribed shall have the data recorded in the manner presently prescribed for the recording of the retest date except that an "E" is to follow the date (month and year) indicating requalification by the external inspection method. Cylinders removed from this service for any reason must be rendered unfit for any other regulated service.

§ 173.164 Mercury (metallic and articles containing mercury).

(a) For transportation by aircraft, mercury shall be packaged in packagings which meet the requirements of Part 178 at the Packing Group I performance level, as follows:

(1) In earthenware or glass or suitable plastic inner packagings of not more than 250 mL (8.5 ounces) capacity each, packed in steel drums (1A2), steel jerricans (3A2), wooden (4C1, 4C2), plywood (4D), fiberboard (4G) or reconstituted wood (4F) boxes, plywood drums (1D) or fiber drums (1G) with sufficient cushioning material to prevent breakage. Either the inner packagings or the outer packagings must have inner linings or bags of strong leakproof and puncture-resistant material impervious to mercury, completely surrounding the contents, which will prevent the escape of mercury from the package irrespective of its position.

(2) Iron or steel 'quicksilver flasks' packaged in steel drums (1A2), steel jerricans (3A2), wooden (4C1, 4C2), plywood (4D), fiberboard (4G) or reconstituted wood (4F) boxes, plywood drums (1D) or fiber drums (1G) with leakproof linings as in subparagraph (1) of this paragraph.

(3) In welded steel bottles with inner vaulted bottoms as single packagings. The closure must be a bolt with a conical thread, and the opening must not exceed 20 mm (0.8 inches). The maximum net mass must not exceed 35 kg (77.2 pounds).

(b) Manufactured articles or apparatuses containing mercury are excepted from the specification packaging requirements of this subchapter, when packaged as follows:

(1) Manufactured articles or apparatuses of which metallic mercury is a component part, such as manometers, pumps, thermometers, switches, etc. (for electron tubes, mercury vapor tubes and similar tubes, see paragraph (b)(2) of this section), must be in strong outer packagings, having sealed inner liners or bags of strong leakproof and puncture-resistant material impervious to mercury, which will prevent the escape of mercury from the package irrespective of its position. Mercury switches and relays are excepted from these requirements, if they are of the totally enclosed leakproof type in sealed metal or plastic units. Thermometers, switches and relays, each containing a total quantity of not more than 15 g (0.5 ounces) of mercury, are also excepted if installed as an integral part of a machine or apparatus and so fitted that shock of impact damage, leading to leakage of mercury, is unlikely to occur under conditions normally incident to transport;

(2) Electron tubes, mercury vapor tubes and similar tubes must be packaged as follows:

(i) Tubes which are packed in strong outer packagings with all seams and joints sealed with self-adhesive, pressure-sensitive tape which will prevent the escape of mercury from the package, are authorized up to a total net quantity of 450 g (15.9 ounces) of mercury per package;

(ii) Tubes with more than 450 g (15.9 ounces) of mercury are authorized only when packed in strong outer packagings, having sealed inner liners or bags of strong leakproof and puncture-resistant material impervious to mercury which will prevent escape of mercury from the package irrespective of its position;

(iii) Tubes which do not contain more than 5 g (0.2 ounce) of mercury each and which are packed in the manufacturer's original packagings, are authorized up to a total net quantity of 30 g (1.1 ounces) of mercury per package;

(iv) Tubes which are completely jacketed in sealed leakproof metal cases are authorized in the manufacturer's original packagings;

(3) For electron tubes, mercury vapor tubes, and similar tubes, the shipper must indicate the quantity of mercury on the shipping paper.

(4) Mercurial barometers conforming to paragraph (b)(1) of this section, which are loaded and unloaded from an aircraft under the supervision of, and accompanied in flight by, a National Weather Service official or similar United States agency official, are excepted from any other requirements of this subchapter.

(c) For transportation by other than aircraft, mercury shall be packaged—

(1) In any packaging which meets the requirements of Part 178 at the Packing Group III performance level; or

(2) In non-specification reusable metal packagings.

(d) Except for a hazardous substance or a hazardous waste or for transportation by aircraft or vessel, packages containing less than 1.0 pound (0.45 kg) net weight of mercury are not subject to the requirements of this subchapter.

§ 173.171 Smokeless powder for small arms.

Smokeless powder for small arms may be classed as a flammable solid, for transportation by highway and rail only, subject to the following conditions:

(a) The smokeless powder must be examined for this classification by the Bureau of Explosives and approved by the Director, OHMT;

(b) The total quantity of smokeless powder in one railcar or motor vehicle may not exceed 100 pounds (45.4 kg) net mass; and

(c) Only combination packagings with inner packagings not exceeding 8 pounds (3.6 kg) net mass are authorized. Inner packagings must be arranged and protected so as to prevent simultaneous ignition of the contents. The complete package must be a type examined by the Bureau of Explosives and approved by the Director, OHMT.

§ 173.172 Aircraft hydraulic power unit fuel tank.

(a) Aircraft hydraulic power unit fuel tanks containing a mixture of anhydrous hydrazine and monomethyl hydrazine (M86 fuel) and designed for installation as complete units in aircraft are excepted from the specification packaging requirements of this subchapter when they conform to either of the following conditions:

(1) The unit must consist of an aluminum pressure vessel made from tubing and having welded heads. Primary containment of the fuel within this vessel must consist of a welded aluminum bladder having a maximum internal volume of 46L (12.2 gallons). The outer vessel must have a minimum design gauge pressure of 1,275 kPa (184.9 psi) and a minimum burst gauge pressure of 2,755 kPa (399.48 psi). Each vessel must be leak-checked during manufacture and before shipment and must be found leakproof. The complete inner unit must be securely packed in non-combustible cushioning material, such as vermiculite, in a strong outer tightly closed metal packaging which will adequately protect all fittings. Maximum quantity of fuel per unit and package is 42L (11.1 gallons); or

(2) The unit must consist of an aluminum pressure vessel. Primary containment of the fuel within this vessel must consist of a welded hermetically sealed fuel compartment with an elastomeric bladder having a maximum internal volume of 46L (12.2 gallons). The pressure vessel must have a minimum design gauge pressure of 5,170 kPa (749.8 psi). Each vessel must be leak-checked during manufacture and before shipment and must be securely packed in non-combustible cushioning material, such as vermiculite, in a strong outer tightly closed metal packaging which will adequately protect all fittings. Maximum quantity of fuel per unit and package is 42L (11.1 gallons).

§ 173.173 Paint, paint-related material, adhesives, and ink.

(a) Except as otherwise provided in this part, the description "Paint" is the proper shipping name for paint, lacquer, enamel, stain, shellac, varnish, liquid aluminum, liquid bronze, liquid gold, liquid wood filler, and liquid lacquer base. The description "Paint-related material" is the proper shipping name for a paint thinning, reducing or removing compound. However, if a more specific description is listed in the § 172.101 Table of this subchapter, that description must be used.

(b) Paint, paint-related material, adhesives, and ink must be packaged as follows:

(1) As prescribed in § 173.202 of this part if it is a Packing Group II material or § 173.203 of this part if it is a Packing Group III material.

(2) In inner glass packagings of not over one liter capacity each or inner metal packagings of not over 5 liters each, packed in a strong outer packaging. Packages must conform to the packaging requirements of Subpart B of this part but need not conform to the requirements of Part 178 of this subchapter.

§ 173.174 Refrigerating machines.

A refrigerating machine assembled for shipment and containing 15 pounds (6.8 kg) or less of a flammable liquid for its operation in a strong, tight receptacle is excepted from labeling (except when offered for transportation by air) and the specification packaging requirements of this subchapter. In addition, shipments are not subject to Subpart F of Part 172 of this subchapter (Placarding), to Part 174 of this subchapter (Carriage by rail) except § 174.24 (Shipping papers) and to Part 177 (Carriage by highway) of this subchapter except § 177.817 (Shipping papers).

§ 173.180 Aircraft thrust devices.

(a) Aircraft thrust devices for assisted take-off and their igniters must be of a type examined by the Bureau of Explosives and approved by the Director, OHMT. They must be properly marked and must be shipped in an inoperable condition, and must be packaged as authorized in paragraph (b) of this section.

(b) Devices must be packed in outer wooden (4C1, 4C2), plywood (4D) or reconstituted wood (4F) boxes with one of the following inner packaging provisions:

(1) Aircraft thrust devices only;

(2) Igniters for aircraft thrust devices only packed in sealed metal inner packagings; or,

(3) Aircraft thrust devices together with igniters in same outer packaging provided igniters are packed separately. Igniters must be packed in strong inner packagings and then in separate sealed metal packagings.

§ 173.181 Pyrophoric materials (liquids).

When the § 172.101 Table specifies that a hazardous material be packaged under this section, only the following non-bulk packagings are authorized:

(a) Specification steel or nickel cylinders prescribed for any compressed gas except acetylene having a minimum design pressure of 175 psi (1206.6 kPa). Cylinders with valves must be:

(1) Equipped with steel valve protection caps or collars, unless overpacked; or

(2) Overpacked in a wooden box (4C1, 4C2, 4D or 4F); fiberboard box (4G), or plastic box (4H1 or 4H2). Cylinders must be secured to prevent movement in the box and, when shipped, must be so loaded that pressure relief devices remain in the vapor space of the cylinder. (See §§ 173.34(d)(7), 174.300(d) and 177.837(d) of this subchapter.)

(b) Wooden boxes (4C1, 4C2, 4D or 4F) or fiberboard boxes (4G) enclosing not more than four strong, tight metal cans with inner receptacles of glass or metal, not over one liter (1.06 quarts) capacity each, having positive screwcap closures adequately gasketed. Inner packagings must be cushioned on all sides with dry, absorbent, incombustible material in a quantity sufficient to absorb the entire contents. The strong, tight metal cans must be closed by positive means, not by friction.

(c) Steel drums (1A2) not exceeding 220 liters (58.1 gallons) capacity each with inner metal cans not over 4.0 liters (1.06 gallons) capacity each, constructed of not less than 28 gauge (0.0149 inch (0.3785 mm) nominal thickness) electro-coated tin plate closed by positive means, not friction.

(1) Inner packagings must have no opening exceeding 26 mm (1.0 inches) diameter and must be surrounded with noncombustible cushioning material.

(2) Net quantity of pyrophoric liquids may not exceed two-thirds of the rated capacity of the outer drum. For example, a 220 liter (58.1 gallon) outer drum may contain no more than 147 liters (38.8 gallons) of pyrophoric liquids.

(3) Each layer of inner containers must be separated by a tin plate separator in addition to cushioning material.

§ 173.182 Barium azide—50 percent or more water wet.

Barium azide—50 percent or more water wet, must be packed in wooden boxes (4C1, 4C2, 4D, or 4F) or fiber drums (1G) with inner glass packagings not over 0.5 kg (1.1 pounds) capacity each. Packagings must have rubber stoppers wire tied for securement. If shipment is to take place at a time freezing weather is anticipated, a suitable antifreeze solution must be used to prevent freezing. Each packaging must conform to the requirements of Part 178 of this subchapter at the Packing Group I performance level.

§ 173.183 Nitrocellulose base film.

Films, nitrocellulose base, must be packaged in packagings conforming to

the requirements of Part 178 of this subchapter at the Packing Group III performance level, as follows:

(a) In steel drums (1A2), aluminum drums (1B2), steel jerricans (3A2), wooden (4C1, 4C2), plywood (4D) or reconstituted wood (4F) boxes or plywood drums (1D) with each reel in a tightly closed metal can or strong cardboard or fiberboard inner packaging with cover held in place by adhesive tape or paper; or

(b) In fiberboard (4G) boxes or fiber drums (1G) with a single tightly closed metal can or strong cardboard or fiberboard inner packaging with cover held in place by adhesive tape or paper; authorized only for not over 600 m (1968.5 ft.) of film.

§ 173.184 Highway or rail fusee.

(a) A fusee is a device designed to burn at a controlled rate and to produce visual effects for signaling purposes. The composition of the fusee must be such that the fusee will not ignite spontaneously or undergo marked decomposition when subjected to a temperature of 75 °C (167 °F) for 48 consecutive hours.

(b) Fusees (highway and railway) must be packaged in steel drums (1A2), steel jerricans (3A2), wooden (4C1, 4C2), plywood (4D) or reconstituted wood (4F) boxes or in fiberboard boxes (4G), plywood (1D) or fiber (1G) drums. If the fusees are equipped with spikes, packagings must have reinforced ends to prevent penetration of spikes through the outer packagings; packages must be capable of passing drop test requirements (§ 178.603 of this subchapter), including at least one drop with spike in a downward position, and other requirements of Part 178 of this subchapter, at the Packing Group II performance level.

§ 173.185 Lithium batteries and cells.

(a) Except as provided in paragraphs (i) and (j) of this section, lithium cells and batteries, containing only metallic lithium and vanadium pentoxide, manganese dioxide, monofluorographite, sulfur dioxide, lithium bromide salts, acetonitrile, propylene carbonate, thionyl chloride, sulphuryl chloride, chlorine poly-carbon monofluoride, lithium tetrachloroaluminate, lithium perchlorate, or lithium tetrafluoroborate, are authorized for transportation when packaged in accordance with paragraphs (b) through (g) and tested in accordance with paragraph (h) of this section. Other types of lithium cells, batteries, and devices containing lithium batteries, must be transported by methods approved by the Director, OHMT.

(b) No cell may contain more than 12 grams (0.42 ounces) of lithium or lithium alloy.

(c) Each cell and battery must be equipped with an effective means of preventing external short circuits.

(d) Each cell and battery must incorporate a safety venting device or be designed in a manner that will preclude a violent rupture when subject to an incident in transportation, such as a dead short.

(e) Batteries containing cells or series of cells connected in parallel must be equipped with diodes to prevent reverse current flow.

(f) Except as provided in paragraph (j) of this section, cells or batteries may not be offered for transportation or transported if any cell has been discharged to the extent that the open circuit voltage is less than two volts or is less than ⅔ of the voltage of the fully charged cell whichever is less.

(g) Lithium cells and batteries must be packaged in packagings conforming to the requirements of Part 178 of this subchapter at the Packing Group II performance level, as follows:

(1) In strong inner fiberboard packagings containing not more than 500 grams (1.10 pounds) of lithium per inner packaging.

(2) For shipment by water, rail or highway, inner packagings must be packed within a wooden box (4C1, 4C2, 4D, or 4F), fiberboard box (4G), fiber drum (1G), or metal drum (1A2 or 1B2).

(3) For shipment by cargo-only aircraft, the inner packaging must be packed in a steel drum (1A2) with a gas tight gasket. The maximum gross weight of the package must not exceed 35 kg (77.18 pounds).

(4) When the outer packaging is a metal drum, inner packagings must be separated from each other and from the outer packaging by at least 25 mm (one inch) of non-combustible cushioning material.

(h) Lithium batteries and cells must be tested as follows:

(1) The cell or battery must be subjected to a thermal stability test at 75 °C (167.0 °F) for 48 hours and must show no evidence of distortion, leakage or internal heating. This test must be performed on at least 10 cells and 1 battery of each type taken from each week's production, or as otherwise approved by the Director, OHMT.

(2) Under application of a direct short, the cell or battery must be rendered inert, preferably without venting (through the use of internal fusing devices). If venting does occur, an open flame must be applied to the venting fumes to prove that an explosive condition does not exist. This test must be performed on at least 3 cells and 1 battery of each type taken from each week's production, or as otherwise approved by the Director, OHMT.

(3) Cells containing no more than 12 grams of lithium metal and also containing lithium molybdenum disulfide and lithium hexafluoroarsenate or vanadium pentoxide, polycarbonmonofluoride, manganese dioxide, titanium disulfide, thionyl chloride and lithium tetrachloroaluminate, lithium tetrafluorobonate or acetonitrile and sulfur dioxide, or thionyl chloride/bromine complex or sulfuryl chloride and chlorine which are hermetically sealed, and batteries constructed of such cells, are excepted from the tests in paragraphs (h) (1) and (2) of this section, and the requirement to use a 1A2 steel drum for transportation by cargo aircraft only as an outer packaging provided that:

(i) The outer packaging conforms to paragraph (g)(2) of this section; and

(ii) Prior to the first shipment, 10 cells or 4 batteries of each type to be offered for transportation, or as otherwise approved by the Director, OHMT, must be tested as follows, without showing any evidence of out-gassing, leakage, loss of weight or distortion:

(A) The cells or batteries must be stored for 6 hours at an absolute pressure of 11.6 kPa (1.68 psi) and a temperature of 24 °C±4 °C; (75.2 °F±7.2 °F);

(B) The cells or batteries must then be subjected to the thermal stability test at 75 °C (167 °F) for 48 hours as required in paragraph (h)(1) of this section;

(C) The cells or batteries must be rigidly clamped to the platform of a vibration machine. A simple harmonic motion having an amplitude of 0.8 mm (1.6 mm maximum total excursion) must be applied. The frequency must be varied at the rate of 1 Hz/min between the limits of 10 Hz to 55 Hz. The entire range of frequencies and return must be traversed in 95±5 minutes for each of three mutually perpendicular mounting positions of the battery and two perpendicular positions of the cells. One of the directions of vibration must be perpendicular to the terminal face of the battery or cell. Open circuit voltage must be observed for 30 seconds during the last quarter of each vibration period. Periodic retesting is not required;

(D) The battery must be secured to a shock testing machine by means of a rigid mount which will support all mounting surfaces of the battery. Each battery must be subjected to a total of three shocks of equal magnitude. The shocks must be applied in each of three

mutually perpendicular directions. Each shock must be applied in a direction normal to a face of the battery. For each shock, the battery must be accelerated in such a manner that during the first 3 milliseconds the minimum average acceleration is 75 g (where g is the local acceleration due to gravity). The peak acceleration must be between 125 g and 175 g.

(i) Lithium batteries comprised of one or more cells are not subject to the requirements of this subchapter, if they meet the following requirements:

(1) Each cell may contain no more than 0.5 gram of lithium or lithium alloy.

(2) Each battery may contain an aggregate quantity of no more than 1 gram of lithium or lithium alloy.

(3) Each cell must be hermetically sealed.

(4) Cells must be separated so as to prevent short circuits.

(5) Batteries must be packed in strong outer packagings except when installed in electronic devices.

(6) If a battery contains more than 0.5 gram of lithium or lithium alloy, it may not contain a liquid or gas that is a hazardous material according to this subchapter unless the liquid or gas, if free, would be completely absorbed or neutralized by other materials in the battery.

(j) Lithium batteries, for disposal, comprised of one or more cells, may be offered for transportation to a permitted storage facility and disposal site by motor vehicle only, if the battery—

(1) When new, contained not more than 12.0 grams (0.42 ounce) of lithium per cell;

(2) Is equipped with an effective means of preventing external short circuits; and

(3) Is packed in a strong outer packaging conforming to the requirements of §§ 173.24 and 173.24a. The packaging need not conform to Part 178 performance requirements.

§ 173.186 Matches.

(a) Matches must be of a type which will not ignite spontaneously or undergo marked decomposition when subjected for 8 consecutive hours to a temperature of 93.3 °C (200 °F).

(b) *Definitions.* (1) "Fusee matches" are matches the heads of which are prepared with a friction sensitive igniter composition and a pyrotechnic composition which burns with little or no flame, but with intense heat.

(2) "Safety matches" are matches combined with or attached to the box, book or card that can be ignited by friction only on a prepared surface.

(3) "Strike anywhere" matches are matches that can be ignited by friction on a solid surface.

(4) "Wax 'Vesta' matches" are matches that can be ignited by friction either on a prepared surface or on a solid surface.

(c) Safety matches and wax "Vesta" matches must be tightly packed in securely closed inner packagings to prevent accidental ignition under conditions normally incident to transportation, and further packed in outer fiberboard, wooden, or other equivalent-type packagings. These matches in outer packagings not exceeding 50 pounds (22.7 kg) gross weight are not subject to any other requirement (except marking) of this subchapter. These matches may be packed in the same outer packaging with materials not subject to this subchapter.

(d) Strike anywhere matches may not be packed in the same outer packaging with any material other than safety matches or wax "Vesta" matches, which must be packed in separate inner packagings.

(e) Packagings. Strike anywhere matches must be tightly packed in securely closed chipboard, fiberboard, wooden, or metal inner packagings to prevent accidental ignition under conditions normally incident to transportation. Each inner packaging may contain no more than 700 strike anywhere matches and must be packed in outer steel drums (1A2), aluminum drums (1B2), steel jerricans (3A2), wooden (4C1, 4C2), plywood (4D), reconstituted wood (4F) or fiberboard (4G) boxes, plywood (1D) or fiber (1G) drums. Gross weight of fiberboard boxes (4G) must not exceed 60 pounds (27.2 kg). Gross weight of other outer packagings must not exceed 100 pounds (45.4 kg).

§ 173.187 Pyrophoric solids, metals or alloys, n.o.s.

Packings for pyrophoric solids, metals, or alloys, n.o.s. must conform to the requirements of Part 178 of this subchapter at the packing group performance level specified in the § 172.101 Table. These materials must be packaged as follows:

(a) In wooden boxes (4C1, 4C2, 4D, or 4F) with inner metal receptacles which have a positive (not friction) means of closure and contain not more than 15 kilograms (33.1 pounds) each.

(b) In steel drums (1A1 or 1A2) with a gross mass not exceeding 150 kg (330.7 pounds) per drum.

(c) In fiberboard boxes (4G) with inner metal receptacles which have a positive (not friction) means of closure and contain not more than 7.5 kilograms (16.53 pounds) each.

(d) In fiber drums (1G) with inner metal receptacles which have a positive (not friction) means of closure and contain not more than 15 kilograms (33.1 pounds) each.

(e) In plywood drums (1D) with inner metal receptacles which have a positive (not friction) means of closure and contain not more than 15 kilograms (33.1 pounds) each.

§ 173.188 White or yellow phosphorus.

Phosphorus, white or yellow, when offered for transportation by rail, highway, or water, must be packaged in water or dry in packagings conforming to the requirements of Part 178 of this subchapter at the Packing Group I performance level, as follows:

(a) When placed in water, it must be packaged in specification packagings as follows:

(1) Wooden boxes (4C1, 4C2, 4D, or 4F) with:

(i) Inner hermetically sealed (soldered) metal cans, enclosed in other hermetically sealed (soldered) metal cans, or

(ii) Inner water-tight metal cans containing not over 0.5 kg (1.0 pounds) of phosphorus with screw-top closures.

(2) Metal drums (1A1 or 1A2), not over 115 liters (30.4 gallons) capacity each.

(b) When dry, it must be cast solid and shipped in packagings as follows:

(1) Metal drums (1A2) not over 115 liters (30.4 gallons) capacity each.

(2) In projectiles or bombs when shipped by, for, or to the Departments of the Army, Navy, or Air Force of the United States Government, without bursting elements.

§ 173.192 Packaging for certain Packing Group I poisonous materials.

When § 172.101 of this subchapter specifies that a poisonous material be packaged under this section, only specification cylinders are authorized, as follows:

(a) Specification 3A1800, 3AA1800, 3AL1800, 3D, 3E1800, or 33 cylinders, under the following conditions:

(1) Specification 3A, 3AA and 3AL cylinders may not exceed 125 pounds (56.7 kg) water capacity (nominal).

(2) Specification 3D and 33 cylinders may not exceed 280 pounds (127 kg) water capacity (nominal).

(3) Specification 3AL cylinders containing arsine or phosphine may only be transported by highway and rail.

(b) Packagings must conform to the requirements of § 173.40 of this part.

(c) For cylinders used for phosgene, the filling density may not exceed 125

percent and a cylinder may not contain more than 150 pounds (68.0 kg) of phosgene.

§ 173.193 Bromoacetone, methyl bromide, chloropicrin and methyl bromide or methyl chloride mixtures, etc.

(a) Bromoacetone must be packaged as follows in wooden boxes (4C1, 4C2, 4D or 4F) with inner glass receptacles or tubes in hermetically sealed metal receptacles in corrugated fiberboard cartons. Bottles must not contain over 500 grams (1.1 pounds) of liquid each and be cushioned in cans with at least 1/2 inch (12.7 mm) of absorbent material. Total amount of liquid in outer box must not exceed 11 kg (24.3 pounds). Packagings must conform to the requirements of Part 178 of this subchapter at the Packing Group I performance level.

(b) Bromoacetone, methyl bromide, chloropicrin and methyl bromide mixtures, chloropicrin and methyl chloride mixtures, and chloropicrin mixtures charged with non-flammable, non-liquefied compressed gas must be packed in Specification 3A, 3AA, 3B, 3C, 3E, 4A, 4B, 4BA, 4BW, or 4C cylinders having not over 250 pounds (113.4 kg) water capacity (nominal).

(c) Cylinders must conform to § 173.40.

§ 173.194 Gas identification sets.

Gas identification sets containing poisonous material must be packaged in packagings conforming to the requirements of Part 178 of this subchapter at the Packing Group I performance level, as follows:

(a) In glass inner receptacles, hermetically sealed, of not over 40 milliliters (1.35 fluid ounces) each. Each glass inner receptacle must in turn be placed in a sealed fiberboard receptacle, cushioned with absorbent material. Not more than 12 fiberboard receptacles must in turn be placed in a fiberboard box (4G). No more than four boxes, well-cushioned, must in turn be placed in a steel cylinder. The cylinder must have a wall thickness of at least 3.7 mm (0.146 inch) and must have a hermetically sealed steel closure.

(b) When the poisonous material is adsorbed in a medium such as activated charcoal or silical gel, gas identification sets may be shipped as follows:

(1) If the poisonous material does not exceed 5 milliliters (0.17 fluid ounce) if a liquid or 5 grams (0.18 ounce) if a solid, it may be packed in glass inner receptacles of not over 120 milliliters (4.1 fluid ounce) each. Each glass receptacle, cushioned with absorbent material must be packed in a hermetically sealed metal can of not less than 0.30 mm (0.0120 inch) wall thickness. Metal cans, surrounded on all sides by at least 25 mm (1 inch) of dry sawdust, must be packed in 4C1, 4C2, 4D or 4F wooden boxes. Not more than 100 milliliters (3.38 fluid ounces) or 100 grams (3.53 ounces) of poisonous materials may be packed in one outer wooden box.

(2) If the poisonous material does not exceed 5 milliliters (0.17 fluid ounce) if a liquid or 20 grams (0.7 ounce) if a solid, it may be packed in glass inner receptacles with screw-top closures of not less than 60 milliliters (2.02 fluid ounces), hermetically sealed. Twelve bottles containing poisonous material, not to exceed 100 milliliters, or grams, or both, may be placed in a plastic carrying case, each glass receptacle surrounded by absorbent cushioning and each separated from the other by sponge rubber partitions. The plastic carrying case must be placed in a tightly fitting fiberboard box which in turn must be placed in a tightly fitting 4C1, 4C2, 4D or 4F wooden box.

§ 173.195 Hydrocyanic acid, liquid (prussic acid) and hydrocyanic acid liquefied.

(a) Hydrocyanic acid, liquid (prussic acid) and hydrocyanic acid liquefied, must be packed in specification cylinders as follows:

(1) As prescribed in § 173.192, or

(2) Specification 3A480, 3A480X, 3AA480, or 3AL1800 metal cylinders of not over 126.08 kg (278 pounds) water capacity (nominal). Shipments in 3AL cylinders are authorized only when transported by highway and rail.

(b) Cylinders may not be charged with more than 0.27 kg (0.6 pound) of liquid per 0.45 kg (1 pound) water capacity of cylinder. Each filled cylinder must be tested for leakage before shipment and must show absolutely no leakage; this test must consist in passing a piece of Guignard's sodium picrate paper over the closure of the cylinder, without the protection cap attached, to detect any escape of hydrocyanic acid from the cylinder. Other equally efficient test methods may be used in place of sodium picrate paper.

(c) Packagings for hydrocyanic acid must conform to § 173.40.

§ 173.196 Infectious substances (etiologic agents).

(a) Authorized packagings and components are as follows:

(1) Inner packagings comprising:

(i) A watertight primary receptacle;

(ii) A watertight secondary packaging; and

(iii) An absorbent material must be placed between the primary receptacle and the secondary packaging. If multiple-primary receptacles are placed in a single secondary packaging they must be wrapped individually to ensure that contact between them is prevented. The absorbent material, such as cotton wool, must be sufficient to absorb the entire contents of all primary receptacles.

(2) An outer packaging which is capable of withstanding the specification performance tests found in § 173.465 or § 173.466. Packages consigned as freight must be at least 100 mm (3.94 inches) in the smallest over all external dimension.

(b) For all packages containing infectious substances, an itemized list of contents must be enclosed between the secondary packaging and the outer packaging.

(c) Although exceptional cases, such as whole organs, may require special packaging, the great majority of infectious substances can and must be packaged according to the following guidelines.

(1) *Lypholized substances.* Primary receptacles include flame-sealed glass ampoules or rubber-stopped glass vials fitted with metal seals.

(2) *Liquid or solid substances.* (i) *Substances shipped at ambient temperatures or higher.* Primary receptacles include those of glass, metal or plastic. Positive means of ensuring a leakproof seal, such as heat seal, skirted stopper or metal crimp seal must be provided. If screw caps are used, they must be reinforced with adhesive tape.

(ii) *Substances shipped refrigerated or frozen (ice, pre-frozen packs, dry ice).* Primary receptacles closed by screw caps must not be used. Ice or dry ice must be placed outside the secondary packagings. Interior supports must be provided to secure the secondary packagings in the original position after the ice or dry ice has dissipated. If ice is used, the packaging must be leakproof. If dry ice is used, the outer packaging must permit the release of carbon dioxide gas.

(iii) *Substances shipped in liquid nitrogen.* Primary receptacles must be heat-sealed. Plastic capable of withstanding very low temperatures must be used instead of glass receptacles. Secondary packaging must also withstand very low temperatures and in most cases will need to be fitted over individual primary receptacles. Requirements for shipment of liquid nitrogen must also be observed.

(d) Whatever the intended temperature of shipment, the primary receptacle and secondary packaging used for infectious substances must be capable of withstanding, without

leakage, an internal pressure which produces a pressure differential of not less than 95 kPa (13.8 psi) and temperatures in the range of −40 °C to +55 °C (−40 °F to +131 °F).

(e) The requirements of this section supplement the requirements of the Department of Health and Human Services contained in 42 CFR Part 72.

(f) Exceptions. The following substances are not subject to any requirements of this subchapter if the items as packaged do not contain any material otherwise subject to the requirements of this subchapter.

(1) Diagnostic specimens.

(2) Biological products.

(3) Cultures of etiologic agents of 50 milliliters (1.67 fluid ounces) or less total quantity in one outside package.

§ 173.198 Nickel carbonyl.

(a) Nickel carbonyl must be packed in specification steel or nickel cylinders as prescribed for any compressed gas except acetylene. A cylinder used exclusively for nickel carbonyl may be given a complete external visual inspection in lieu of the interior hydrostatic pressure test required by § 173.34(e). Visual inspection must be in accordance with CGA Pamphlet C–6.

(b) Packagings for nickel carbonyl must conform to § 173.40.

§ 173.201 Non-bulk packagings for liquid hazardous materials in Packing Group I.

(a) When § 172.101 of this subchapter specifies that a liquid hazardous material be packaged under this section, only non-bulk packagings prescribed in this section may be used for its transportation. Each packaging must conform to the general packaging requirements of Subpart B of Part 173, to the requirements of Part 178 at the Packing Group I performance level, and to the requirements of the special provisions of Column 7 of the § 172.101 Table.

(b) The following combination packagings are authorized:

Outer Packagings

Steel drum: 1A2
Aluminum drum: 1B2
Plywood drum: 1D
Fiber drum: 1G
Plastic drum: 1H2
Steel jerrican: 3A2
Plastic jerrican: 3H2
Steel box: 4A1 or 4A2
Aluminum box: 4B1 or 4B2
Natural wood box: 4C1 or 4C2
Plywood box: 4D
Reconstituted wood box: 4F
Fiberboard box: 4G
Expanded plastic box: 4H1
Solid plastic box: 4H2

Inner Packagings

Glass or earthenware receptacles
Plastic receptacles
Metal receptacles
Glass ampoules

(c) Except for transportation by passenger aircraft, the following single packagings are authorized:

Steel drum: 1A1 or 1A2
Aluminum drum: 1B1 or 1B2
Metal drum other than steel or aluminum: 1N1 or 1N2
Plastic drum: 1H1 or 1H2
Steel jerrican: 3A1 or 3A2
Plastic jerrican: 3H1 or 3H2
Plastic receptacle in steel, aluminum, fiber or plastic drum: 6HA1, 6HB1, 6HG1, 6HH
Plastic receptacle in steel, aluminum, wooden, plywood or fiberboard box: 6HA2, 6HB2, 6HC, 6HD2 or 6HG2
Glass, porcelain or stoneware in steel, aluminum or fiber drum: 6PA1, 6PB1 or 6PG1
Glass, porcelain or stoneware in steel, aluminum, wooden or fiberboard box: 6PA2, 6PB2, 6PC or 6PG2
Glass, porcelain or stoneware in solid or expanded plastic packaging: 6PH1 or 6PH2
Cylinders, specification, as prescribed for any compressed gas, except for Specifications 8 and 3HT

§ 173.202 Non-bulk packagings for liquid hazardous materials in Packing Group II.

(a) When § 172.101 of this subchapter specifies that a liquid hazardous material be packaged under this section, only non-bulk packagings prescribed in this section may be used for its transportation. Each packaging must conform to the general packaging requirements of Subpart B of Part 173, to the requirements of Part 178 at the Packing Group I or II performance level (unless otherwise excepted), and to the particular requirements of the special provisions of Column 7 of the § 172.101 Table.

(b) The following combination packagings are authorized:

Outer Packagings

Steel drum: 1A2
Aluminum drum: 1B2
Plywood drum: 1D
Fiber drum: 1G
Plastic drum: 1H2
Wooden barrel: 2C2
Steel jerrican: 3A2
Plastic jerrican: 3H2
Steel box: 4A1 or 4A2
Aluminum box: 4B1 or 4B2
Natural wood box: 4C1 or 4C2
Plywood box: 4D
Reconstituted wood box: 4F
Fiberboard box: 4G
Expanded plastic box: 4H1
Solid plastic box: 4H2

Inner Packagings

Glass or earthenware receptacles
Plastic receptacles
Metal receptacles
Glass ampoules

(c) Except for transportation by passenger aircraft, the following single packagings are authorized:

Steel drum: 1A1 or 1A2
Aluminum drum: 1B1 or 1B2
Metal drum other than steel or aluminum: 1N1 or 1N2
Plastic drum: 1H1 or 1H2
Wooden barrel: 2C1
Steel jerrican: 3A1 or 3A2
Plastic jerrican: 3H1 or 3H2
Plastic receptacle in steel, aluminum, fiber or plastic drum: 6HA1, 6HB1, 6HG1 or 6HH
Plastic receptacle in steel, aluminum, wooden, plywood or fiberboard box: 6HA2, 6HB2, 6HC, 6HD2 or 6HG2
Glass, porcelain or stoneware in steel, aluminum or fiber drum: 6PA1, 6PB1 or 6PG1
Glass, porcelain or stoneware in steel, aluminum, wooden or fiberboard box: 6PA2, 6PB2, 6PC or 6PG2
Glass, porcelain or stoneware in solid or expanded plastic packaging: 6PH1 or 6PH2
Plastic receptacle in plywood drum: 6HD1
Glass, porcelain or stoneware in plywood drum or wickerwork hamper: 6PD1 or 6PD2
Cylinders, specification, as prescribed for any compressed gas, except for Specifications 8 and 3HT

§ 173.203 Non-bulk packagings for liquid hazardous materials in Packing Group III.

(a) When § 172.101 of this subchapter specifies that a liquid hazardous material be packaged under this section, only non-bulk packagings prescribed in this section may be used for its transportation. Each packaging must conform to the general packaging requirements of Subpart B of Part 173, to the requirements of Part 178 at the Packing Group I, II or III performance level, and to the requirements of the special provisions of Column 7 of the § 172.101 Table.

(b) The following combination packagings are authorized:

Outer Packagings

Steel drum: 1A2
Aluminum drum: 1B2
Plywood drum: 1D
Fiber drum: 1G
Plastic drum: 1H2
Wooden barrel: 2C2
Steel jerrican: 3A2
Plastic jerrican: 3H2
Steel box: 4A1 or 4A2
Aluminum box: 4B1 or 4B2
Natural wood box: 4C1 or 4C2
Plywood box: 4D
Reconstituted wood box: 4F
Fiberboard box: 4G
Expanded plastic box: 4H1
Solid plastic box: 4H2

Inner Packagings

Glass or earthenware receptacles
Plastic receptacles
Metal receptacles
Glass ampoules

(c) The following single packagings are authorized:

Steel drum: 1A1 or 1A2
Aluminum drum: 1B1 or 1B2
Metal drum other than steel or aluminum: 1N1
Plastic drum: 1H1 or 1H2
Wooden barrel: 2C1
Steel jerrican: 3A1 or 3A2
Plastic jerrican: 3H1 or 3H2
Plastic receptacle in steel, aluminum, fiber or plastic drum: 6HA1, 6HB1, 6HG1 or 6HH
Plastic receptacle in steel, aluminum, wooden, plywood or fiberboard box: 6HA2, 6HB2, 6HC, 6HD2 or 6HG2
Glass, porcelain or stoneware in steel, aluminum or fiber drum: 6PA1, 6PB1 or 6PG1
Glass, porcelain or stoneware in steel, aluminum, wooden or fiberboard box: 6PA2, 6PB2, 6PC or 6PG2
Glass, porcelain or stoneware in solid or expanded plastic packaging: 6PH1 or 6PH2
Plastic receptacle in plywood drum: 6HD1
Glass, porcelain or stoneware in plywood drum or wickerwork hamper: 6PD1 or 6PD2
Cylinders, as prescribed for any compressed gas, except for Specifications 8 and 3HT

§ 173.204 Non-bulk non-specification packagings for certain hazardous materials.

When § 172.101 of this subchapter specifies that a liquid or solid hazardous material be packaged under this section, any appropriate non-bulk packaging which conforms to the general packaging requirements of Subpart B of Part 173 may be used for its transportation. Packagings need not conform to the requirements of Part 178 of this subchapter.

§ 173.205 Specification cylinders for liquid hazardous materials.

When § 172.101 of this subchapter specifies that a hazardous material be packaged under this section, any specification cylinder, except those specified for acetylene, is authorized. Cylinders used for poisonous materials (Division 6.1 or 2.3) must conform to the requirements of § 173.40.

§ 173.211 Non-bulk packagings for solid hazardous materials in Packing Group I.

(a) When § 172.101 of this subchapter specifies that a solid hazardous material be packaged under this section, only non-bulk packagings prescribed in this section may be used for its transportation. Each package must conform to the general packaging requirements of Subpart B of Part 173, to the requirements of Part 178 at the Packing Group I performance level, and to the requirements of the special provisions of Column 7 of the § 172.101 Table.

(b) The following combination packagings are authorized:

Outer Packagings

Steel drum: 1A2
Aluminum drum: 1B2
Plywood drum: 1D
Fiber drum: 1G
Plastic drum: 1H2
Wooden barrel: 2C2
Steel jerrican: 3A2
Plastic jerrican: 3H2
Steel box: 4A1 or 4A2
Aluminum box: 4B1 or 4B2
Natural wood box: 4C1 or 4C2
Plywood box: 4D
Reconstituted wood box: 4F
Fiberboard box: 4G
Solid plastic box: 4H2

Inner Packagings

Glass or earthenware receptacles
Plastic receptacles
Metal receptacles
Glass ampoules

(c) Except for transportation by passenger aircraft, the following single packagings are authorized:

Steel drum: 1A1 or 1A2
Aluminum drum: 1B1 or 1B2
Metal drum other than steel or aluminum: 1N1 or 1N2
Plastic drum: 1H1 or 1H2
Steel jerrican: 3A1 or 3A2
Plastic jerrican: 3H1 or 3H2
Steel box with liner: 4A2
Aluminum box with liner: 4B2
Natural wood box, sift proof: 4C2
Plastic receptacle in steel, aluminum, plywood, fiber or plastic drum: 6HA2, 6HB1, 6HD1, 6HG1 or 6HH
Plastic receptacle in steel, aluminum, wooden, plywood or fiberboard box: 6HA1, 6HB2, 6HC, 6HD2 or 6HG2
Glass, porcelain or stoneware in steel, aluminum, plywood or fiber drum: 6PA1, 6PB1, 6PD1 or 6PG1
Glass, porcelain or stoneware in steel, aluminum, wooden or fiberboard box: 6PA2, 6PB2, 6PC, or 6PG2
Glass, porcelain or stoneware in expanded or solid plastic packaging: 6PH1 or 6PH2

§ 173.212 Non-bulk packagings for solid hazardous materials in Packing Group II.

(a) When § 172.101 of this subchapter specifies that a solid hazardous material be packaged under this section, only non-bulk packagings prescribed in this section may be used for its transportation. Each package must conform to the general packaging requirements of Subpart B of Part 173, to the requirements of Part 178 at the Packing Group I or II performance level, and to the requirements of the special provisions of Column 7 of the § 172.101 Table.

(b) The following combination packagings are authorized:

Outer Packagings

Steel drum: 1A2
Aluminum drum: 1B2
Plywood drum: 1D
Fiber drum: 1G
Plastic drum: 1H2
Wooden barrel: 2C2
Steel jerrican: 3A2
Plastic jerrican: 3H2
Steel box: 4A1 or 4A2
Aluminum box: 4B1 or 4B2
Natural wood box: 4C1 or 4C2
Plywood box: 4D
Reconstituted wood box: 4F
Fiberboard box: 4G
Solid plastic box: 4H2

Inner Packagings

Glass or earthenware receptacles
Plastic receptacles
Metal receptacles
Glass ampoules

(c) Except for transportation by passenger aircraft, the following single packagings are authorized:

Steel drum: 1A1 or 1A2
Aluminum drum: 1B1 or 1B2
Plywood drum: 1D
Plastic drum: 1H1 or 1H2
Fiber drum: 1G
Metal drum other than steel or aluminum: 1N1 or 1N2
Wooden barrel: 2C1 or 2C2
Steel jerrican: 3A1 or 3A2
Plastic jerrican: 3H1 or 3H2
Steel box: 4A1
Steel box with liner: 4A2
Aluminum box: 4B1
Aluminum box with liner: 4B2
Natural wood box: 4C1
Natural wood box, sift proof: 4C2
Plywood box: 4D
Reconstituted wood box: 4F
Fiberboard box: 4G
Expanded plastic box: 4H1
Solid plastic box: 4H2
Bag, woven plastic: 5H1, 5H2 or 5H3
Bag, textile: 5L1, 5L2 or 5L3
Bag, paper, multiwall, water resistant: 5M2
Plastic receptacle in steel, aluminum, plywood, fiber or plastic drum: 6HA1, 6HB1, 6HD1, 6HG1 or 6HH
Plastic receptacle in steel, aluminum, wood, plywood or fiberboard box: 6HA2, 6HB2, 6HC, 6HD2 or 6HG2
Glass, porcelain or stoneware in steel, aluminum, plywood or fiber drum: 6PA1, 6PB1, 6PD1 or 6PG1
Glass, porcelain or stoneware in steel, aluminum, wooden fiberboard box: 6PA2, 6PB2, 6PC or 6PG2
Glass, porcelain or stoneware in expanded or solid plastic packaging: 6PH1 or 6PH2

§ 173.213 Non-bulk packagings for solid hazardous materials in Packing Group III.

(a) When § 172.101 of this subchapter specifies that a solid hazardous material be packaged under this section, only non-bulk packagings prescribed in this section may be used for its transportation. Each package must conform to the general packaging requirements of Subpart B of Part 173, to the requirements of Part 178 at the Packing Group I, II or III performance level, and to the requirements of the

special provisions of Column 7 of the § 172.101 Table.

(b) The following combination packagings are authorized:

Outer Packagings

Steel drum: 1A2
Aluminum drum: 1B2
Plywood drum: 1D
Fiber drum: 1G
Plastic drum: 1H2
Wooden barrel: 2C2
Steel jerrican: 3A2
Plastic jerrican: 3H2
Steel box: 4A1 or 4A2
Aluminum box: 4B1 or 4B2
Natural wood box: 4C1 or 4C2
Plywood box: 4D
Reconstituted wood box: 4F
Fiberboard box: 4G
Solid plastic box: 4H2

Inner Packagings

Glass or earthenware receptacles
Plastic receptacles
Metal receptacles
Glass ampoules

(c) The following single packagings are authorized:

Steel drum: 1A1 or 1A2
Aluminum drum: 1B1 or 1B2
Plywood drum: 1D
Fiber drum: 1G
Plastic drum: 1H1 or 1H2
Metal drum other than steel or aluminum: 1N1 or 1N2
Wooden barrel: 2C1 or 2C2
Steel jerrican: 3A1 or 3A2
Plastic jerrican: 3H1 or 3H2
Steel box with liner: 4A2
Steel box: 4B1
Aluminum box with liner: 4B2
Natural wood box: 4C1
Natural wood box, sift proof: 4C2
Plywood box: 4D
Reconstituted wood box: 4F
Fiberboard box: 4G
Expanded plastic box: 4H2
Solid plastic box: 4H2
Bag, woven plastic: 5H1, 5H2 or 5H3
Bag, textile: 5L1, 5L2 or 5L3
Bag, paper, multiwall, water resistant: 5M2
Plastic receptacle in steel, aluminum, plywood, fiber or plastic drum: 6HA1, 6HB1, 6HD1, 6HG1 or 6HH
Plastic receptacle in steel, aluminum, wood, plywood or fiberboard box: 6HA2, 6HB2, 6HC, 6HD2 or 6HG2
Glass, porcelain or stoneware in steel, aluminum, plywood or fiber drum: 6PA1, 6PB1, 6PD1 or 6PG1
Glass, porcelain or stoneware in steel, aluminum, wood or fiberboard box: 6PA2, 6PB2, 6PC or 6PG2
Glass, porcelain or stoneware in expanded or solid plastic packaging: 6PH1 or 6PH2

§ 173.214 Packagings which require approval by the Director, OHMT.

When § 172.101 of this subchapter specifies that a hazardous material be packaged under this section, packagings and method of shipment must be approved by the Director, OHMT, prior to the first shipment.

§ 173.216 Asbestos, blue or white.

(a) Asbestos, blue or white, includes each of the following hydrated mineral silicates: Chrysolite, crocidolite, amosite, anthophyllite asbestos, tremolite asbestos, actinolite asbestos, and every product containing any of these materials.

(b) Commercial asbestos is any material or product containing asbestos that has commercial value because of its asbestos content.

(c) Asbestos which is immersed or fixed in a natural or artificial binder material (such as cement, plastic, asphalt, resins or mineral ore), waste asbestos, and manufactured products containing asbestos or any materials or products whose commercial value is not dependent on their asbestos content, are not subject to the requirements of this subchapter.

(d) Packagings for commercial asbestos must conform to the general packaging requirements of Subpart B of this part but need not conform to the requirements of Part 178 of this subchapter. Commercial asbestos must be offered for transportation and transported in—

(1) Rigid, leaktight packagings, such as metal or fiber drums, portable tanks, hopper-type rail cars, or hopper-type motor vehicles;

(2) Bags or other non-rigid packagings in closed freight containers, motor vehicles, or rail cars that are loaded by and for the exclusive use of the consignor and unloaded by the consignee;

(3) Bags or other non-rigid packagings which are dust-and sift-proof. When transported by other than private carrier by highway, such packagings containing asbestos must be palletized and unitized by methods such as shrink-wrapping in plastic film or wrapping in fiberboard secured by strapping. Pallets need not be used during transportation by vessel for loads with slings that are unitized by methods such as shrink-wrapping, if the slings adequately and evenly support the loads and the unitizing method prevents shifting of the bags or other non-rigid packagings during conditions normally incident to transportation; or

(4) Bags or other non-rigid packagings which are dust-and sift-proof in strong outside fiberboard or wooden boxes.

§ 173.217 Carbon dioxide, solid (dry ice).

(a) Carbon dioxide, solid (dry ice), when offered for transportation by aircraft or water, must be packed in packagings designed and constructed to permit the release of carbon dioxide gas to prevent a build-up of pressure that could rupture the packagings. Packagings must conform to the general packaging requirements of Subpart B of this part but need not conform to the requirements of Part 178 of this subchapter. For each shipment by air exceeding five pounds per package, advance arrangements between the shipper and each carrier must be made.

(b) Railroad cars and motor vehicles containing solid carbon dioxide, when accepted for transportation on board ocean vessels, must be conspicuously marked on two sides "WARNING CO_2 SOLID (DRY ICE)."

(c) Other packagings, when accepted for transportation on board ocean vessels, must be marked "CARBON DIOXIDE, SOLID—DO NOT STOW BELOW DECKS."

(d) Not more than 200 kg (440.9 lbs) of solid carbon dioxide may be transported in any one cargo compartment or bin on any aircraft except by specific and special arrangement between the shipper and the aircraft operator.

(e) Carbon dioxide, solid (dry ice) is excepted from the shipping paper and certification requirements of this subchapter if the requirements of paragraphs (a) and (d) of this section are complied with and the package is marked "Carbon dioxide, solid" or "Dry ice" and marked with an indication that the material being refrigerated is used for diagnostic or treatment purposes (e.g., frozen medical specimens).

§ 173.218 Fish meal or fish scrap.

(a) Except as provided in paragraph (b) of this section, fish meal or fish scrap, containing at least 6 percent but not more than 12 percent water, is authorized for transportation by water only when packaged as follows:

(1) Burlap (jute) bag;

(2) Multi-wall paper bag;

(3) Polyethylene-lined burlap or paper bag;

(4) Cargo tank;

(5) Portable tank;

(6) Rail car; or

(7) Freight container.

(b) Fish meal or fish scrap may not be offered for transportation if the temperature of the material exceeds 49 °C (120.2 °F).

(c) When fish scrap or fish meal is offered for transportation by vessel in bulk in freight containers, the fish meal must contain at least 100 PPM of anti-oxident (ethoxyquin) at the time of shipment.

§ 173.219 Life rafts, aircraft survival kits, etc.

(a) A life raft or aircraft survival kit or aircraft evacuation slide containing small quantities of hazardous materials which are required as part of the life-

saving appliance must conform to the requirements of this section. Packagings are excepted from the specification packaging requirements of this subchapter.

(b) Hazardous materials must be packaged as follows:

(1) Non-flammable compressed gases must be packaged in cylinders in accordance with the requirements of this subchapter;

(2) Smoke and illumination signal flares must be in plastic or fiberboard receptacles;

(3) Strike-anywhere matches must be cushioned to prevent movement or friction in a cylindrical metal or composition receptacle with a screw-type closure;

(4) Flammable liquids must be in strong inner packagings in a repair kit; and

(5) Limited quantities of other hazardous materials are permitted if packaged in accordance with the requirements of this subchapter.

(c) Materials not subject to the requirements of this subchapter which are an integral part of the life-saving appliance must be packaged in a strong fiberglass kit case which is overpacked in a waterproof fiberboard packaging, or be packaged in other strong outer packagings.

§ 173.220 Internal combustion engines, self-propelled vehicles, and mechanical equipment containing internal combustion engines or wet batteries.

(a) *Applicability.* An internal combustion engine, self-propelled vehicle, or mechanized equipment is subject to the requirements of this subchapter when transported as cargo on a transport vehicle if—

(1) The engine or fuel tank contains a flammable liquid or gaseous fuel;

(2) It is equipped with a wet electric storage battery other than a non-spillable battery; or

(3) It contains other hazardous materials subject to the requirements of this subchapter.

(b) *Flammable liquid fuel.* Except as provided in this paragraph, flammable liquid fuel tanks must be completely drained and securely closed. Up to 500 milliliters (16.9 ounces) of fuel may be left in engine components and fuel lines provided the lines are securely closed to prevent leakage of fuel. Fuel may remain in engines and tanks installed in self-propelled vehicles and mechanical equipment under the following conditions:

(1) For transportation by motor vehicle or rail car, the fuel tanks must be securely closed.

(2) For transportation by vessel, the shipment must conform to § 176.905 of this subchapter; and

(3) For transportation by aircraft, the shipment must conform to § 175.305 of this subchapter.

(c) *Wet batteries.* Wet batteries must either be installed, securely fastened in an upright position, and protected against short circuits and leakage or be removed and packaged separately under § 173.159. In addition—

(1) For transportation by vessel, the shipment must conform to § 176.905 of this subchapter; and

(2) For transportation by passenger-carrying aircraft, a wheelchair equipped with a wet battery must conform to § 173.222.

(d) *Truck bodies or trailers on flat cars.* Truck bodies or trailers with automatic heating or refrigerating equipment of the flammable liquid type may be shipped with fuel tanks filled and equipment operating or inoperative, when used for the transportation of other freight and loaded on flat cars as part of a joint rail and highway movement, provided the equipment and fuel supply conform to the requirements of § 177.834(1) and are of a type examined by the Bureau of Explosives and approved by the Director, OHMT.

(e) *Gases.* Compressed gas tanks and cylinders, containing gases, which are component parts of vehicles or mechanical equipment must conform to § 173.306.

(f) *Other hazardous materials.* Other hazardous materials must be packaged and transported in accordance with the requirements of this subchapter.

(g) *Exceptions.* Except as provided in paragraph (f) of this section, shipments made under the provisions of this section—

(1) Are not subject to any other requirements of this subchapter, for transportation by motor vehicle or rail car; and

(2) Are not subject to the requirements of Subparts D, E, and F (marking, labeling, and placarding, respectively) of Part 172 of this subchapter, for transportation by vessel or aircraft.

§ 173.221 Polystyrene beads, expandable.

Polystyrene beads or granules, expandable, impregnated with flammable gas or liquid as a blowing agent and plastic moulding materials in dough, sheet or extruded rope form must be packed in wooden (4C1 or 4C2), plywood (4D), fiberboard (4G) or reconstituted wood (4F) boxes with sealed inner plastic liners, plywood drums (1D), fiber drums (1G) with sealed inner plastic liner or in metal (1A1, 1A2, 1B1 or 1B2) packagings.

§ 173.222 Wheelchairs equipped with wet electric storage batteries.

(a) For transportation by highway, rail, water, or cargo aircraft only, wheelchairs equipped with wet electric storage batteries must conform to the provisions in § 173.220(c) of this part.

(b) For transportation by passenger-carrying aircraft, wheelchairs equipped with wet electric storage batteries are not subject to requirements of this subchapter other than the following:

(1) Wheelchairs equipped with non-spillable batteries as defined in § 173.159(d) of this subchapter may be shipped as checked luggage provided the battery is disconnected, the battery terminals are insulated to prevent accidental short circuits, and the battery is securely attached to the wheelchair.

(2) Wheelchairs equipped with spillable batteries may be shipped as checked baggage, provided that the wheelchair can be loaded, stowed, secured, and unloaded while always in an upright position. The battery must be disconnected, the terminals insulated to prevent accidental short circuits, and the battery securely attached to the wheelchair. The pilot-in-command must be advised, either orally or in writing, prior to departure, of the location of the wheelchair aboard the aircraft. If the wheelchair cannot be loaded, stowed, secured and unloaded always in an upright position, the battery must be removed and the wheelchair may then be carried without restriction. The removed battery must be carried in strong, rigid, outside packagings as follows:

(i) Outside packagings must be leaktight, impervious to battery fluid, loaded aboard the aircraft in accordance with the required orientation markings and be protected against upset by being secured to pallets or by being secured in cargo compartments using appropriate means (other than by bracing with freight or baggage) such as by use of restraining straps, brackets or holders;

(ii) Batteries must be protected against short circuits, secured upright in their outside packagings, and surrounded by compatible absorbent material sufficient to absorb their total liquid contents; and

(iii) Outside packagings must be marked to indicate proper orientation, and with the words "Battery, wet, with wheelchair", and be labeled with a CORROSIVE label.

§ 173.225 Packagings for organic peroxides.

(a) When the § 172.101 Table specifies that an organic peroxide be packaged

under this section, only non-bulk packagings which conform to the provisions of this section may be used for its transportation. Organic peroxides which require temperature control for stabilization are subject to the provisions of § 173.21(f) of this part.

(b) Organic peroxides table. (1) The first column of the table gives the identification numbers for organic peroxides as specified in Column 4 of the § 172.101 Table.

(2) The second column gives the packing group as specified in Column 5 of the § 172.101 Table. Each packaging used for an organic peroxide must be capable of meeting the test requirements of Subpart M of Part 178 at the specified level of performance.

(3) The third column specifies the packaging method or methods which must be used to pack an organic peroxide. The table of packaging methods in paragraph (c) of this section defines the packaging methods.

(4) The fourth column indicates, by the letters "TC", that an organic peroxide may require temperature control for stabilization. See § 173.21(f) of this part for provisions applicable to such materials.

ORGANIC PEROXIDES TABLE

Identification number (UN or NA) (1)	Packing group (2)	Packaging methods (3)	Temperature control (4)
2080	II	P1a, P8	
2081	II	P1a, P8	
2082	I	P1f, P13b	TC
2083	II	P1b, P2d, P8	TC
2084	I	P1b, P8	
2085	I	P1g, P1h, P13a, P14	
2087	II	P1a, P2c, P3b, P6a, P16, P20a, P20b, P30	
2088	I	P1d, P13b	
2089	II	P1a, P3b, P6a, P20b, P20d	
2090	II	P1b, P2f, P6b	
2091	II	P1a, P2c, P8, P10, P22a, P25b	
2092	I	P1a, P8, P10, P22a, P24	
2093	I	P1a, P8, P10, P22a, P24	
2094	I	P1a, P8, P10, P22a	
2095	II	P1c, P8	
2096	II	P1a, P2d, P8	
2097	II	P1e, P8, P13b, P18	
2098	II	P1a, P2c, P8, P10, P22a, P25b	
2099	II	P15	
2100	II	P1a, P8	
2101	II	P1a, P2a, P3b, P6a, P8, P16, P20c, P20d, P22a, P25b, P30	
2102	II	P1a, P2c, P8, P22b, P25b	
2103	II	P1e, P13b	
2104	II	P1a, P2d, P8	
2105	II	P1f, P3b, P6a, P20c, P20d, P21	
2106	II	P1a, P8	
2107	II	P1a, P2c, P8, P22a, P25b	
2108	II	P1a, P2c, P3b, P6a, P16, P20c, P20d, P22a, P25b	
2110	II	P1b, P8TC 2111 II P1a, P2d, P8	
2112	II	P1a, P3b, P6a, P20c, P20d, P24	
2113	II	P1b, P2f, P6b	
2114	II	P1a, P2c, P3b, P6a, P16, P20c, P20d	
2115	II	P1b, P2d, P8	
2116	I	P1a, P2c, P8, P22b, P25b	
2117	I	P1c, P12, P13b	
2118	I	P1a, P2c, P3b, P6a, P8, P16, P20b, P20d, P22a, P25b	
2119	I	P1b, P2d, P8	
2120	II	P1a, P2c, P3b, P6a, P17, P20b, P24, P25a	TC
2121	II	P1a, P2a, P24	
2122	II	P1b	TC
2123	II	P1b, P2d, P8	TC
2124	II	P1a, P3b, P6a, P13a, P14, P20b	
2125	I	P1a, P2c, P8, P22b, P25c	
2126	I	P1a, P2d, P8	
2127	I	P1a, P8	
2128	II	P1b, P2d, P8, P18, P24, P25a	TC
2129	II	P1a, P2c, P3b, P6a, P24, P25a	TC
2130	II	P1a, P2c, P3b, P6a	TC
2131	I	P1c, P3a	
2132	II	P1b, P2d, P8, P24, P25a	TC
2133	II	P1h, P7, P9, P13b	
2134	II	P1b, P2d, P8	
2135	II	P1d, P13b, P14, P15	
2136	II	P1a, P2c, P22a, P25b	

ORGANIC PEROXIDES TABLE—Continued

Identification number (UN or NA) (1)	Packing group (2)	Packaging methods (3)	Temperature control (4)
2137	II	P1b, P6b	
2138	II	P1a, P2c, P3b, P6a, P16, P20b, P20d, P30	
2139	II	P1b, P2d, P8	
2140	II	P1e, P8, P18	
2141	II	P16	
2142	II	P1e, P18	TC
2143	II	P1b, P8, P18	TC
2144	II	P1e	
2145	II	P1e, P18	
2146	II	P1a, P8	
2147	II	P1a	
2148	II	P1a, P3b, P6a, P14, P20c, P20d	
2149	I	P1f, P14, P20d	TC
2150	I	P1d	TC
2151	II	P1b	TC
2152	I	P1d, P14, P20d	TC
2153	I	P1b	TC
2154	II	P1a, P3b, P6a, P20c, P20d	TC
2155	II	P1a, P8, P18	
2156	II	P1a	
2157	II	P1b, P18	
2158	II	P1a, P18	
2159	II	P1a	
2160	II	P1e	
2161	I	P1e, P18	
2162	I	P1a, P2c, P8, P22b, P24, P25c	
2163	I	P1b	TC
2164	II	P1a, P2c	TC
2165	I	P1d	
2166	II	P1d	
2167	II	P1a, P8	
2168	II	P1a	
2169	II	P1b	TC
2170	II	P1b, P8, P24, P25a	
2171	I	P1a, P2c, P8, P22b, P25c	
2172	II	P1d, P3b, P6a, P20c, P20d, P21	
2173	II	P1d, P3b, P6a, P20c, P20d, P21	
2174	I	P1d, P12	
2175	II	P1b	TC
2176	I	P1d	TC
2177	II	P1e	
2178	II	P20d	
2179	II	P1e	
2180	II	P1e	
2182	II	P1f	TC
2183	II	P2d, P8, P9	
2184	II	P1e, P8	
2185	II	P1e, P8	
2255	I	P1i	
2550	I	P1a, P8	
2551	II	P1b, P2d, P8	
2562	II	P1e, P18	
2592	II	P1a	
2593	I	P1b	TC
2594	II	P1e	
2595	II	P1a	TC
2596	II	P1a	
2597	II	P1e	TC
2598	II	P1a	
2755	II	P28	
2756	I	P1a. P30	
2883	II	P1a	
2884	II	P1a	
2885	II	P1a	
2886	II	P1a	
2887	II	P1a	
2888	II	P1a	TC

ORGANIC PEROXIDES TABLE—Continued

Identification number (UN or NA) (1)	Packing group (2)	Packaging methods (3)	Temperature control (4)
2889	II	P1e	
2890	II	P1b, P2f, P6b	
2891	II	P1e	TC
2892	II	P1a, P20a, P24	TC
2893	II	P1a, P20a, P24	TC
2894	II	P1a, P20a, P24	TC
2895	II	P1a, P20a, P24	TC
2896	II	P1a, P2c, P3b, P6a, P16, P22a, P25b, P30	
2897	II	P1a	
2898	II	P1e	TC
2899	I	P1a, P30	
2957	II	P1e	TC
2958	II	P1a	
2959	II	P1e	
2960	II	P1a	TC
2961	II	P1a	TC
2962	I	P1a, P13b, P14, P15	TC
2963	II	P1b, P3b	TC
2964	II	P1e	TC
3044	II	P1a	
3045	I	P1a, P2a, P24	
3046	I	P1a	
3047	II	P1b, P2d, P8	TC
3058	II	P1h, P13a	
3059	II	P14	
3060	II	P1e, P20d	
3061	II	P1a	
3062	II	P1a	
3063	II	P1a	TC
3067	I	P1a, P24	
3068	I	P1a, P24	
3069	II	P1a, P24	
3074	II	P1b, P1e	
3075	I	P1a, P8	
3081	I	P1a, P8	

(c) Table of packaging methods. (1) The first column lists in alphanumeric sequence, the packaging methods for organic peroxides.

(2) The second column specifies the maximum net contents permitted in each inner packaging or receptacle. If no combination packagings are authorized, this column is blank.

(3) The third column specifies the maximum net contents permitted in an outer packaging, including a single, combination or composite packaging.

(4) The fourth column specifies inner packagings which are permitted for use, when applicable. If no combination packagings are authorized, this column is blank.

(5) The fifth column specifies outer packagings which are permitted for use. If inner packagings are specified in the fourth column, then the packaging specified in the fifth column must be used as the outer packaging of a combination packaging; otherwise, it may be used as a single packaging.

(6) The sixth column specifies composite packagings which are permitted for use, when applicable. If no composite packagings are authorized, this column is blank.

(7) The *Table of Packaging Methods* is as follows:

Packaging method (1)	Maximum net contents of each inner packaging or receptacle (2)	Maximum net contents of outer packaging (3)	Description of packagings		
			Inner packagings (4)	Outer packagings (5)	Composite packagings (6)
P1a	50 kg	50 kg	Plastic bottles, jars, bags or boxes	4G or 1G or 1D or 4C1	6HC or 6HD1 or 6HG1 or 6GH2
P1b	25 kg	50 kg			
P1c	10 kg	50 kg			
P1d	5 kg	50 kg			
P1e	25 kg	25 kg			
P1f	6 kg	25 kg			
P1g	5 kg	5 kg			

Packaging method	Maximum net contents of each inner packaging or receptacle	Maximum net contents of outer packaging	Description of packagings		
			Inner packagings	Outer packagings	Composite packagings
(1)	(2)	(3)	(4)	(5)	(6)
P1h	1 kg	10 kg			
P1i	500 g	1 kg			
P2a	100 kg	100 kg			
P2c	50 kg	50 kg	Plastic bottles, jars, bags or boxes	1A2 or 1B2 or 4A1 or 4B1	6HA1 or 6HA2 (steel box only) or 6HB1 or 6HB2 (aluminum box only)
P2d	25 kg	50 kg			
P2f	10 kg	50 kg			
P3a		60 kg			
P3b		30 kg			6HA2, (steel crate only) or 6HB2 (aluminum crate only) or 6HD1 or 6HG1
P6a	10 kg	90 kg	Metal Cans, or glass bottles in metal cans, or plastic bags in metal cans, or plastic bottles in metal cans.	4G or 1G or 1D or 4C1	
P6b	10 kg	50 kg			
P7	3 kg	12 kg	Aluminum bottles or jars with plastic closures.	4G or 1G or 1D or 4C1	
P8	2 L	50 L	Glass bottles	1G or 4G or 1G or 1D or 4C1	
P9	7.5 L	7.5 L	Glass or earthenware bottles; or metal cans.	4G or 1G or 1D or 4C1	6PC or 6PD1 or 6PG1 or 6PG2
P10	0.5 L	50 L	Glass bottles	1A2 or 1B2 or 4A1 or 4B1	
P12	1 kg	50 kg	Waxed fiberboard boxes	4G or 1G or 1D or 4C1	
P13a	500 g	25 kg			
P13b	500 g	14 kg	Plastic boxes or bottles	4C1, compartmented	
P14	500 g	25 kg	Paper bags with inner ply of plastic	4G with fire-retardant liner and partitions of fire-retardant corrugated fiberboard.	
P15	500 g	500 g	Paper bag with inner ply of plastic, packed singly.	4G	
P16	250 g	50 kg	Metal or plastic flexible tubes	4G or 4D	
P17	500 g	500 g	Fiber jar with sealed cap closure, packed singly.	4C1	
P18	500 ml	500 ml	Plastic bottle, packed singly	4G	
P20a		200 kg		1G with plastic liner or internal coating of polyethylene.	6HG1
P20b		100 kg			
P20c		50 kg			
P20d		30 kg			
P21		50 kg		1D with plastic liner	6HD1
P22a		50 kg			(1A1) or (1A2)
P22b		220 L			
P24		220 L		1A1 with plastic liner or 1A2 with plastic liner.	
P25a		200 kg			
P25b		50 kg		1B1 or 1B2	

Packaging method	Maximum net contents of each inner packaging or receptacle	Maximum net contents of outer packaging	Description of packagings		
			Inner packagings	Outer packagings	Composite packagings
(1)	(2)	(3)	(4)	(5)	(6)
P25c		220 L			
P28	500 g	2 kg	Plastic bag individually packed in round cardboard carton of 2 litres capacity. Four cartons per package.	4G or 1G	
P30		25 kg		1H1 or 1H2	

§ 173.226 Liquids toxic by inhalation, Division 6.1, Packing Group I, Zone A.

Division 6.1, Packing Group I, materials that are toxic by inhalation and that fall within the boundaries of Zone A in the graph found in § 173.133 shall be packed in non-bulk packagings in accordance with the following paragraphs:

(a) In specification cylinders, as authorized in § 173.40.

(b) In 1A1, 1B1 or 1N1 drums further packed in a 1A2 or 1H2 drum. Both inner and outer drums must conform to the performance test requirements of Subpart M of Part 178 of this subchapter at the Packing Group I performance level. The outer drum must have a minimum thickness of 1.50 mm (0.059 inches) for a 1A2 outer drum or 6.30 mm (0.248 inches) for a 1H2 outer drum. Capacity of the inner drum may not exceed 220 L (58.1 gallons). In addition, the inner drum must—

(1) Be capable of satisfactorily withstanding the hydrostatic pressure test in § 178.605 of this subchapter at a test pressure of 550 kPa (79.8 psig);

(2) Satisfactorily withstand the leakproofness test in § 178.604 of this subchapter using an internal air pressure of at least twice the vapor pressure at 55 °C (131 °F) of the material to be packaged;

(3) Have screw closures that are—

(i) Closed and tightened to a torque prescribed by the closure manufacturer, using a device that is capable of measuring torque;

(ii) Physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during transportation; and

(iii) Provided with a cap seal that is properly applied in accordance with the cap seal manufacturer's recommendations and is capable of withstanding an internal pressure of at least 100 kPa (14.5 psig).

(4) Have a minimum thickness as follows:

(i) If the capacity of the inner drum is less than or equal to 120 L (31.7 gallons), the minimum thickness of the inner drum is—

(A) For a 1A1 or 1N1 drum, 1.3 mm (0.051 inches); and

(B) For a 1B1 drum, 3.9 mm (0.154 inches).

(ii) If the capacity of the inner drum is greater than 120 L (31.7 gallons), the thickness of the inner drum is—

(A) For a 1A1 or 1N1 drum, 1.7 mm (0.067 inches); and

(B) For a 1B1 drum, 4.7 mm (0.185 inches); and

(5) Be isolated from the outer drum by a shock-mitigating, non-reactive material. There must be a minimum of 5.0 cm (1.97 inches of cushioning material around the body of the inner drum, and at least 7.6 cm (2.99 inches) on the top and bottom, between the inner and outer drum.

(c) In combination packagings, consisting of an inner packaging system and an outer packaging, as follows:

(1) *Outer packagings:*

Steel drum: 1A2
Aluminum drum: 1B2
Plywood drum: 1D
Fiber drum: 1G
Plastic drum: 1H2
Wooden barrel: 2C2
Steel jerrican: 3A2
Plastic jerrican: 3H2
Steel box: 4A1 or 4A2
Aluminum box: 4B1 or 4B2
Natural wood box: 4C1 or 4C2
Plywood box: 4D
Reconstituted wood box: 4F
Fiberboard box: 4G
Expanded plastic box: 4H2
Solid plastic box: 4H2

(2) *Inner packaging system.* The inner packaging system consists of two packagings: an impact resistant receptacle of glass, earthenware, plastic or metal securely cushioned with a non-reactive, absorbent material and packed within a leak-tight packaging of metal or plastic. This combination packaging in turn is packed within the outer packaging. Capacity of each inner receptacle may not exceed 4 L (1.06 gallons). An inner receptacle that has a closure must have a screw type closure which is physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during transportation. Both the inner packaging system and the outer packaging must conform to the performance test requirements of Subpart M of Part 178 of this subchapter, at the Packaging Group I performance level. The inner packaging system must meet these tests *without the benefit of the outer packaging.* The total amount of liquid contained in the outer packaging may not exceed 16 L (4.24 gallons).

§ 173.227 Liquids toxic by inhalation, Division 6.1, Packing Group I, Zone B.

Division 6.1, Packing Group I, materials that are toxic by inhalation and that fall within the boundaries of Zone B in the graph found in § 173.133 shall be packed in non-bulk packagings which conform to the performance test requirements of Subpart M of Part 178 of this subchapter, at the Packing Group I performance level. The following packagings are authorized:

(a) In packagings as authorized in § 173.226; or

(b) In 1A1, 1B1, or 1N1 drums further packed in a 1A2 or 1H2 drum. Both the inner and outer drums must conform to the performance test requirements of Subpart M of Part 178 of this subchapter at the Packing Group I performance level. The outer drum must have a minimum thickness of 1.50 mm (0.059 inches) for a 1A2 outer drum or 6.30 mm (0.248 inches) for a 1H2 outer drum. In addition, the inner drum must—

(1) Satisfactorily withstand the leakproofness test in § 178.604 of this subchapter using an internal air pressure of at least two times the vapor pressure at 55 °C (131 °F) of the material to be packaged;

(2) Have screw closures that are—

(i) Closed and tightened to a torque prescribed by the closure manufacturer,

using a device that is capable of measuring torque;

(ii) Physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during transportation; and

(iii) Provided with a cap seal that is properly applied in accordance with the cap seal manufacturer's recommendations and is capable of withstanding an internal pressure of at least 100 kPa (14.5 psig).

(3) Have a minimum thickness as follows:

(i) If the capacity of the inner drum is less than or equal to 120 L (31.7 gallons), the minimum thickness of the inner drum is—

(A) For a 1A1 drum, 1.3 mm (0.051 inches); and

(B) For a 1B1 drum, 3.9 mm (0.154 inches).

(ii) If the capacity of the inner drum is greater than 120 L (31.7 gallons), the thickness of the inner drum is—

(A) For a 1A1 or 1N1 drum, 1.7 mm (0.067 inches); and

(B) For a 1B1 drum, 4.7 mm (0.185 inches); and

(4) Be isolated from the outer drum by a shock-mitigating, non-reactive material. There must be a minimum of 5.0 cm (1.97 inches) of cushioning material around the body of the inner drum, and at least 7.6 cm (2.99 inches) on the top and bottom, between the inner and outer drum; and

(5) Have a capacity not greater than 220L (58.1 gallons).

(c) 1A1, 1B1 or 1N1 drums described in paragraph (b) of this section may be used without being further packed in a 1A2 or 1H2 drum if the shipper loads the material, blocks and braces the drums within the transport vehicle and seals the transport vehicle used. Drums may not be stacked (double decked) within the transport vehicle. Shipments must be from one origin to one destination only without any intermediate pickup or delivery.

§ 173.228 Bromine pentafluoride or bromine trifluoride.

(a) When the § 172.101 Table specifies that a hazardous material be packaged under this section, only non-bulk packagings prescribed in paragraph (b) of this section are authorized for its transportation. Each packaging must conform to the general packaging requirements of Subpart B of this part, to the specification requirements of Part 178 and to the requirements of the special provisions of Column 7 of the § 172.101 Table.

(b) Specification 3A150, 3AA150, 3B240, 3BN150, 4B240, 4BA240, 4BW240 and 3E1800 cylinders are authorized. Each valve outlet must be sealed by a threaded cap or threaded plug. Cylinder valves must be protected as specified for corrosive gases in § 173.301(g). No cylinder may be equipped with any pressure relief device. Specification 3E1800 cylinders must be packaged in accordance with the requirements of § 173.301(k).

§ 173.229 Chloric acid solution or chlorine dioxide hydrate, frozen.

(a) When the § 172.101 Table specifies that a hazardous material be packaged in accordance with this section, only 4G fiberboard boxes, with inner packagings of polyethylene or other suitable material, are authorized. Fiberboard boxes must be reinforced and insulated and sufficient dry ice must be used to maintain the hydrate or acid in a frozen state during transportation. Each packaging must conform to the general packaging requirements of Subpart B of Part 173, and to the requirements of Part 178 at the Packing Group I performance level. Shipments are authorized by private or contract carrier by motor vehicle only.

§ 173.230 Non-bulk packagings for ORM-D materials.

(a) General. Exceptions in the following paragraphs are permitted only if this section, or § 173.306 of this part, is referenced for the specific hazardous material in the § 172.101 Table of this subchapter.

(b) Small arms ammunition. (1) Small arms ammunition which has been classed as a Class C explosive may be reclassed and offered for transportation as ORM-D material when packaged in accordance with paragraph (b)(2) of this section. Shipments are excepted from the requirements of Subparts E (Labeling) and F (Placarding) of Part 172 of this subchapter. Small arms ammunition that may be shipped as ORM-D material is limited to:

(i) Ammunition for rifle, pistol or shotgun;

(ii) Ammunition with inert projectiles or blank ammunition;

(iii) Ammunition having no tear gas, incendiary, or detonating explosive projectiles; and

(iv) Ammunition not exceeding 50 caliber (½ inch) for rifle or pistol cartridges or 8 gauge for shotshells.

(2) Packaging for small arms ammunition as ORM-D material must be as follows:

(i) Ammunition must be packed in inside boxes, or in partitions which fit snugly in the outside packaging, or in metal clips;

(ii) Primers must be protected from accidental initiation;

(iii) Inside boxes, partitions or metal clips must be packed in securely closed strong outside packagings; and

(iv) Maximum gross weight is limited to 65 (29.5 kg) pounds per package.

(c) Compressed gases. A compressed gas which conforms to the provisions of paragraphs (a)(1), (a)(3) except (a)(3)(vi), or (b) except (b)(1)(iii) of § 173.306 of this subchapter and is a "Consumer commodity" as defined in § 171.8 of this subchapter may be renamed "Consumer commodity" and reclassed as ORM-D material. Each completed package must conform to the requirements of Subpart B of this part and may not exceed 65 pounds (29.5 kg) gross weight. Shipments are excepted from the requirements of Subparts E (Labeling) and F (Placarding).

(d) Other consumer commodity exceptions are provided for Class (or Division) 3, 4.1, 5.1, 5.2, 6.2, 8 or 9 materials, if the § 172.101 Table entry for the specific material refers to, and the material meets the provisions in §§ 173.150, 173.151, 173.152, 173.153, 173.154 or 173.155, as appropriate.

Subpart F—Bulk Packaging for Hazardous Materials Other Than Classes 1 and 7

§ 173.240 Bulk packaging for certain flammable solids (Division 4.1), solid oxidizers (Division 5.1), corrosive solids (Class 8) and other similar low hazard materials.

When § 172.101 of this subchapter specifies that a hazardous material be packaged under this section, only the following bulk packagings are authorized, subject to the requirements of Subparts A and B of Part 173 of this subchapter and the special provisions specified in Column 7 of the § 172.101 Table.

(a) *Rail cars:* DOT Class 103, 104, 105, 107A, 109, 111, 112, 113, 114 and 115 tank car tanks; Class 106 and 110 multi-unit tank car tanks; AAR Class 203W, 206W and 211W tank car tanks; and metal non-DOT specification, sift proof tank car tanks and sift proof closed cars.

(b) *Motor vehicles:* Specification MC 300, MC 301, MC 302, MC 303, MC 304, MC 305, MC 306, MC 307, MC 310, MC 311, MC 312, MC 330, MC 331 and MC 338 cargo tank motor vehicles; metal non-DOT specification, sift proof cargo tank motor vehicles; and sift proof closed vehicles.

(c) *Portable tanks, bins and other bulk packagings:* DOT 51, 52, 53, 56, 57 and 60 portable tanks; marine portable tanks conforming to 46 CFR 64; and sift proof non-DOT specification portable tanks, closed bins and other bulk packagings.

§ 173.241 Bulk packaging for certain combustible liquids (Class 3), flammable solids (Divisions 4.2 and 4.3), and other similar hazardous materials.

When § 172.101 of this subchapter specifies that a hazardous material be packaged under this section, only the following bulk packagings are authorized, subject to the requirements of Subparts A and B of Part 173 of this subchapter and the special provisions specified in Column 7 of the § 172.101 Table.

(a) *Rail cars:* DOT Class 103, 104, 105, 107A, 109, 111, 112, 113, 114 and 115 tank car tanks; Class 106 and 110 multi-unit tank car tanks; AAR Class 203W, 206W and 211W tank car tanks.

(b) *Cargo tanks:* DOT specification MC 300, MC 301, MC 302, MC 303, MC 304, MC 305, MC 306, MC 307, MC 310, MC 311, MC 312, MC 330, MC 331 and MC 338 cargo tank motor vehicles; and metal non-DOT specification cargo tank motor vehicles suitable for transport of liquids.

(c) *Portable tanks:* DOT 51, 52, 53, 56, 57 and 60 portable tanks; marine portable tanks conforming to 46 CFR Part 64; and non-DOT specification portable tanks suitable for transport of liquids. DOT 57 portable tanks used for the transportation by vessel of Class 3, Packing Group II, materials must conform to the following:

(1) Each tank must have a minimum design pressure of 9 psig (62.1 kPa) and be equipped in accordance with § 178.253–4 of this subchapter, except that frangible devices are not authorized; and

(2) No pressure relief device may open at less than 5 psig (34.5 kPa).

§ 173.242 Bulk packaging for certain medium hazard liquids and solids, including solids with dual hazards.

When § 172.101 of this subchapter specifies that a hazardous material be packaged under this section, only the following bulk packagings are authorized, subject to the requirements of Subparts A and B of Part 173 of this subchapter and the special provisions specified in Column 7 of the § 172.101 Table.

(a) *Rail cars:* DOT Class 103, 104, 105, 107A, 109, 111, 112, 113, 114 or 115 tank car tanks; Class 106 or 110 multi-unit tank car tanks; AAR Class 203W tank car tanks.

(b) *Cargo tanks:* Specification MC 300, MC 301, MC 302, MC 303, MC 304, MC 305, MC 306, MC 307, MC 310, MC 311, MC 312, MC 330, MC 331 and MC 338 cargo tank motor vehicles.

(c) *Portable tanks:* DOT 51, 52, 53, 56, 57 and 60 portable tanks; and marine portable tanks conforming to 46 CFR 64. DOT 57 portable tanks used for the transportation by vessel of Class 3, Packing Group II, materials must conform to the following:

(1) Each tank must have a minimum design pressure of 9 psig (62.1 kPa) and be equipped in accordance with § 178.253–4 of this subchapter, except that frangible devices are not authorized; and

(2) No pressure relief device may open at less than 5 psig (34.5 kPa).

§ 173.243 Bulk packaging for certain high hazard liquids and dual hazard liquids which pose a moderate hazard.

When § 172.101 of this subchapter specifies that a hazardous material be packaged under this section, only the following bulk packagings are authorized, subject to the requirements of Subparts A and B of Part 173 of this subchapter and the special provisions specified in Column 7 of the § 172.101 Table.

(a) *Rail cars:* DOT Class 103, 104, 105, 107A, 109, 111, 112, 113, 114, and 115 tank car tanks; and Class 106 and 110 multi-unit tank car tanks. Gauging devices are required on DOT 103, 104 and 111 tank car tanks. Riveted tank car tanks are not authorized.

(b) *Cargo tanks:* Specification MC 304, MC 307, MC 330, MC 331, and MC 338 cargo tank motor vehicles; and MC 310. MC 311 or MC 312 cargo tank motor vehicles with tank design pressure of at least 25 psig (172.4 kPa).

(c) *Portable tanks:* DOT 51 portable tanks; and DOT 60 and marine portable tanks conforming to 46 CFR 64 with design pressure of at least 25 psig (172.4 kPa).

§ 173.244 Bulk packaging for certain pyrophoric liquids (Division 4.2), poisonous liquids with inhalation hazards (Division 6.1) and gases (Class 2).

When § 172.101 of this subchapter specifies that a hazardous material be packaged under this section, only the following bulk packagings are authorized, subject to the requirements of Subparts A and B of Part 173 of this subchapter and the special provisions specified in Column 7 of the § 172.101 Table.

(a) DOT Classes 105, 107A, 109, 112, 113, and 114 tank car tanks; and Class 106 and 110 multi-unit tank car tanks. Riveted tank car tanks are not authorized.

(b) Specification MC 330, MC 331 and MC 338 cargo tank motor vehicles.

(c) DOT 51 portable tanks.

§ 173.245 Bulk packaging for extremely hazardous materials such as poisonous gases (Division 2.3).

When § 172.101 of this subchapter specifies that a hazardous material be packaged under this section, only the following bulk packagings are authorized, subject to the requirements of Subparts A and B of Part 173 of this subchapter and the special provisions specified in Column 7 of the § 172.101 Table.

(a) DOT 105J500W, 112J500W and 112T500W tank car tanks; and DOT Class 106 and 110 multi-unit tank car tanks. Written procedures covering details of tank car appurtenances, dome fittings, and safety devices, and marking, loading, handling, inspection and testing practices, must be approved by the Director, OHMT, before any single unit tank car tank is offered for transportation.

(b) Cargo tank motor vehicles and portable tanks, when approved by the Director, OHMT.

§ 173.248 Ethylene oxide.

(a) When § 172.101 of this subchapter specifies that a hazardous material be packaged under this section, only the following bulk packagings are authorized, subject to the requirements of Subparts A and B of this part, the special provisions specified in Column 7 of the § 172.101 Table, and paragraphs (b) through (g) of this section:

(1) *Tank cars.* DOT 105J100W tank car tanks; DOT 105A100W or 111A100W4 tank car tanks built before September 1, 1981 and having a water capacity not exceeding 18,500 gallons (70,030.1 liters); and DOT 111J100W4 tank car tanks built before March 2, 1984.

(2) *Cargo tanks.* Specification MC 330 and MC 331 cargo tank motor vehicles.

(3) *Portable tanks.* DOT 51 portable tanks.

(b) The pressure relief devices must be set to function at 75 psig (517.1 Kpa). Portable tanks fitted with non-reclosing devices made and in use prior to December 31, 1987, may continue to be used in ethylene oxide service.

(c) Outage must be sufficient to prevent the tank from becoming liquid full at 105 °F (40.6 °C). Consideration must be given to the lading temperature and solubility of inert gas padding in ethylene oxide as well as the partial pressure exerted by the gas padding.

(d) Each tank, loaded or empty, must be padded with dry nitrogen or other suitable inert gas of sufficient quantity to render the vapor pressure of the tank nonflammable up to 105 °F (40.6 °C). The gas used for padding must be free of impurities which may cause the ethylene

oxide to polymerize, decompose or undergo other violent chemical reaction.

(e) Copper, silver, mercury, magnesium or their alloys may not be used in any part of the tank or appurtenances that are normally in contact with the lading.

(f) Neoprene, natural rubber and asbestos gaskets are prohibited. All packing and gaskets must be made of materials which do not react with or lower the autoignition temperature of the lading.

(g) Each tank must be insulated with cork (at least 4 inches (10.2cm) thick), or mineral wool, fiberglass or other suitable insulation material of sufficient thickness so that the thermal conductance at 60 °F (15.6 °C) is not more than 0.075 Btu per hour per square foot per degree F. temperature differential. Portable tanks made and in use prior to December 31, 1987 equipped with fusible plugs instead of a safety relief valve or frangible disc, must have sufficient insulation so that the tank as filled for shipment will not rupture in a fire. The insulation on portable tanks or cargo tank motor vehicles must be protected with a steel jacket at least 0.100 inch (2.54mm) thick, or as required by the specification.

§ 173.249 Bromine.

When § 172.101 of this subchapter specifies that a hazardous material be packaged under this section, only the following bulk packagings are authorized, subject to the requirements of Subparts A and B of Part 173 of this subchapter and the special provisions specified in Column 7 of the § 172.101 Table.

(a) DOT Class 105A300W or 105A500W tank cars. Class 105A500W tank cars may be equipped with manway cover plates, pressure relief valves, vent valves, and loading/unloading valves that are required on Class 105A–300W tank cars. Tank cars must conform with paragraphs (d) through (f) of this section.

(b) Specification MC 310, MC 311, MC 312 cargo tank motor vehicles conforming with paragraphs (d) through (f) of this section.

(c) Specification IM 101 intermodal portable tanks conforming with paragraphs (d) through (f) of this section.

(d) The tank must be made from nickel-clad or lead-lined steel plate. Nickel cladding or lead lining must be on the inside of the tank. Nickel cladding must comprise at least 20 percent of the required minimum total thickness. Nickel cladding must conform to ASTM Specification B 162–69. Lead lining must be at least 0.1875 inch (4.7625mm) thick. All tank equipment and appurtenances in contact with the lading must be lined or made from metal not subject to deterioration by contact with lading.

(e) Maximum filling density is 300 percent of the tank's water capacity. Minimum filling density is 287 percent of the tank's water capacity. Maximum water capacity is 9,262 kilograms (20,400 pounds) for DOT 105A300W tank cars. Maximum quantity of lading in DOT 105A300W tank cars is 27,240 kilograms (60,000 pounds). Maximum water capacity is 16,980 kilograms (37,400 pounds) for DOT 105A500W tank cars and DOT 105A500W tank cars equipped as described in paragraph (a) of this section. Maximum quantity of lading in DOT 105A500W tank cars is 49,940 kilograms (110,000 pounds).

(f) Tank shell and head thickness for cargo tank motor vehicles and portable tanks must be at least 0.375 inch (9.525mm) excluding lead lining.

116. The title to Subpart G would be revised to read as follows:

Subpart G—Gases; Preparation and Packaging

§ 173.300 [Removed]

117. Section 173.300 would be removed.

118. In § 173.306, the phrase "Subpart N of this part" would be revised to read "paragraph (h) of this section" in the last sentence of paragraph (a)(1), and the introductory text of paragraph (a)(3) and the last sentence of the introductory text of paragraph (b) and paragraph (h) would be added to read as follows:

§ 173.306 Limited quantities of compressed gases.

* * * * *

(h) A limited quantity which conforms to the provisions of subparagraph (a)(1) or (a)(3) or paragraph (b) of this section and is a "consumer commodity" as defined in § 171.8 of this subchapter, may be renamed "consumer commodity" and reclassed as ORM–D material. In addition to the exceptions provided by paragraphs (a) and (b) of this section—

(1) Outside packagings are not required to be marked "INSIDE CONTAINERS COMPLY WITH PRESCRIBED REGULATIONS";

(2) Shipments of ORM–D materials are not subject to the shipping paper requirements of Subpart C of Part 172, unless offered or intended for transportation by aircraft; and

(3) Strong outer packagings as specified in this section and the marking requirements specified in § 172.312 are not required for ORM–D materials when unitized in cages, carts or similar overpacks and when shipped by a private or contract motor carrier from a distribution center to a retail outlet.

§ 173.308 [Amended]

119. In paragraph (a) of § 173.308, the section reference "§ 173.21(e)" would be changed to "§ 173.21(i)".

120. In § 173.314, paragraphs (d) and (f) would be removed and reserved, paragraph (a) and paragraphs (b) (5) and (6) would be revised, the introductory text in paragraph (c) preceding the table would be revised, and paragraph (i) would be added to read as follows:

§ 173.314 Requirements for compressed gases in tank cars.

(a) *Definitions.* For definitions of compressed gases, see § 173.115.

(b) * * *

(5) Except as otherwise provided in this subchapter and except for DOT Class 106A and 110A multi-unit tank car tanks, each tank car which contains a Division 2.1 or 2.3 material or hydrogen fluoride must be marked with the name of contents as prescribed in § 172.330 of this subchapter.

(6) For single unit tank car tanks, built after December 30, 1971, which are loaded with a material which meets the definition for Division 2.1, gaskets for manway covers and for mounting of fittings must be made of heat resistance materials approved by the AAR Tank Car Committee.

(c) *Authorized gases, filling densities and tank cars.* A compressed gas offered for transportation in a tank car (for cryogenic liquids, see § 173.319) must be prepared in accordance with the applicable provisions of paragraphs (b) through (h) of this section, §§ 172.101, 173.10, 173.24b, and 173.31 of this subchapter, and the following table:

* * *

* * * * *

(d) [Reserved]

* * * * *

(f) [Reserved]

* * * * *

(i) Tank car tanks used for liquefied petroleum gas, butadiene, anhydrous ammonia, methylacetylene-propadiene, stabilized, chlorodifluoromethane, or vinyl chloride may, as an alternate, conform with the following special requirements:

(1) Safety relief valves may be set to the following pressures, provided the total valve discharge capacity is sufficient to prevent building up pressure in the tank in excess of 90 percent of the tank test pressure:

Safety relief valves, p.s.i.	DOT specifications		
	105A300W	112A340W, 114A340W	112A400W, 114A400W
Start-to-discharge pressure	247.5	280.5	330
Start-to-discharge tolerance	±7.5	±8.4	±10
Vapor tight pressure (minimum)	196	224	264
Flow rating pressure	270	306	360

(2) Gaskets for manway covers and for mounting of fittings must be made of heat resistance materials approved by the AAR Tank Car Committee.

121. In the table which appears in paragraph (c) of § 173.314 and the notes following it, the following changes are proposed:

a. The following entries and associated information are removed: Ammonia solution, Butadiene (all entries), Chlorodifluoroethane, Chlorodifluoromethane, Chloropentafluoroethane, Chlorotetrafluoroethane, Chlorotirfluoromethane, Crude nitrogen fertilizer solution (all entries), Dichlorodifluoromethane, Difluoroethane, Dimethylamine, Dimethyl ether, Fertilizer ammoniating solution (all entries), Hexafluoropropylene, Hexafluoropropylene oxide, Liquid hydrocarbon gas (all entries), Liquefied petroleum gas (all entries), Methylacetylene-propadiene, Methyl chloridemethylene chloride mixture, Methylamine, Nitrogen fertilizer solution (all entries), Refrigerant gas (all entries), Trifluorochloroethylene, Trimethylamine, Vinyl chloride, and Vinyl methyl ether.

b. For Anhydrous ammonia, "Note 15" is changed to "Note 21" in both places it appears.

c. For Chlorine, "Note 12" is changed to "Notes 12 and 30".

d. For Hydrogen chloride, "Note 17" is changed to "Notes 17 and 30".

e. For Nitrous oxide, "Note 6" is changed to "Notes 6 and 30".

f. For Sulfur dioxide, "Note 30" is added after "DOT-105A200-W".

g. The following entry is added: Column 1: "Flammable gases, not specifically provided for"; Column 2: "Note 21"; Column 3: "DOT Classes 106A and 110, Note 7. DOT Classes 105A, 112J, 112T, 114J, and 114T, Notes 4 and 23. DOT-111A100W4, Notes 4 and 23."

h. The following entry is added: Column 1: "Non-flammable gases, not specifically provided for"; Column 2: "Note 21"; Column 3: "DOT Classes 106A and 110, Note 25. DOT Classes 105A, 109A, 112A, and 114A; DOT-111A100W4.

i. Notes 9, 14, 15, 18, 19, 22, 26, and 29 are removed.

j. Note 20 is revised to read as follows: "The gas pressure at 130 °F in any uninsulated DOT Class 107A tank may not exceed seven-tenths of the marked test pressure of the tank, except that a tank may be charged with helium to a pressure 10 percent in excess of the marked maximum gas pressure at 130 °F of each tank."

k. Note 21 is revised to read as follows: "See paragraph (b)(1) of § 173.24b of this subchapter."

l. Note 30 is added to read as follows: "Each specification 105 tank car built after March 31, 1989, must conform to DOT Class 105J requirements."

122. In § 173.315, paragraph (a)(2) would be added to read as follows:

§ 173.315 Compressed gases in cargo tanks and portable tanks.

(a) * * *

(2) Other gases not listed by name in the above table shall be shipped in portable tanks or cargo tanks subject to the following conditions:

(i) Minimum packaging design pressure must not be less than—

(A) For a non-flammable and non-toxic gas lading, (Division 2.2), the vapor pressure at the reference temperature of the lading.

(B) For a gas which is toxic or flammable, (Division 2.1 or 2.3), or both, the vapor pressure at the reference temperature of the lading plus one percent or 25 psig (172.4 kPa), whichever is less, for each additional hazard.

(ii) Maximum permitted filling density may not exceed that specified in paragraph (c) of this section.

* * * * *

123. In Subpart G, §§ 173.321, 173.322, 173.323, 173.324, 173.335, 173.338, and 173.340 would be added, and §§ 173.334, 173.336 and 173.337 would be revised to read as follows:

§ 173.321 Ethylamine.

Ethylamine must be packaged as follows:

(a) In 1A1 drums which meet Packing Group I performance level requirements.

(b) In specification cylinders as prescribed for any compressed gas except acetylene.

§ 173.322 Ethyl chloride.

Ethyl chloride must be packaged in single or combination non-bulk packagings which meet Packing Group I performance level requirements, as follows:

(a) In 4C1, 4C2, 4D or 4F wooden boxes with glass, earthenware, or metal inner receptacles not over 500 grams (1.1 pounds) capacity each.

(b) In 4G fiberboard boxes with glass, earthenware, or metal inner receptacles not over 500 grams (1.1 pounds) capacity each. Outer packagings may not exceed 30 kilograms (66.2 pounds) gross weight.

(c) In 1A1 drums of not over 100 liters (37.9 gallons) capacity each.

(d) In specification cylinders as prescribed for any compressed gas except acetylene.

§ 173.323 Ethylene oxide.

(a) For packaging ethylene oxide in non-bulk packagings, copper, silver mercury and their alloys shall not be used in any part of a packaging, valve, or other packaging appurtenance if that part is normally in contact with ethylene oxide liquid or vapor. All packaging and gaskets must be constructed of materials which do not react spontaneously with or lower the autoignition temperature of ethylene oxide.

(b) Ethylene oxide must be packaged as follows:

(1) In 4G fiberboard boxes with one inner glass ampoule or vial of no more than 100 grams (3.5 ounces) capacity cushioned with noncombustible material. The completed package must be capable of passing Packing Group I performance tests.

(2) In 4G fiberboard boxes constructed with top and bottom pads and perimeter liner. Inner packagings must be aluminum receptacles of no more than 135 grams (4.8 ounces) capacity cushioned with incombustible material. No more than 12 receptacles allowed in one box and no more than 10 boxes may be overpacked under the provisions of § 173.25 of this Part. Each completed package must be capable of passing Packing Group I performance tests.

(3) In 4C1, 4C2, 4D or 4F wooden boxes or 4G fiberboard boxes with inner metal receptacles of no more than 340 grams (12 ounces) capacity. The metal receptacle must be capable of withstanding no less than a 180 psig (1241.1 kPa) burst pressure. No more than 12 receptacles may be packed in one box and each receptacle may not be liquid full below 180 °F (82.2 °C). Each inner receptacle must be insulated and equipped with a relief device of the fusible plug type with yield temperature of 157 °F to 170 °F (69.4 °C to 76.7 °C). The capacity of relief device and insulation must be such that the charged receptacle will not explode when tested by CGA Pamphlet C-14 method or other equivalent method. Each completed package must be capable of passing Packing Group I performance tests.

(4) In specification cylinders, as authorized for any compressed gas except acetylene. Cylinders must be seamless or welded steel (not brazed) with a nominal capacity of no more than 30 gallons (113.6 L) and may not be liquid full below 180 °F (82.2 °C). Cylinders over 3.79 liters (1 gallon) capacity must be equipped with eductor tubes and be insulated. Before each refilling, each cylinder must be tested for leakage at no less than 15 psig (103.4 kPa) pressure. In addition, each cylinder must be equipped with a fusible type relief device with yield temperature of 157 °F to 170 °F (69.4 °C to 76.7 °C). The capacity of the relief device and the effectiveness of the insulation must be such that the charged cylinder will not explode when tested by CGA Pamphlet C–14 method or other equivalent method.

(5) In 1A1 steel drums of no more than 61 gallons (230.9 L) and meeting Packing Group I performance standards. The drum must be lagged, of all welded construction with the inner shell having a minimum thickness of 2.0 mm (0.0787 inches) and the outer shell having a minimum thickness of 2.6 mm (0.1024 inches). Drums must be capable of withstanding a hydrostatic test pressure of 100 psig (689.5 kPa). Lagging must be of sufficient thickness so that the drum will not rupture when exposed to fire when filled with ethylene oxide and equipped with the required pressure relief device. The drum may not be liquid full below 185 °F (85 °C), and must be marked "THIS END UP" on the top head. Before each refilling, each drum must be tested for leakage at no less than 15 psig (103.4 kPa) pressure. Each drum must be equipped with a fusible type relief device with yield temperature of 157 °F to 170 °F (69.4 °C to 76.7 °C), and the capacity of the relief device must be such that the filled drum will not explode when tested by the method described in CGA Pamphlet C–14 or other equivalent method.

§ 173.324 Ethyl methyl ether.

Ethyl methyl ether must be packed as follows:

(a) In specification cylinders, as authorized for any compressed gas except acetylene; or

(b) In packagings as specified in § 173.201 which meet Packing Group I performance level requirements.

§ 173.334 Organic phosphates mixed with compressed gas.

Hexaethyl tetraphosphate, parathion, tetraethyl dithio pyrophosphate, tetraethyl pyrophosphate, or other Division 6.1 organic phosphates (including a compound or mixture), may be mixed with a compressed gas which must be nonflammable. This mixture must not contain more than 20 percent by weight of organic phosphate and must be packaged in specification 3A240, 3AA240, 3B240, 4A240, 4B240, 4BA240, or 4BW240 cylinders meeting the following requirements.

(a) Each cylinder may be charged with not more than 5 kg (11.0 pounds) of the mixture, to a maximum filling density of not more than 80 percent of the water capacity;

(b) Each cylinder must be charged in compliance with § 173.301 (e) and (f);

(c) No cylinder may be equipped with an eduction tube or a fusible plug;

(d) No cylinder may be equipped with any valve unless the valve is a type approved by the Director, OHMT;

(e) Cylinders must be overpacked in a box so arranged to protect each valve or other closing device from damage. Except as provided in paragraph (f) of this section, no more than four cylinders may be packed in a box. Each box with its closing device protection must be sufficiently strong to protect all parts of each inside cylinder from deformation or breakage if the completed package were dropped 1.8 meters (5.91 feet) onto solid concrete, impacting at the weakest point.

(f) Cylinders may be packed in strong wooden boxes with valves or other closing devices protected from injury, with not more than twelve cylinders in one outside wooden box. An outer fiberboard box may be used when not more than four such cylinders are to be shipped in one packaging. Valves must be adequately protected. Box and valve protection must be of strength sufficient to protect all parts of inner packagings and valves from deformation or breakage resulting from a drop of at least 1.8 meters (5.91 feet) onto a concrete floor, impacting at the weakest point.

§ 173.335 Gas generator assemblies.

Gas generator assemblies (aircraft) containing liquefied nonflammable, nontoxic gas and a solid propellant cartridge shall be packaged as follows:

(a) The gas shall be packaged in specification steel cylinders authorized for any compressed gas except acetylene not exceeding 10.5 L (2.77 gallons) internal volume and having a minimum design burst pressure of 19,700 kPa (2,857 psi);

(b) Fittings must be protected against damage under conditions normally incident to transport, any trigger shall be fitted with a safety locking pin, and a non-propulsive plug shall be installed on the discharge tube; and

(c) Each complete unit must be individually and tightly packed to prevent movement in wooden boxes (4C1 or 4C2), plywood boxes (4D), reconstituted wood boxes (4F), fiberboard boxes (4G), or plastic boxes, (4H1 and 4H2) of Packing Group II performance level, or in the original manufacturer's transit box.

§ 173.336 Nitrogen dioxide, liquid; nitrogen peroxide, liquid; and nitrogen tetroxide, liquid.

Nitrogen dioxide, liquid, nitrogen peroxide, liquid, and nitrogen tetroxide, liquid must be packed in specification cylinders as follows:

(a) As prescribed in § 173.192.

(b) Specification 3A480, 3AA480, 3AL1800, or 3E1800 metal cylinders, with valves removed, are authorized. Each valve opening must be closed by means of a solid metal plug with tapered thread properly luted to prevent leakages; valve protection cap must be used and be at least 4.76 mm (0.187 inches) thick gastight, with 4.76 mm (0.187 inches) faced seat for gasket and with United States standard form thread. Shipments in 3AL cylinders are authorized only when transported by highway or rail. Each cylinder must be cleaned in compliance with the requirements of Federal Specification RR–C–901b, paragraphs 3.7.2 and 3.8.2. Cleaning agents equivalent to those specified in RR–C–901b may be used; however, any cleaning agent must not be capable of reacting with oxygen. One cylinder selected at random from a group of 200 or less cleaned at the same time must be tested for oil contamination in accordance with Specification RR–C901b paragraph 4.4.2.3 and meet the standard of cleanliness specified.

§ 173.337 Nitric oxide.

Nitric oxide must be packed in Specification 3A1800, 3AA1800, 3E1800, or 3AL1800 cylinders charged to a pressure of not more than 5,170 kPa (749.7 psi) at 21.1 °C (70 °F). Cylinders must be equipped with a valve of stainless steel and valve seat of material which will not be deteriorated by contact with nitric oxide or nitrogen dioxide. Cylinders or valves may not be equipped with pressure relief devices of any type. Valve outlets must be sealed by a solid threaded cap or plug and an inert gasketing material. In addition—

(a) Specification 3E1800 cylinders must be overpacked in strong wooden boxes of such design as to protect valves from injury or accidental functioning under conditions incident to transportation. Each overpack must conform to § 173.25.

(b) Specification 3A, 3AA, and 3AL cylinders must have their valves protected by metal caps or other equally protective guards securely attached to the cylinders and be of sufficient strength to protect the valves from injury during transit, or by overpacking in strong wooden boxes of such design as to protect valves from injury or accidental functioning under conditions incident to transportation. Each overpack must conform to § 173.25. Shipments in 3AL cylinders are authorized only when transported by highway or rail.

(c) Each cylinder must be cleaned in compliance with the requirements of Federal Specification RR-C-901b, paragraphs 3.7.2 and 3.8.2. Cleaning agents equivalent to those specified in RR-C-901b may be used; however, any cleaning agent must not be capable of reacting with oxygen. One cylinder selected at random from a group of 200 or less cleaned at the same time must be tested for oil contamination in accordance with Specification RR-C-901b paragraph 4.4.2.3 and meet the standard of cleanliness specified.

§ 173.338 Tungsten hexafluoride.

Tungsten hexafluoride must be packed in specification 3A, 3AA, 3BN, or 3E (§§ 178.36, 178.37, 178.39, 178.42 of this subchapter) cylinders. Cylinders shall be equipped with a valve protection cap or be packed in a strong outside container complying with the provisions of § 173.40. Outlets of any valves must be capped or plugged. As an alternative, the cylinder opening may be closed by the use of a metal plug. Specification 3E cylinders must be shipped in an overpack that complies with the provisions of § 173.40.

§ 173.340 Tear gas devices.

(a) Packagings for tear gas devices must be approved prior to first shipment by the Director, OHMT.

(b) Tear gas devices may not be assembled with or packed in the same packaging with mechanically or manually operated firing, igniting, bursting, or other functioning elements unless of a type and design approved by the Director, OHMT.

(c) Tear gas grenades, tear gas candles, and similar devices must be packaged in packagings conforming to the requirements of Part 178 of this subchapter at the Packing Group II performance level, as follows:

(1) In UN 4C1, 4C2, 4D, or 4F metal-strapped wooden boxes. Functioning elements not assembled in grenades or devices must be in a separate compartment of these boxes, or in inner or separate outer boxes, UN 4C1 4C2, 4D, or 4F, and must be so packed and cushioned that they may not come in contact with each other or with the walls of the box during transportation. Not more than 50 tear gas devices and 50 functioning elements shall be packed in one box and the gross weight of the outer box may not exceed 35 kilograms (77.2 pounds).

(2) In a UN 1A2 metal drum. Functioning elements must be packed in a separate inner packaging or compartment. Not more than 24 tear gas devices and 24 functioning elements shall be packed in one outer drum and the gross weight of the drum may not exceed 35 kg. (77.2 pounds).

(3) In a UN 4G fiberboard box with inside tear gas devices meeting Specifications 2P or 2Q. Each inside packaging must be placed in fiberboard tubes fitted with metal ends or a fiber box with suitable padding. Not more than 30 inner packagings shall be packed in one outer box and the gross weight of the outer box may not exceed 16 kg (35.3 pounds).

(4) In other packagings of a type or design which is approved by the Director, OHMT.

(d) Tear gas devices may be shipped completely assembled when offered by or consigned to the U.S. Department of Defense, provided the functioning elements are so packed that they cannot accidently function. Outer packagings must be UN 4C1, 4C2, 4D, or 4F metal-strapped wooden boxes.

Subpart H—[Removed]

124. Subpart H would be removed and reserved.

Subpart I—Radioactive Materials

§ 173.416 [Amended]

125. In § 173.416, the reference "§ 178.34" would be revised to read "§ 178.360" in paragraphs (e) and (g), the reference "§ 178.104" would be revised to read "§ 178.354" in paragraph (d), the reference "§ 178.194" would be revised to read "§ 178.362" in paragraphs (e) and (f), and the reference "§ 178.195" would be revised to read "§ 178.364" in paragraph (g).

126. In § 173.417, the reference "§ 178.34" would be revised to read "§ 178.360" in paragraphs (b)(1) and (b)(2); the reference "§ 178.103" or "§ 178.103-5(a)", as appropriate, would be revised to read "§ 178.352" in paragraphs (a)(1), (a)(6)(iii) and (b)(1); the reference "§ 178.104" would be revised to read "§ 178.354" in paragraphs (a)(2) and (b)(2); the references "§ 178.120" and "§ 178.121" would be revised to read "§ 178.356" and "§ 178.358", respectively, in paragraphs (a)(8) and (b)(5); and the introductory text of paragraph (a)(6) would be revised to read as follows:

§ 173.417 Authorized packaging—fissile materials.

(a) * * *

(6) A 55-gallon 1A2 steel drum, subject to the following conditions:

* * * * *

127. Subparts J, K, L, M, N, and O would be removed.

Subparts J Through O—[Reserved]

Appendix B—[Amended]

128. In Appendix B:

(1) The title would be amended by changing the word "POLYETHYLENE" to "PLASTIC".

(2) In the first and second paragraphs, the word "polyethylene" would be revised to read "plastic" wherever it appears.

(3) In the second sentence of the first paragraph, the section reference "§ 173.24(d)(3)" would be revised to read "§ 173.24(e)(3)(iii)".

(4) In paragraph (6), the phrase "a height of 1.2 meters (3.94 feet) on to solid concrete" would be revised to read "a height determined in accordance with § 178.603(d) of this subchapter onto a rigid non-resilient, flat and horizontal surface."

129. Appendix C would be added, as follows:

Appendix C—Procedure for Base Level Vibration Testing

Base level vibration testing shall be conducted as follows:

1. Three sample packagings, selected at random, shall be filled and closed as for shipment. A non-hazardous material may be used in place of the hazardous material if it has essentially the same physical characteristics.

2. The three packages shall be placed on a vibrating platform that has a vertical double-amplitude (peak-to-peak displacement) of one inch. The packages should be constrained horizontally to prevent them from falling off the platform, but shall be left free to move vertically, bounce and rotate.

3. The test shall be performed for one hour at a frequency that causes the package to be raised from the vibrating platform to such a degree that a piece of material of approximately 1/16-inch (1.6 mm) thickness (such as steel strapping or paperboard) can be passed between the bottom of any package and the platform.

4. Immediately following the period of vibration, each package shall be removed from the platform, turned on its side and observed for any evidence of leakage.

5. Rupture or leakage from any of the packages constitutes failure of the test.

PART 176—CARRIAGE BY VESSEL

130. The authority citation for Part 176 would be revised to read as follows:

Authority: 49 U.S.C. 1803, 1804, 1805, 1806(b), 1808; 49 CFR Part 1.

131. Paragraph (d) of § 176.5 would be revised as follows:

§ 176.5 Application to vessels.

* * * * *

(d) Except for transportation in bulk packagings (as defined in § 171.8 of this subchapter), the bulk carriage of hazardous materials by water is governed by 46 CFR Subchapters D, I, O and N.

* * * * *

132. In § 176.83, paragraph (c)(6) would be added as follows:

§ 176.83 Segregation requirements for cargo vessels and passenger vessels.

* * * * *

(c) * * *

(6) *Clear of living quarters.* "Clear of living quarters" means that the hazardous material must be located so that in the event of release of the material, leakage or vapors will not penetrate accommodations, machinery spaces or other work areas by means of entrances or other openings in bulkheads or ventilation ducts.

* * * * *

133. Section 176.84 would be added as follows:

§ 176.84 Other requirements for stowage and segregation for cargo vessels and passenger vessels.

(a) *General.* When Column 10c of the § 172.101 Table refers to a numbered stowage provision for water shipments, the meaning and requirements of that provision are as set forth in this section. Terms in quotation marks are defined in § 176.83.

(b) *Table of provisions:*

Code	Provisions
1	(Reserved)
2	Temperature controlled material.
3	Do not stow with high explosives.
4	(Reserved)
5	(Reserved)
6	Emergency temperature material.
7	(Reserved)
8	Glass carboys not permitted on passenger vessels.
9	Glass carboys not permitted under deck.
10	Glass bottles not permitted under deck.
11	Keep away from heat and open flame.
12	Keep cool.
13	Keep dry.
14	Metal drums only permitted under deck.
15	May be stowed in portable magazine or metal locker.
16	No other cargo may be stowed in the same hold with this material.
17	(Reserved)
18	Prohibited on any vessel carrying explosives (except explosives in Division 1.4, Compatibility group S).
19	Protect from sparks and open flames.
20	Segregation same as for corrosives.
21	Segregation same as for flammable liquids.
22	Segregation same as for flammable liquids if flash-point below 61 °C (141 °F).
23	Segregation same as for flammable liquids if flash-point between 23 °C (73 °F) and 61 °C (141 °F).
24	Segregation same as for flammable solids.
25	Shade from radiant heat.
26	Stow "away from" acids.
27	Stow "away from" alkaline compounds.
28	(Reserved)
29	Stow "away from" ammonium compounds.
30	Stow "away from" animal or vegetable oils.
31	Stow "away from" combustible materials.
32	Stow "away from" copper, its alloys and its salts.
33	Stow "away from" fluorides.
34	Stow "away from" foodstuffs.
35	Stow "away from" all odor-absorbing cargo.
36	Stow "away from" heavy metals and their compounds.
37	Stow "away from" hydrazine.
38	Stow "away from" all other corrosives.
39	Stow "away from" liquid halogenated hydrocarbons.
40	Stow "clear of living quarters".
41	Stow "away from" mercury and its compounds.
42	Stow "away from" nitric acids and perchloric acids not exceeding 50% acid by weight.
43	Stow "away from" organic materials.
44	Stow "away from" oxidizers.
45	Stow "away from" permanganates.
46	Stow "away from" powdered metals.
47	Stow "away from" sodium compounds.
48	Stow "away from" sources of heat.
49	Stow "away from" corrosives.
50	Stow "away from" sources of heat where temperatures in excess of 55 °C (131 °F) for a period of 24 hours or more will be encountered.
51	Stow "separated from" acetylene.
52	Stow "separated from" acids.
53	Stow "separated from" alkaline compounds.
54	Stow "separated from" animal or vegetable oils.
55	Stow "separated from" ammonia.
56	Stow "separated from" ammonium compounds.
57	Stow "separated from" chlorine.
58	Stow "separated from" cyanides.
59	Stow "separated from" combustible materials.
60	Stow "separated from" chlorates, chlorites, hypochlorites, nitrites, perchlorates, permanganates, and metallic powders.
61	Stow "separated from" corrosive materials.
62	Stow "separated from" diborane.
63	Stow "separated from" diethylene triamine.
64	Stow "separated from" explosives.
65	Stow "separated from" flammable substances.
66	Stow "separated from" flammable solids.
67	Stow "separated from" halides.
68	Stow "separated from" hydrogen.
69	Stow "separated from" hydrogen peroxide.
70	Stow "separated from" mercury salts.
71	Stow "separated from" nitric acid.
72	Stow "separated from" nitrogen compounds.
73	Stow "separated from" nitrogen compounds and chlorates.
74	Stow "separated from" oxidizers.
75	Stow "separated from" permanganates.
76	Stow "separated by a complete compartment or hold from" organic peroxides.
77	Stow "separated longitudinally by a complete compartment or hold from" explosives.
78	Stow "separated longitudinally by an intervening complete compartment or hold from" explosives.
79	The maximum net quantity in one package for this material shipped aboard a passenger vessel is limited to 50 pounds (22.7 kg).
80	Toy torpedoes must not be packed with other special fireworks.
81	Under deck stowage permitted only if an indicating substance such as chloropicrin has been added.
82	Under deck stowage is permitted only if containing not more than 36% by weight of hydrazine.
83	(Reserved)
84	Under deck stowage must be in well-ventilated space.
85	Under deck stowage must be in mechanically ventilated space.
86	Stow "separated by a complete compartment or hold from" explosives Class 1.3.
87	Stow "separated from" explosives except Class 1.4.
88	Stow "separated by a complete compartment or hold from" explosives except Class 1.4.
89	Segregation same as for oxidizers.
90	Stow "separated from" radioactive materials.
91	Stow "separated from" flammable solids.
92	Stow "separated from" powdered materials.
93	Stow not accessible to unauthorized persons on passenger vessels.
94	Plastic jerricans and plastic drums not permitted under deck.
95	Stow "separated from" foodstuffs.
96	Glass carboys not permitted under deck on passenger vessels.
97	Stow "away from" azides.
98	Stow "away from" all flammable materials.
99	Only new metal drums permitted on passenger vessels.

PART 178—[AMENDED]

134. The authority citation for Part 178 would continue to read as follows:

Authority: 49 U.S.C. 1803, 1804, 1805, 1806, 1808; 49 CFR Part 1, unless otherwise noted.

135. The title to Part 178 would be revised to read:

PART 178—SPECIFICATIONS FOR PACKAGINGS

136. Section 178.0–2 would be revised to read as follows:

§ 178.0–2 Applicability and manufacturers' responsibility.

(a) Applicability. Any person who performs a function prescribed in this part shall perform that function in accordance with this part.

(b) Specification markings. When this part requires that a packaging be marked with a DOT specification or UN standard marking (for example, DOT–3AL 1800–1234–XY, UN 1A1/Y1.4/150/85) compliance with that requirement is the responsibility of the manufacturer (see § 171.8 of this subchapter for definition of "manufacturer") of the packaging. Except as otherwise provided in this section, marking of the packaging by the manufacturer with the appropriate DOT or UN markings is the certification by the manufacturer that—

(1) All requirements of the DOT specification or the UN standard, including performance tests, are met; and

(2) All functions performed by the manufacturer conform to requirements specified in this part.

(c) General requirements for packagings. Manufacturers of packagings shall comply with general requirements for packagings prescribed in Subpart B of Part 173 (particularly, § 173.24) of this subchapter to the extent that those requirements apply to the design, construction and suitability for use of the specification or standard to which the packaging is manufactured.

(d) Notification. Except as specifically provided in § 178.337–18 and 178.340–10, the manufacturer of a packaging shall inform in writing each person to whom that packaging is transferred of all requirements of this part not met at the

time of transfer, and all actions which need to be taken for the packaging to conform to the requirements of this part. This notice must also include the type and dimensions of any closures needed to satisfy performance test requirements. Copies of these written statements shall be retained by the manufacturer for at least one year from date of issuance and must be open to inspection by a representative of the Department.

(e) Except as provided in paragraph (d) of this section, packagings which do not conform to the applicable specifications or standards in this part may not be marked to indicate such conformance.

137. Section 178.0–3 would be revised to read as follows:

§ 178.0–3 Marking of packagings.

(a) Each packaging manufactured to a DOT specification or a UN standard shall be marked as follows:

(1) In an unobstructed area, with letters, and numerals identifying the standards or specification (e.g. UN 1A1, DOT 4B240ET, etc.).

(2) With the name and address or symbol of the person making the mark. Symbols, if used, must be registered with the Director, OHMT.

(3) The markings must be stamped, embossed, burned, printed or otherwise marked on the packaging to provide adequate accessibility, permanency, contrast, and legibility so as to be readily apparent and understood.

(4) Unless otherwise specified, letters and numerals must be at least 12.0mm (0.47 inches) in height except that for packagings of less than or equal to 30 liters (7.9 gallons) capacity for liquids or 30 kilograms (66.1 pounds) capacity for solids the height must be at least 6.0mm (0.24 inches).

(b) Packagings may be marked with the United Nations symbol and packaging identification code as provided in this subchapter, in the ICAO Technical Instructions or in Annex 1 to the IMDG Code, provided the person applying these marks has established that the packaging conforms to the applicable provisions of this subchapter, the ICAO Technical Instructions or Annex 1 to the IMDG Code, respectively.

(1) If an indication of the State in whose territory the specified tests have been carried out, or of the State authorizing the allocation of the mark, is required, the letters "USA" shall be used.

(2) If an indication of the name of the manufacturer or other identification of the packaging as specified by the competent authority is required, the name and address or symbol of the person making the mark shall be entered. Symbols, if used, must be registered with the Director, OHMT. Duplicate symbols are not authorized.

(3) Packagings manufactured to UN standards in accordance with this subchapter shall be marked as prescribed in § 178.503.

Subpart A—[Removed and Reserved]

138. Subpart A of Part 178 would be removed and reserved.

Subpart B—[Amended]

139. In Subpart B, § 178.34 would be redesignated as § 178.360 and moved to Subpart K. With the exception of §§ 178.33 and 178.33a, the remaining sections in Subpart B would be removed.

140. The title of § 178.33 would be revised to read as follows:

§ 178.33 Specification 2P; inner nonrefillable metal receptacles.

* * * * *

141. The title to § 178.33a would be revised to read as follows:

§ 178.33a Specification 2Q; inner nonrefillable metal receptacles.

* * * * *

Subpart D—[Amended]

142. In Subpart D, §§ 178.103 through 178.103–6, 178.104 through 178.104–5, 178.120 through 178.120–5 and 178.121 through 178.121–4 would be moved to Subpart K and be redesignated as §§ 178.352 through 178.352–6, 178.354 through 178.354–5, 178.356 through 178.356–5 and 178.358 through 178.358–4, respectively. Then Subpart D would be removed and reserved.

Subpart E—[Amended]

143. In Subpart E, §§ 178.194 through 178.194–7 and 178.195 through 178.195–6 would be moved to Subpart K and be redesignated as §§ 178.362 through 178.362–7 and 178.364 through 178.364–6 respectively. Then Subpart E would be removed and reserved.

Subparts F and G—[Removed and Reserved]

144. Subparts F and G would be removed and reserved.

Subpart H—Specifications for Portable Tanks

145. In § 178.270–11, paragraphs (c) (1) and (2) would be revised to read as follows:

§ 178.270–11 Pressure and vacuum relief devices.

* * * * *

(c) *Pressure settings of relief devices.*

(1) *Primary pressure relief devices.* The primary relief device required by paragraph (a) of this section must be set to function in the range of—

(i) No less than 67 percent and no greater than 83 percent of test pressure for tanks hydrostatically tested under § 178.270–13(a) at a pressure below 66 psig (455.1 kPa). Spring-loaded pressure relief valves must close after discharge at a pressure not less than 80 percent of start-to-discharge pressure.

(ii) No less than 67 percent and no greater than 74 percent of test pressure for tanks hydrostatically tested under § 178.270–13(a) at a pressure of 66 psig (455.1 kPa) or higher. Spring-loaded pressure relief valves must close after discharge at a pressure not less than 90 percent of start to discharge pressure.

(2) *Emergency pressure relief devices.* Each frangible disc, other than one used as a primary relief device in accordance with paragraph (b)(2) of this section, must be designed to burst at a pressure greater than 83 percent of and less than or equal to tank hydrostatic test pressure. Each spring-loaded pressure relief valve used as an emergency pressure relief device must be set to operate at no less than 83 percent of hydrostatic test pressure and be fully open at test pressure.

* * * * *

146. The title to Subpart K would be revised to read as follows:

Subpart K—Specifications for Packagings for Radioactive Materials

147. A new Subpart L would be added to read as follows:

Subpart L—Non-bulk Performance-oriented Packaging Standards

Sec.

Subpart L—Non-bulk Performance-oriented Packaging Standards

§ 178.500 Purpose, scope and definitions.

(a) This subpart prescribes certain requirements for non-bulk packagings for hazardous materials. Standards for these packagings are based on the UN Recommendations.

(b) Terms used in this subpart are defined in § 171.8 of this subchapter.

§ 178.502 Identification codes for packagings.

(a) Identification codes for designating types of packagings consist of the following:

(1) A numeral indicating the type of packaging, as follows:

(i) "1" means a drum.
(ii) "2" means a wooden barrel.
(iii) "3" means a jerrican.
(iv) "4" means a box.
(v) "5" means a bag.
(vi) "6" means a composite packaging.
(vii) "7" means a pressure receptacle.

(2) A capital letter indicating the material of construction, as follows:

(i) "A" means steel (all types and surface treatments).
(ii) "B" means aluminum.
(iii) "C" means natural wood.
(iv) "D" means plywood.
(v) "F" means reconstituted wood.
(vi) "G" means fiberboard.
(vii) "H" means plastic.
(viii) "L" means textile.
(ix) "M" means paper, multiwall.
(x) "N" means metal (other than steel or aluminum).
(xi) "P" means glass, porcelain or stoneware.

(3) A numeral indicating the category of packaging within the type to which the packaging belongs. For example, for steel drums ("1A"), "1" indicates a non-removable head drum (i.e., "1A1") and "2" indicates a removable head drum (i.e., "1A2").

(b) For composite packagings, two capital letters are used in sequence in the second position of the code, the first indicating the material of the inner receptacle and the second, that of the outer packaging. For example, a plastic receptacle in a steel drum is designated "6HA1".

(c) For combination packagings, only the code number for the outer packaging is used.

(d) Identification codes are set forth in the standards for packagings in §§ 178.504 through 178.523.

§ 178.503 Marking of packagings.

(a) The manufacturer shall mark every package that is required to conform to a UN standard of this subpart in a durable and clearly visible manner, with the following information and in the sequence presented:

(1) The United Nations symbol as illustrated in paragraph (d) of this section (for metal receptacles, the letters UN may be applied in place of the symbol);

(2) A packaging identification code designating the type of packaging, the material of construction and, when appropriate, the category of packaging under §§ 178.504 through 178.523 within the type to which the packaging belongs;

(3) A letter identifying the performance standard under which the packaging has been successfully tested, as follows:

(i) X—for packagings meeting Packing Group I, II and III tests;
(ii) Y—for packagings meeting Packing Group II and III tests; or
(iii) Z—for packagings only meeting Packing Group III tests;

(4) A designation of the specific gravity or mass for which the packaging has been tested, as follows:

(i) For packaging without inner packagings intended to contain liquids (except viscous liquids), the designation shall be the specific gravity rounded down to the first decimal but may be omitted when the specific gravity does not exceed 1.2; and

(ii) For packagings intended to contain viscous liquids, solids, or inner packagings, the designation must be the maximum gross mass in kilograms;

(5) Either a letter "S" designating that the packaging is intended only for the transport of solids or inner packagings, or the test pressure in kilopascals rounded off to the nearest 10 kilopascals of the hydrostatic pressure test that the packaging has successfully passed;

(6) The last two digits of the year of manufacture. Packagings of types 1H and 3H shall also be marked with the month of manufacture in any appropriate manner; this may be marked on the packaging in a different place from the remainder of the markings;

(7) The letters "USA" (indicating that the packaging was marked pursuant to the provisions of this subchapter);

(8) The name and address or symbol of the person applying the marks required by this section. Symbols, if used, must be registered in advance with the Director, OHMT;

(9) For metal or plastic drums or jerricans intended for reuse the minimum thickness of the packaging material, expressed in millimeters and abbreviated "mm", and

(10) For drums intended as packagings for nitric acid, the tare weight in kilograms preceded by the letters TW.

(b) For a reusable packaging likely to undergo a reconditioning process, the markings required in paragraphs (a)(1) through (a)(6) and (a)(9) of this section shall be applied in a permanent manner (e.g., by embossment) able to withstand the reconditioning process. For a packaging with a removable head, the markings may not be applied to the removable head.

(c) If a package is reconditioned, it shall be marked by the reconditioner near the marks required in paragraphs (a) (1) through (6) of this section with the following additional information:

(1) The name of the country in which the reconditioning was performed (in the United States, use the letters "USA";

(2) The name and address or symbol of the reconditioner. Symbols, if used, shall be registered in advance with the Director, OHMT);

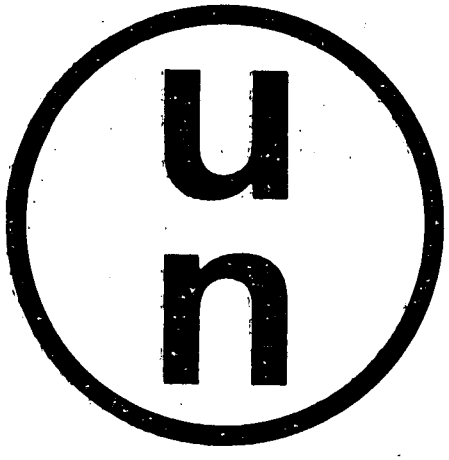
(3) The month and last two digits of the year of reconditioning;

(4) The letter "R"; and

(5) For every packaging successfully passing a leakproofness test, the additional letter "L".

(d) The following are examples of symbols and required markings:

(1) The United Nations symbol is:



(2) Examples of markings for a new packaging are as follows:

(i) For a fiberboard box designed to contain an inner receptacle:

UN 4G/Y145/S/83
USA/RA

(as in § 178.503(a)(1) through (a)(8)).

(ii) For a steel drum designed to contain liquids:

UN 1A1/Y1.4/150/83
USA/VL824
1MM
(as in § 178.503(a)(1) through (a)(9)).

(iii) For a steel drum to transport solids, viscous liquids or inner packagings:

UN 1A2/Y150/S/83
USA/VL825
(as in § 178.503(a)(1) through (a)(8)).

(3) Examples of markings for reconditioned packagings are as follows:

UN 1A1/Y1.4/150/83
USA/VL824 1mm
USA/RB/10–85RL
(as in § 178.503(c)(1), (2), (3) and (4)).

§ 178.504 Standards for steel drums.

(a) The following are identification codes for steel drums:

(1) 1A1 for a non-removable head steel drum; and,

(2) 1A2 for a removable head steel drum.

(b) Construction requirements for steel drums are as follows:

(1) Body and heads shall be constructed of steel sheet of suitable type and adequate thickness in relation to the capacity and intended use of the drum.

(2) Body seams shall be welded on drums designed to contain more than 40 liters (10.6 gallons) of liquids. Body seams shall be mechanically seamed or welded on drums intended to contain only solids or 40 liters (10.6 gallons) or less of liquids.

(3) Chimes shall be mechanically seamed or welded. Separate reinforcing rings may be applied.

(4) The body of a drum of a capacity greater that 60 liters (15.9 gallons) must, in general, have at least two expanded rolling hoops, or alternatively, at least two separate rolling hoops. If there are separate rolling hoops, they shall be fitted tightly on the body and so secured that they cannot shift. Rolling hoops may not be spot welded.

(5) Openings for filling, emptying and venting in the bodies or heads of non-removable head (1A1) drums may not exceed 7.0 centimeters (2.76 inches) in diameter. Drums with larger openings are considered to be of the removable head type (1A2). Closures for openings in the bodies and heads of drums shall be so designed and applied that they will remain secure and leakproof under normal conditions of transport. Closure flanges shall be mechanically seamed or welded in place. Gaskets or other sealing elements shall be used with closures unless the closure is inherently leakproof.

(6) Closure devices for removable head drums shall be so designed and applied that they will remain secure and drums will remain leakproof under normal conditions of transport. Gaskets or other sealing elements shall be used with all removable heads.

(7) If materials used for body, heads, closures, and fittings are not in themselves compatible with the contents to be transported, suitable internal protective coatings or treatments shall be applied. These coatings or treatments shall retain their protective properties under normal conditions of transport.

(8) Maximum capacity of drum: 450 liters (118.9 gallons).

(9) Maximum net mass: 400 kilograms (881.8 pounds).

§ 178.505 Standards for aluminum drums.

(a) The following are the identification codes for aluminum drums:

(1) 1B1 for a non-removable head aluminum drum; and

(2) 1B2 for a removable head aluminum drum.

(b) Construction requirements for aluminum drums are as follows:

(1) Body and heads shall be constructed of aluminum at least 99 percent pure or an aluminum base alloy. Material shall be of suitable type and adequate thickness in relation to the capacity and the intended use of the drum.

(2) All seams shall be welded. Chime seams, if any, shall be reinforced by the application of separate reinforcing rings.

(3) The body of a drum of a capacity greater than 60 liters (15.9 gallons) must, in general, have at least two expanded rolling hoops, or alternatively, at least two separate rolling hoops. If there are separate rolling hoops, the hoops shall be fitted tightly on the body and so secured that they cannot shift. Rolling hoops shall not be spot welded.

(4) Openings for filling, emptying, or venting in the bodies or heads of non-removable head (1B1) drums may not exceed 7.0 centimeters (2.76 inches) in diameter. Drums with larger openings are considered to be of the removable head type (1B2). Closures for openings in the bodies and heads of drums shall be so designed and applied that they will remain secure and leakproof under normal conditions of transport. Closure flanges shall be welded in place so that the weld provides a leakproof seam. Gaskets or other sealing elements shall be used with closures unless the closure is inherently leakproof.

(5) Closure devices for removable head drums shall be so designed and applied that they remain secure and drums remain leakproof under normal conditions of transport. Gaskets or other sealing elements shall be used with all removable heads.

(6) Maximum capacity of drum: 450 liters (118.9 gallons).

(7) Maximum net mass: 400 kilograms (881.8 pounds).

§ 178.506 Standards for metal drums other than steel or aluminum.

(a) The following are the identification codes for metal drums other than steel or aluminum:

(1) 1N1 for a non-removable head metal drum.

(2) 1N2 for a removable head metal drum.

(b) Construction requirements for metal drums other than steel or aluminum are as follows:

(1) Body and heads shall be constructed of metal (other than steel or aluminum) of suitable type and adequate thickness in relation to the capacity and the intended use of the drum.

(2) All seams shall be welded. Chime seams, if any, shall be reinforced by the application of separate reinforcing rings.

(3) The body of a drum of a capacity greater than 60 liters (15.85 gallons) must, in general, have at least two expanded rolling hoops, or alternatively, at least two separate rolling hoops. If there are separate rolling hoops, the hoops shall be fitted tightly on the body and so secured that they cannot shift. Rolling hoops shall not be spot welded.

(4) Openings for filling, emptying, or venting in the bodies or heads of non-removable head (1N1) drums may not exceed 7.0 centimeters (2.76 inches) in diameter. Drums with larger openings are considered to be of the removable head type (1N2). Closures for openings in the bodies and heads of drums shall be so designed and applied that they will remain secure and leakproof under normal conditions of transport. Closure flanges shall be welded in place so that the weld provides a leakproof seam. Gaskets or other sealing elements shall be used with closures unless the closure is inherently leakproof.

(5) Closure devices for removable head drums shall be so designed and applied that they remain secure and drums remain leakproof under normal conditions of transport. Gaskets or other sealing elements shall be used with all removable heads.

(6) Maximum capacity of drum: 450 liters (118.9 gallons).

(7) Maximum net mass: 400 kilograms (881.8 pounds).

§ 178.507 Standards for plywood drums.

(a) The identification code for a plywood drum is 1D.

(b) Construction requirements for plywood drums are as follows:

(1) The wood used must be well-seasoned, commercially dry and free from any defect likely to lessen the effectiveness of the drum for the purpose intended. A material other than plywood may be used for the manufacture of the heads, if it is of strength and durability at least equivalent to the plywood.

(2) At least two-ply plywood shall be used for the body and at least three-ply plywood for the heads; the plies shall be firmly glued together, with their grains crosswise.

(3) The body and heads of the drum and their joints must be of a design appropriate to the capacity of the drum and its intended use.

(4) In order to prevent sifting of the contents, lids shall be lined with kraft paper or some other equivalent material which shall be securely fastened to the lid and extend to the outside along its full circumference.

(5) Maximum capacity of drum: 250 liters (66.0 gallons).

(6) Maximum net mass: 400 kilograms (881.8 pounds).

§ 178.508 Standards for fiber drums.

(a) The identification code for a fiber drum is 1G.

(b) Construction requirements for fiber drums are as follows:

(1) The body of the drum shall be constructed of multiple plies of heavy paper or fiberboard (without corrugations) firmly glued or laminated together and may include one or more protective layers of bitumen, waxed kraft paper, metal foil, plastic material, or similar materials.

(2) Heads must be of natural wood, fiberboard, metal, plywood or plastic material and may include one or more protective layers of bitumen, waxed kraft paper, metal foil, plastic material, or similar material.

(3) The body and heads of the drum and their joints must be of a design appropriate to the capacity and intended use of the drum.

(4) The assembled packaging must be sufficiently water-resistant so as not to delaminate under normal conditions of transport.

(5) Maximum capacity of drum: 450 liters (118.9 gallons).

(6) Maximum net mass: 400 kilograms (881.8 pounds).

§ 178.509 Standards for plastic drums and jerricans.

(a) The following are identification codes for plastic drums and jerricans:

(1) 1H1 for a non-removable head plastic drum;

(2) 1H2 for a removable head plastic drum;

(3) 3H1 for a non-removable head jerrican; and

(4) 3H2 for a removable head jerrican.

(b) Construction requirements for plastic drums and jerricans are as follows:

(1) The packaging shall be manufactured from suitable plastic material and be of adequate strength in relation to its capacity and intended use. No used material other than production residues or regrind from the same manufacturing process may be used. The packaging must be adequately resistant to aging and to degradation caused either by the substance contained or by ultra-violet radiation. Any permeation of the substance contained must not constitute a danger under normal conditions of transport.

(2) If protection against ultra-violet radiation is required, it shall be provided by the addition of carbon black or other suitable pigments or inhibitors. These additives must be compatible with the contents and remain effective throughout the life of the packaging. Where use is made of carbon black, pigments or inhibitors other than those used in the manufacture of the design type, retesting may be waived if the carbon black content does not exceed 2 percent by mass or if the pigment content does not exceed 3 percent by mass; the content of inhibitors of ultra-violet radiation is not limited.

(3) Additives serving purposes other than protection against ultra-violet radiation may be included in the composition of the plastic material provided they do not adversely affect the chemical and physical properties of the packaging material.

(4) The wall thickness at every point of the packaging must be appropriate to its capacity and its intended use, taking into account the stresses to which each point is liable to be exposed.

(5) Openings for filling, emptying and venting in the bodies or heads of non-removable head (1H1) drums and jerricans (3H1) may not exceed 7.0 centimeters (2.76 inches) in diameter. Drums and jerricans with larger openings are considered to be of the removable head type (1H2 and 3H2). Closures for openings in the bodies or heads of drums and jerricans shall be so designed and applied that they remain secure and leakproof under normal conditions of transport. Gaskets or other sealing elements shall be used with closures unless the closure is inherently leakproof.

(6) Closure devices for removable head drums and jerricans shall be so designed and applied that they remain secure and leakproof under normal conditions of transport. Gaskets shall be used with all removable heads unless the drum or jerrican design is such that when the removable head is properly secured, the drum or jerrican is inherently leakproof.

(7) Maximum capacity of drums and jerricans: 1H1, 1H2: 450 liters (118.9 gallons); 3H1, 3H2: 60 liters (15.9 gallons).

(8) Maximum net mass: 1H1, 1H2: 400 kg (881.8 pounds); 3H1, 3H2: 120 kg (264.6 pounds).

§ 178.510 Standards for wooden barrels.

(a) The following are identification codes for wooden barrels:

(1) 2C1 for a bung type wooden barrel; and

(2) 2C2 for a slack type (removable head) wooden barrel.

(b) Construction requirements for wooden barrels are as follows:

(1) The wood used must be of good quality, straight-grained, well-seasoned and free from knots, bark, rotten wood, sapwood or other defects likely to lessen the effectiveness of the barrel for the purpose intended.

(2) The body and heads must be of a design appropriate to the capacity and intended use of the barrel.

(3) Staves and heads shall be sawn or cleft with the grain so that no annual ring extends over more than half the thickness of a stave or head.

(4) Barrel hoops must be of steel or iron of good quality. The hoops of 2C2 barrels may be of a suitable hardwood.

(5) For wooden barrels 2C1, the diameter of the bung-hole may not exceed half the width of the stave in which it is placed.

(6) For wooden barrels 2C2, heads must fit tightly into crozes.

(7) Maximum capacity of barrel: 250 liters (66.0 gallons)

(8) Maximum net mass: 400 kilograms (881.8 pounds)

§ 178.511 Standards for steel jerricans.

(a) The following are identification codes for steel jerricans:

(1) 3A1 for a non-removable head jerrican; and

(2) 3A2 for a removable head jerrican.

(b) Construction requirements for steel jerricans are as follows:

(1) Body and heads shall be constructed of steel sheet of suitable type and adequate thickness in relation to the capacity of the jerrican and intended use.

(2) Chimes of all jerricans shall be mechanically seamed or welded. Body seams of jerricans intended to carry

more than 40 liters (10.6 gallons) of liquid shall be welded. Body seams of jerricans intended to carry 40 liters (10.6 gallons) or less shall be mechanically seamed or welded.

(3) Openings in jerricans (3A1) may not exceed 7.0 centimeters (2.76 inches) in diameter. Jerricans with larger openings are considered to be of the removable head type. Closures shall be so designed that they remain secure and leakproof under normal conditions of transport. Gaskets or other sealing elements shall be used with closures, unless the closure is inherently leakproof.

(4) If materials used for body, heads, closures and fittings are not in themselves compatible with the contents to be transported, suitable internal protective coatings or treatments shall be applied. These coatings or treatments must retain their protective properties under normal conditions of transport.

(5) Maximum capacity of jerrican: 60 liters (15.9 gallons).

(6) Maximum net mass: 120 kilograms (264.6 pounds).

§ 178.512 Standards for steel or aluminum boxes.

(a) The following are identification codes for steel or aluminum boxes:

(1) 4A1 for an unlined and uncoated steel box;

(2) 4A2 for a steel box with inner liner or coating;

(3) 4B1 for an unlined and uncoated aluminum box; and

(4) 4B2 for an aluminum box with inner liner or coating.

(b) Construction requirements for steel or aluminum boxes are as follows:

(1) The strength of the metal and the construction of the box must be appropriate to the capacity and intended use of the box.

(2) Boxes 4A2 and 4B2 shall be lined with fiberboard or felt packing pieces, as required, or shall have an inner liner or coating of suitable material. If a double seamed metal liner is used, steps shall be taken to prevent the ingress of substances, particularly explosives, into the recesses of the seams.

(3) Closures may be of any suitable type, and must remain secure under normal conditions of transport.

(4) Maximum net mass: 400 kilograms (881.8 pounds).

§ 178.513 Standards for boxes of natural wood.

(a) The following are the identification codes for boxes of natural wood:

(1) 4C1 for an ordinary box; and

(2) 4C2 for a box with sift-proof walls.

(b) Construction requirements for boxes of natural wood are as follows:

(1) The wood used must be well-seasoned, commercially dry and free from defects that would materially lessen the strength of any part of the box. The strength of the material used and the method of construction must be appropriate to the capacity and intended use of the box. The tops and bottoms may be made of water-resistant reconstituted wood such as hard board, particle board or other suitable type.

(2) Each part of the 4C2 box must be one piece or equivalent. Parts are considered equivalent to one piece when one of the following methods of glued assembly is used: Linderman joint, tongue and groove joint, ship lap or rabbet joint, or butt joint with at least two corrugated metal fasteners at each joint.

(3) Maximum net mass: 400 kilograms (881.8 pounds).

§ 178.514 Standards for plywood boxes.

(a) The identification code for a plywood box is 4D.

(b) Construction requirements for plywood boxes are as follows:

(1) Plywood used must be at least 3 ply. It shall be made from well-seasoned rotary cut, sliced or sawn veneer, commercially dry and free from defects that would materially lessen the strength of the box. The strength of the material used and the method of construction must be appropriate to the capacity and intended use of the box. All adjacent plies shall be glued with water-resistant adhesive. Other suitable materials may be used together with plywood in the construction of boxes. Boxes shall be nailed or secured to corner posts or ends or assembled with other equally suitable devices.

(2) Maximum net mass: 400 kilograms (881.8 pounds).

§ 178.515 Standards for reconstituted wood boxes.

(a) The identification code for a reconstituted wood box is 4F.

(b) Construction requirements for reconstituted wood boxes are as follows:

(1) The walls of boxes shall be made of water-resistant, reconstituted wood such as hardboard, particle board, or other suitable type. The strength of the material used and the method of construction must be appropriate to the capacity of the boxes and their intended use.

(2) Other parts of the box may be made of other suitable materials.

(3) Boxes shall be securely assembled by means of suitable devices.

(4) Maximum net mass: 400 kilograms (881.8 pounds).

§ 178.516 Standards for fiberboard boxes.

(a) The identification code for a fiberboard box is 4G.

(b) Construction requirements for fiberboard boxes are as follows:

(1) Strong, solid or double-faced corrugated fiberboard (single or multiwall) shall be used, appropriate to the capacity and intended use of the box. The water resistance of the outer surface must be such that the increase in mass, as determined in a test carried out over a period of 30 minutes by the Cobb method of determining water absorption, is not greater than 155 grams per square meter (0.0316 pounds per square foot)—see ISO International Standard 535-1976 (E). It must have proper bending qualities. Fiberboard shall be cut, creased without scoring, and slotted so as to permit assembly without cracking, surface breaks, or undue bending. The fluting of corrugated fiberboard shall be firmly glued to the facings.

(2) The ends of boxes may have a wooden frame or be entirely of wood. Reinforcements of wooden battens may be used.

(3) *Manufacturing joints.* (i) Manufacturing joints in the bodies of boxes shall be—

(A) Taped;

(B) Lapped and glued; or

(C) Lapped and stitched with metal staples.

(ii) Lapped joints shall have an appropriate overlap.

(iii) Where closing is effected by gluing or taping, a water resistant adhesive shall be used.

(4) Boxes shall be designed so as to provide a snug fit to the contents.

(5) Maximum net mass: 400 kilograms (881.8 pounds).

§ 178.517 Standards for plastic boxes.

(a) The following are identification codes for plastic boxes:

(1) 4H1 for an expanded plastic box; and

(2) 4H2 for a solid plastic box.

(b) Construction requirements for plastic boxes are as follows:

(1) The box shall be manufactured from suitable plastic material and be of adequate strength in relation to its capacity and intended use. The box must be adequately resistant to ageing and to degradation caused either by the substance contained or by ultra-violet radiation.

(2) An expanded plastic box must consist of two parts made of a moulded expanded plastic material: A bottom section containing cavities for the inner receptacles, and a top section covering and interlocking with the bottom

section. The top and bottom sections shall be so designed that the inner receptacles fit snugly. The closure cap for any inner receptacle may not be in contact with the inside of the top section of the box.

(3) For transportation, an expanded plastic box shall be closed with a self-adhesive tape having sufficient tensile strength to prevent the box from opening. The adhesive tape must be weather resistant and its adhesive compatible with the expanded plastic material of the box. Other closing devices at least equally effective may be used.

(4) For solid plastic boxes, protection against ultra-violet radiation, if required, shall be provided by the addition of carbon black or other suitable pigments or inhibitors. These additives must be compatible with the contents and remain effective throughout the life of the box. Where use is made of carbon black pigment or inhibitors other than those used in the manufacture of the tested design type, retesting may be waived if the carbon black content does not exceed 2 percent by mass or if the pigment content does not exceed 3 percent by mass; the content of inhibitors of ultra-violet radiation is not limited.

(5) Additives serving purposes other than protection against ultra-violet radiation may be included in the composition of the plastic material if they do not adversely affect the material of the box. Addition of these additives does not change the design type.

(6) Solid plastic boxes must have closure devices made of a suitable material of adequate strength and so designed as to prevent the box from unintentional opening.

(7) Maximum net mass 4H1: 60 kg (132.3 pounds); 4H2: 400 kg (881.8 pounds).

§ 178.518 Standards for woven plastic bags.

(a) The following are identification codes for woven plastic bags:

(1) 5H1 for an unlined or non-coated woven plastic bag;

(2) 5H2 for a sift proof woven plastic bag; and

(3) 5H3 for a water-resistant woven plastic bag.

(b) Construction requirements for woven plastic fabric bags are as follows:

(1) Bags shall be made from stretched tapes or monofilaments of a suitable plastic material. The strength of the material used and the construction of the bag must be appropriate to the capacity and intended use of the bag.

(2) If the fabric is woven flat, the bags shall be made by sewing or some other method ensuring closure of the bottom and one side. If the fabric is tubular, the bag shall be closed by sewing, weaving, or some other equally strong method of closure.

(3) Bags, sift-proof, 5H2 shall be made sift-proof by appropriate means such as use of paper or a plastic film bonded to the inner surface of the bag or one or more separate inner liners made of paper or plastic material.

(4) Bags, water-resistant, 5H3: To prevent the entry of moisture, the bag shall be made waterproof by appropriate means, such as separate inner liners of water-resistant paper (e.g., waxed kraft paper, double-tarred kraft paper or plastic-coated kraft paper), or plastic film bonded to the inner or outer surface of the bag, or one or more inner plastic liners.

(5) Maximum net mass: 50 kilograms (110.2 pounds).

§ 178.519 Standards for plastic film bags.

(a) The identification code for a plastic film bag is 5H4.

(b) Construction requirements for plastic film bags are as follows:

(1) Bags shall be made of a suitable plastic material. The strength of the material used and the construction of the bag must be appropriate to the capacity and the intended use of the bag. Joints and closures must be capable of withstanding pressures and impacts liable to occur under normal conditions of transportation.

(2) Maximum net mass: 50 kilograms (110.2 pounds).

§ 178.520 Standards for textile bags.

(a) The following are identification codes for textile bags:

(1) 5L1 for an unlined or non-coated textile bag;

(2) 5L2 for a sift-proof textile bag; and

(3) 5L3 for a water-resistant textile bag.

(b) Construction requirements for textile bags are as follows:

(1) The textiles used must be of good quality. The strength of the fabric and the construction of the bag must be appropriate to the capacity and intended use of the bag.

(2) Bags, sift-proof, 5L2: The bag shall be made sift-proof, by appropriate means, such as by the use of paper bonded to the inner surface of the bag by a water-resistant adhesive such as bitumen, plastic film bonded to the inner surface of the bag, or one or more inner liners made of paper or plastic material.

(3) Bags, water-resistant, 5L3: To prevent entry of moisture, the bag shall be made waterproof by appropriate means, such as by the use of separate inner liners of water-resistant paper (e.g., waxed kraft, paper, tarred paper, or plastic-coated kraft paper), or plastic film bonded to the inner surface of the bag, or one or more inner liners made of plastic material.

(4) Maximum net mass: 50 kilograms (110.2 pounds).

§ 178.521 Standards for paper bags.

(a) The following are identification codes for paper bags:

(1) 5M1 for a multiwall paper bag; and

(2) 5M2 for a multiwall water-resistant paper bag.

(b) Construction requirements for paper bags are as follows:

(1) Bags shall be made of a suitable kraft paper, or of an equivalent paper with at least three plies. The strength of the paper and the construction of the bag must be appropriate to the capacity and intended use of the bag. Seams and closures must be sift-proof.

(2) Paper bags 5M2: To prevent the entry of moisture, a bag of four plies or more shall be made waterproof by the use of either a water-resistant ply as one of the two outermost plies or a water-resistant barrier made of a suitable protective material between the two outermost plies. A 5M2 bag of three plies shall be made waterproof by the use of a water-resistant ply as the outermost ply. When there is danger of the lading reacting with moisture, or when it is packed damp, a water-resistant ply or barrier shall be placed next to the substance. Seams and closures must be waterproof.

(3) Maximum net mass: 50 kilograms (110.2 pounds).

§ 178.522 Standards for composite packagings with inner plastic receptacles.

(a) The following are the identification codes for composite packagings with inner plastic receptacles:

(1) 6HA1 for a plastic receptacle within a protective steel drum;

(2) 6HA2 for a plastic receptacle within a protective steel crate or box;

(3) 6HB1 for a plastic receptacle within a protective aluminum drum;

(4) 6HB2 for a plastic receptacle within a protective aluminum crate or box;

(5) 6HC for a plastic receptacle within a protective wooden box;

(6) 6HD1 for a plastic receptacle within a protective plywood drum;

(7) 6HD2 for a plastic receptacle within a protective plywood box;

(8) 6HG1 for a plastic receptacle within a protective fiber drum;

(9) 6HG2 for a plastic receptacle within a protective fiberboard box; and

(10) 6HH for a plastic receptacle within a protective plastic drum.

(b) Construction requirements for composite packagings with inner receptacles of plastic are as follows:

(1) Inner receptacles shall be constructed under the applicable construction requirements prescribed in § 178.509(b) (1) through (7).

(2) The inner plastic receptacle must fit snugly inside the outer packaging which must be free of any projections which may abrade the plastic material.

(3) Outer packagings shall be constructed as follows:

(i) 6HA1 or 6HB1: Protective packaging must conform to the requirements for steel drums in § 178.504(b), or aluminum drums in § 178.505(b).

(ii) 6HA2 or 6HB2: Protective packagings with steel or aluminum crate must conform to the requirements for steel or aluminum boxes found in § 178.512(b).

(iii) 6HC: Protective packaging must conform to the requirements for wooden boxes in § 178.513(b).

(iv) 6HD1: Protective packaging must conform to the requirements for plywood drums, in § 178.507(b).

(v) 6HD2: Protective packaging must conform to the requirements of plywood boxes, in § 178.514(b).

(vi) 6HG1: Protective packaging must conform to the requirements for fiber drums, in § 178.508(b).

(vii) 6HG2: Protective packaging must conform to the requirements for fiberboard boxes, in § 178.516(b).

(viii) 6HH: Protective packaging must conform to the requirements for plastic drums, § 178.509(b).

(4) Maximum capacity of inner receptacles is as follows: 6HA1, 6HB1, 6HD1, 6HG1, 6HH—250 liters (66.0 gallons); 6HA2, 6HB2, 6HC, 6HD2, 6HG2—60 liters (15.9 gallons).

(5) Maximum net mass is as follows: 6HA1, 6HB1, 6HD1, 6HG1, 6HH—400 kg (881.8 pounds); 6HB2, 6HC, 6HD2, 6HG2—75 kg (165.4 pounds).

§ 178.523 Standards for composite packagings with inner glass, porcelain, or stoneware receptacles.

(a) The following are identification codes for composite packagings with inner receptacles of glass, porcelain, or stoneware:

(1) 6PA1 for glass, porcelain or stoneware receptacles within a protective steel drum;

(2) 6PA2 for glass, porcelain or stoneware receptacles within a protective steel crate or box;

(3) 6PB1 for glass, porcelain or stoneware receptacles within a protective aluminum drum;

(4) 6PB2 for glass, porcelain, or stoneware receptacles within a protective aluminum crate or box;

(5) 6PC for glass, porcelain, or stoneware receptacles within a protective wooden box;

(6) 6PD1 for glass, porcelain or stoneware receptacles within a protective plywood drum;

(7) 6PD2 for glass, porcelain, or stoneware receptacles within a protective wickerwork hamper;

(8) 6PG1 for glass, porcelain or stoneware receptacles within a protective fiber drum;

(9) 6PG2 for glass, porcelain, or stoneware receptacles within a protective fiberboard box;

(10) 6PH1 for glass, porcelain or stoneware receptacles within a protective expanded plastic packaging; and

(11) 6PH2 for glass, porcelain, or stoneware receptacles within a protective solid plastic packaging.

(b) Construction requirements for composite packagings with inner receptacles of glass, porcelain, or stoneware are as follows:

(1) Inner receptacles must conform to the following requirements:

(i) Receptacles must be of suitable form (cylindrical or pear-shaped), be made of good quality materials free from any defect that could impair their strength, and be firmly secured in the outer packaging.

(ii) Any part of a closure likely to come into contact with the contents of the receptacle must be resistant to those contents. Closures shall be fitted so as to be leakproof and secured to prevent any loosening during transportation. Vented closures must conform to § 173.24(f) of this subchapter.

(2) Protective packagings must conform to the following requirements:

(i) For receptacles with protective steel drum 6PA1, the drum must comply with § 178.504(b). However, the removable lid required for this type of packaging may be in the form of a cap.

(ii) For receptacles with protective packaging of steel crate or steel box 6PA2, the protective packaging must conform to the following:

(A) Section 178.512(b);

(B) In the case of cylindrical receptacles, the protective packaging shall, when upright, rise above the receptacle and its closure; and

(C) If the protective crate surrounds a pear-shaped receptacle and is of matching shape, the protective packaging shall be fitted with a protective cover (cap).

(iii) For receptacles with protective aluminum drum 6PB1, the requirements of § 178.505(b) apply to the protective packaging.

(iv) For receptacles with protective aluminum box or crate 6PB2, the requirements of § 178.512(b) apply to the protective packaging.

(v) For receptacles with protective wooden box 6PC, the requirements of § 178.513(b) apply to the protective packaging.

(vi) For receptacles with protective plywood drum 6PD1, the requirements of § 178.507(b) apply to the protective packaging.

(vii) For receptacles with protective wickerwork hamper 6PD2, the wickerwork hamper shall be properly made with material of good quality. The hamper shall be fitted with a protective cover (cap) so as to prevent damage to the receptacle.

(viii) For receptacles with protective fiber drum 6PG1, the drum must conform to the requirements of § 178.508(b).

(ix) For receptacles with protective fiberboard box 6PG2, the requirements of § 178.516(b) apply to the protective packaging.

(x) For receptacles with protective solid plastic or expanded plastic packaging 6PH1 or 6PH2, the requirements of § 178.517(b) apply to the protective packaging. Solid protective plastic packaging shall be manufactured from high-density polyethylene or from some other comparable plastic material. The removable lid required for this type of packaging may be a cap.

(3) Quantity limitations are as follows:

(i) Maximum net capacity for packagings for liquids: 60 liters (15.9 gallons).

(ii) Maximum net mass for packagings for solids: 75 kilograms (165.4 pounds).

148. A new Subpart M would be added to read as follows:

Subpart M—Testing of Non-bulk Packagings and Packages

Sec.

Subpart M—Testing of Non-Bulk Packagings and Packages

§ 178.600 Purpose and scope.

This subpart prescribes certain testing requirements for performance-oriented

packagings identified in Subpart L of this part.

§ 178.601 General requirements.

(a) The test procedures prescribed in this subpart are intended to ensure that packages containing hazardous materials can withstand normal conditions of transportation and are considered minimum requirements. Each packaging shall be so manufactured and assembled as to be capable of successfully passing the prescribed tests and of conforming to the requirements of § 173.24 of this subchapter at all times while in transportation.

(b) It is the responsibility of the packaging manufacturer and the shipper, to the extent that assembly functions including final closure are performed by the latter, to assure that each package is capable of passing the prescribed tests.

(c) The packaging manufacturer shall achieve successful test results for each new or different packaging at the start of production of that packaging and at intervals established by the manufacturer of sufficient frequency to ensure that all packagings are capable of passing the prescribed tests. With the exception of the chemical compatibility test for plastic receptacles (§178.608 of this subchapter) production tests must be conducted at least once in each 12 month period. The chemical compatibility test must be conducted only at the start of production. For the purpose of this subpart, a different packaging is one that differs from a previously produced packaging in structural design, size, material of construction, wall thickness or manner of construction but does not include —

(1) A packaging which differs only in reduced design height (The cross-sectional shape and area must remain the same.);

(2) A packaging which differs only in surface treatment;

(3) A combination packaging which differs only in that the outer packaging has been successfully tested with different inner packagings (A variety of such different inner packagings may be assembled in this outer packaging without further testing); or

(4) A plastic packaging which differs only with regard to additives which conform to § 178.509(b)(3) or § 178.517(b) (4) or (5).

(d) The manufacturer shall conduct the tests prescribed in this subpart using random samples of production packagings, in the numbers specified in the appropriate test section. In addition, the leakproofness test shall be performed on every new packaging by the manufacturer or reconditioned packaging by the shipper or reconditioner, to which it applies.

(e) The Director, OHMT, may approve the selective testing of packagings that differ only in minor respects from a tested type, including packagings containing a lesser number or smaller sizes of inner packagings or with inner packagings of lower net mass; and packings such as drums, bags, and boxes which are produced with small reductions in external dimension.

(f) Notwithstanding the retest intervals specified in paragraph (c) of this section, the Director, OHMT, may at any time require proof, through testing in accordance with this subpart, that packagings meet the requirements of this subpart. As required by the Director, OHMT, the manufacturer shall either—

(1) Conduct performance tests in accordance with this subpart; or

(2) Supply packagings, in quantities sufficient to conduct tests in accordance with this subpart, to the Director, OHMT, or a designated representative.

(g) If an inner treatment or coating of a packaging is required for safety reasons, the manufacturer shall design the packaging so that the treatment or coating retains its protective properties even after withstanding the tests prescribed by this subpart.

(h) The manufacturer shall keep records of test results for at least one year and make them available for inspection by a representative of the Department upon request.

§ 178.602 Preparation of packagings and packages for testing.

(a) Tests shall be carried out on packagings and packages as prepared for transportation, including inner receptacles in the case of combination packagings.

(b) For the drop and stacking test, inner and single-unit receptacles shall be filled to not less than 95 percent of their capacity in the case of solids and not less than 98 percent in the case of liquids. The materials to be transported in the packagings may be replaced by non-hazardous materials, except for chemical compatibility testing or where this would invalidate the results of the tests.

(c) If the materials to be transported are replaced for test purposes by non-hazardous materials, the materials used must be of the same or higher specific gravity as the materials to be carried and their other physical properties (grain, size, viscosity) which might influence the results of the required tests must correspond as closely as possible to those of the hazardous materials to be transported.

(d) Paper or fiberboard packagings shall be conditioned for at least 24 hours in an atmosphere maintained—

(1) At 50 percent ±2 percent relative humidity, and at a temperature of 23 °C±2 °C (73 °F±4 °F); or

(2) At 65 percent ±2 percent relative humidity, and at a temperature of 20 °C±2 °C (68 °F±4 °F), or 27 °C±2 °C (80 °F±4 °F); or

(3) For testing at periodic intervals only (i.e., other than initial design qualification testing), at ambient conditions.

(e) Each packaging shall be closed in preparation for testing in the same manner as if prepared for actual shipment. All closures shall be installed using proper techniques and torques.

(f) Bung-type barrels made of natural wood shall be left filled with water for at least 24 hours before the tests.

(g) Except as provided in § 173.24(e)(3)(iii) of this subchapter, the chemical compatibility test provided in § 178.608 shall be performed on test samples used for the drop, stacking, hydrostatic pressure and leakproofness tests, before the conduct of the latter tests, at the start of production of each new or different packaging where plastic comes in contact with liquid hazardous material.

§ 178.603 Drop Test.

(a) The number of drops required and the packages' orientation are as follows:

Packaging	No. of test	Drop orientation samples
Steel drums, Aluminum drums, Metal drums (other than steel or aluminum), Steel jerricans, Plywood drums, Wooden barrels, Fibre drums, Plastics drums and jerricans, Composite packagings which are in the shape of a drum.	Six (three for each drop)	First drop (using three samples): The package must strike the target diagonally on the chime or, if the packaging has no chime, on each drop) a circumferential seam or an edge. Second drop (using the other three samples): The package must strike the target on the weakest part not tested by the first drop, for example a closure or, for some cylindrical drums, the welded longitudinal seam of the drum body.
Boxes of natural wood, Plywood boxes, Reconstituted wood boxes, Fiberboard boxes, Plastic boxes, Steel or aluminum boxes, Composite packagings which are in the shape of a box.	Five (one for each drop)	First drop: Flat on the bottom (using the first sample). Second drop: Flat on the top (using the second sample). Third drop: Flat on the long side (using the third sample). Fourth drop: Flat on the short side (using the fourth sample). Fifth drop: On a corner (using the fifth sample).

Packaging	No. of test	Drop orientation samples
Bags—single-ply with a side seam	Three—(three drops per bag)	First drop: Flat on a wide face (using all three samples). Second drop: Flat on a narrow face (using all three samples). Third drop: On an end of the bag (using all three samples).
Bag—single-ply without a side seam, or multi-ply	Three (two drops per bag)	First drop: Flat on a wideface (using all three samples). Second drop: On an end of the bag (using all three samples).

(b) Special preparation of test samples for the drop test. Testing of plastic drums, jerricans, and boxes, composite packagings with inner plastic receptacles, and of combination packagings with inner plastic receptacles, other than expanded plastic boxes and bags, shall be carried out when the temperature of the test sample and its contents has been reduced to −18 °C (0 °F) or lower. Test liquids shall be kept in the liquid state, if necessary, by the addition of anti-freeze.

(c) Target. The target must be a rigid, non-resilient, flat and horizontal surface.

(d) Drop height. Drop heights, measured as the vertical distance from the target to the lowest point on the package, are determined as follows:

(1) For solids and liquids, if the test is performed with the solid or liquid to be transported or with a non-hazardous material having essentially the same physical characteristic, the drop height is determined according to Packing Group, as follows:

(i) Packing Group I: 1.8 meters (5.91 feet).

(ii) Packing Group II: 1.2 meters (3.94 feet).

(iii) Packing Group III: 0.8 meters (2.62 feet).

(2) For liquids, if the test is performed with water—

(i) Where the materials to be carried have a specific gravity not exceeding 1.2, drop height is determined according to Packing Group, as follows:

(A) Packing Group I: 1.8 meters (5.91 feet).

(B) Packing Group II: 1.2 meters (3.94 feet).

(C) Packing Group III: 0.8 meters (2.62 feet).

(ii) Where the materials to be transported have a specific gravity exceeding 1.2, the drop height shall be calculated on the basis of the specific gravity (SG) of the material to be carried, rounded up to the first decimal, as follows:

(A) Packing Group I: SG X 1.5 meters (4.92 feet).

(B) Packing Group II: SG X 1.0 meter (3.28 feet).

(C) Packing Group III: SG X 0.67 meters (2.25 feet).

(e) Criteria for passing the test. A package is considered to successfully pass the drop tests if for each sample tested —

(1) For receptacles containing liquid, each receptacle does not leak when equilibrium has been reached between the internal and external pressures;

(2) For removable head drums for solids, the entire contents are retained by an inner packaging (e.g., a plastic bag) even if the closure on the top head of the drum is no longer sift-proof;

(3) For a bag, neither the outermost ply nor an outer packaging exhibits any damage likely to adversely affect safety during transport;

(4) For a composite or combination packaging, there is no damage to the outer packaging likely to adversely affect safety during transport, and there is no leakage of the filling substance from the inner packaging;

(5) For a drum, jerrican or bag, any discharge from a closure is slight and ceases immediately after impact with no further leakage; and

(6) For packagings for explosives, no rupture of the packaging occurs.

§ 178.604 Leakproofness test.

(a) *General.* The leakproofness test shall be performed with compressed air or other suitable gases on all packagings intended to contain liquids; however, this test is not required for inner packagings of combination packagings.

(b) *Number of packagings to be tested*—(1) *Production testing.* All packagings subject to the provisions of this section shall be tested and must pass the leakproofness test:

(i) Before they are first used in transportation; and

(ii) Prior to reuse, when authorized for reuse by § 173.28 of this subchapter.

(2) *Design qualification testing.* Three samples of each different packaging shall be tested and must pass the leakproofness test.

(c) *Special preparation.* (1) For design qualification testing, packagings must be tested with closures in place. For production testing, packagings need not have their closures in place.

(2) For testing with closures in place, vented closures shall either be replaced by similar non-vented closures or the vent shall be sealed.

(d) *Test method.* The packaging shall be restrained under water while an internal air pressure is applied; the method of restraint must not affect the results of the test. The test must be conducted for a period of time sufficient to pressurize the interior of the packaging to the specified air pressure and to determine if there is leakage of air from the packaging. Other methods, at least equally effective, may be used, if approved by the Director, OHMT.

(e) *Pressure applied.* An internal air pressure (gauge) must be applied to the packaging as indicated for the following packing groups:

(1) Packing Group I: Not less than 30 kilopascals (4.4 psi).

(2) Packing Group II: Not less than 20 kilopascals (2.9 psi).

(3) Packing Group III: Not less than 20 kilopascals (2.9 psi).

(f) *Criteria for passing the test.* A packaging passes the test if there is no leakage of air from the packaging.

§ 178.605 Hydrostatic pressure test.

(a) *Packagings to be tested.* The hydrostatic pressure test shall be performed on samples of all metal, plastic, and composite packagings intended to contain liquids. This test is also required for inner packagings of combination packagings intended for transportation by aircraft.

(b) *Number of test samples.* Three test samples are required for each different packaging.

(c) *Special preparation of receptacles for testings.* Vented closures shall either be replaced by similar non-vented closures or the vent shall be sealed.

(d) *Test method and pressure to be applied.* Metal packagings and composite packagings other than plastic (e.g., glass, porcelain or stoneware), including their closures, shall be subjected to the test pressure for 5 minutes. Plastic packagings and composite packagings (plastic material), including their closures, shall be subjected to the test pressure for 30 minutes. This pressure is the one to be marked as required in § 178.503(a)(5). The receptacles shall be supported in a manner that does not invalidate the test. The test pressure shall be applied continuously and evenly and it shall be kept constant throughout the test period. The hydraulic pressure (gauge) applied, taken at the top of the receptacle, and determined by any one of the following methods shall be:

(1) Not less than the total gauge pressure measured in the packaging (i.e., the vapor pressure of the filling material

and the partial pressure of the air or other inert gas minus 100 kilopascals (14.5 psi) at 55 °C (131 °F) and multiplied by a safety factor of 1.5. This total gauge pressure shall be determined on the basis of a maximum degree of filling in accordance with § 173.24a(b)(3) of this subchapter and a filling temperature of 15 °C (59 °F);

(2) Not less than 1.75 times the vapor pressure at 50 °C (122 °F) of the material to be transported minus 100 kilopascals (14.5 psi) but with a minimum test pressure of 100 kilopascals (14.5 psi); or

(3) Not less than 1.5 times the vapor pressure at 55 °C (131 °F) of the material to be transported minus 100 kilopascals (14.5 psi), but with a minimum test pressure of 100 kilopascals (14.5 psi).

Packagings intended to contain hazardous materials of Packing Group I shall be tested to a minimum test pressure of 250 kilopascals (36.3 psi).

(e) *Pressure test requirements for air transport.* Additional pressure test requirements for air transport, contained in § 173.27(c) of this subchapter, may exceed the pressure test required by paragraph (d) of this section.

(f) *Criteria for passing the test.* A package passes the hydrostatic test if, for each test sample, there is no leakage of liquid from the package.

§ 178.606 Stacking test.

(a) *General.* All packages other than bags shall be subjected to a stacking test.

(b) *Number of test samples.* Three test samples are required for each different packaging.

(c) *Test method.* The test sample shall be subjected to a force applied to the top surface of the test sample equivalent to the total weight of identical packages which might be stacked on it during transport. The minimum height of the stack, including the test sample, must be 3.0 meters (9.84 ft.). The duration of the test must be 24 hours, except that plastic drums, jerricans, and composite packaging 6HH, intended for liquids, shall be subjected to the stacking test for a period of 28 days at a temperature of not less than 40 °C (104 °F). Alternative test methods which yield equivalent results may be used if approved by the Director, OHMT.

(d) *Criteria for passing the test.* No test sample may leak. In composite packagings or combination packagings, there must be no leakage of the filling substance from the inner receptacle, or inner packaging. No test sample may show any deterioration which could adversely affect transport safety or any distortion likely to reduce its strength or cause instability in stacks of packages. Stacking stability is considered sufficient when, after the stacking test, and, in the case of plastic receptacles after cooling to ambient temperature, two receptacles of the same type filled with water placed on each test sample maintain their positions for one hour.

§ 178.607 Cooperage test for bung-type wooden barrels.

(a) *Number of samples.* One barrel is required for each different packaging.

(b) *Method of testing.* Remove all hoops above the bilge of an empty barrel at least two days old.

(c) *Criteria for passing the test.* A packaging passes the cooperage test only if the diameter of the cross-section of the upper part of the barrel does not increase by more than 10 percent.

§ 178.608 Chemical compatibility test for plastic receptacles.

(a) This chemical compatibility test shall be performed on samples of all packagings where plastic comes in contact with liquid hazardous materials.

(b) Test samples required for conduct of the tests specified in §§ 178.603, 178.604, 178.605 and 178.606 must withstand without failure the procedure (excluding item 6) specified in Appendix B of Part 173 of this subchapter, entitled "Procedure for Testing Chemical Compatibility and Rate of Permeation in Polyethylene Packagings and Receptacles.

(c) The chemical compatibility test shall be performed using the specific hazardous material for which the packaging is intended;

(d) In addition to the test requirements of this section, all hazardous materials ladings packaged in plastic packagings and receptacles must conform to the compatibility requirements of § 173.24 of this subchapter.

PART 179—SPECIFICATIONS FOR TANK CARS

149. The authority citation for Part 179 would continue to read as follows:

Authority: 49 U.S.C. 1803, 1804, 1805, 1806, 1808; 49 CFR Part 1, unless otherwise noted.

150. Section 179.14 would be revised to read as follows:

§ 179.14 Coupler vertical restraint system.

(a) *Performance standard.* Each tank car shall be equipped with couplers capable of sustaining, without disengagement or material failure, vertical loads of at least 200,000 pounds (90,718.5 kg) applied in upward and downward directions in combination with buff loads of 2,000 pounds (907.2 kg), when coupled to cars equipped with couplers that do have this vertical restraint capability, and cars equipped with couplers, that do not have this vertical restraint capability.

(b) *Test verification and approval.* Except as provided in paragraph (d) of this section, compliance with the requirements of paragraph (a) of this section shall be achieved by verification testing of the coupler vertical restraint system in accordance with paragraph (c) of this section, and approval of the Federal Railroad Administrator.

(c) *Coupler vertical restraint tests.* A coupler vertical restraint system shall be tested under the following conditions:

(1) The test coupler shall be tested with a mating coupler (or simulated coupler) having only frictional vertical force resistance at the mating interface; or a mating coupler (or simulated coupler) having the capabilities described in paragraph (a) of this section.

(2) The testing apparatus shall simulate the vertical coupler performance at the mating interface and may not interfere with coupler failure or otherwise inhibit failure due to force applications and reactions.

(3) The test shall be conducted as follows:

(i) A minimum of 200,000 pounds (90,718.5 kg) vertical downward load shall be applied continuously for at least five minutes to the test coupler head simultaneously with the application of a nominal 2,000-pound (907.2 kg) buff load;

(ii) The procedures prescribed in paragraph (c)(3)(i) of this section shall be repeated with a minimum vertical upward load of 200,000 pounds (90,718.5 kg); and

(iii) A minimum of three consecutive successful tests shall be performed for each load combination prescribed in paragraphs (c)(3) (i) and (ii) of this section. A test is successful when a vertical disengagement or material failure does not occur during any of the prescribed load combinations.

(d) *Listing of approved couplers.* The following classes of couplers have been approved by the Federal Railroad Administrator and need not be verified by the testing requirements of paragraph (c) of this section:

(1) E top bottom shelf couplers designated by the Association of American Railroads' Catalog Nos. SE60CHT, SE60CHTE, SE67BHT SE67BHTE, SE68BHT or SE68BHTE; and

(2) F top shelf couplers designated by the Association of American Railroads' Catalog Nos. SF70CHT, SF70CHTE, SF73AHT, SF73AHTE, SF79CHT or SF79CHTE.

§ 179.101-1 [Amended]

151. In § 179.101-1, the table of individual specification requirements would be amended as follows:

a. The column for DOT Specification 112A400F is deleted.

b. The "Insulation" requirement entry for 112A200W, 112A340W, 112A400W, 112A500W, 114A340W, and 114A400W is changed from "[4] None" to "[4, 13] Optional".

c. Footnote 13 is added to read: "[13] Tank cars equipped with insulation per § 179.100-4 of this subchapter may be stenciled "EQUIPPED WITH INSULATION PER 49 CFR 179.100-4".

d. The DOT specification entry "112A400W [12]" is revised to read "112A400W [11, 12]".

§ 179.102 [Amended]

152. In § 179.102, the following changes would be made:

a. §§ 179.102-3, 179.102-5, 179.102-6, 179.102-7, 179.102-8, 179.102-9, 179-102-10, 179.102-11, 179.102-12, 179.102-13, 179.102-14, 179.102-16 and 179.102-20 are removed.

b. In § 179.102-1, paragraphs (a)(2) through (a)(6) are removed.

c. In § 179.102-2, paragraphs (a) (1), (2), and (3) are removed and paragraph (a)(4) is redesignated as (a)(1).

d. In § 179.102-4, paragraphs (a) and (l) are removed and reserved.

e. In § 179.102-17, in paragraph (a), "DOT-105A600W" is changed to "DOT-105J600W" and paragraph (m) is removed.

§ 179.105 [Amended]

153. The title to § 179.105 would be revised to read as follows:

§ 179.105 Special requirements for Specification 105S, 105J, 111J, 112S, 112J, 112T, 114S, 114J and 114T tank cars.

154. Section 179.105-1 would be revised to read as follows:

§ 179.105-1 General.

(a) In addition to the requirements of this section, each Specification 105S, 105J, 111J, 111J, 112S, 112J, 112T, 114S, 114J and 114T tank car must meet the applicable requirements of § 179.100, 179.101, 179.103, and 179.104.

(b) Notwithstanding the provisions of §§ 179.3, 179.4 and 179.6, AAR approval is not required for changes in or additions to tank cars necessary to comply with this section.

(c) Each Specification 105S, 105J, 111J, 112S, 112J, 112T, 114S, 114J, and 114T tank car shall be equipped with a tank head puncture resistance system that meets the requirements of § 179.105-5.

(d) Each Specification 105J, 111J, 112J, 112T, 114J, and 114T tank car shall be equipped with:

(1) A thermal protection system that meets the requirements of § 179.105-4; and

(2) A safety valve that meets the requirements of § 179.105-7.

§§ 179.105-2 and 179.105-3 [Reserved]

155. Sections 179.105-2 and 179.105-3 would be removed and reserved.

§ 179.105-4 [Amended]

156. In paragraph (a) of § 179.105-4, the phrase "Each specification 112T, 112J, 114T, and 114J tank car" would be changed to read "Each Specification 105J, 111J, 112J, 112T, 114J, and 114T tank car".

§ 179.105-6 [Reserved]

157. Section 179.105-6 would be removed and reserved. 158. In paragraph (a) of § 179.105-7, the phrase "each 112 and 114 tank car" would be changed to read "each Specification 105J, 111J, 112J, 112T, 114J, and 114T tank car" and paragraph (c) would be revised to read as follows:

§ 179.105-7 Safety relief valves.

* * * * *

(c) Notwithstanding the provisions of § 179.100-15, § 179.200-18 or paragraph (a) of this section, the relieving or discharge capacity of the safety relief valve on a tank car tank used to transport a Division 2.3 material may be calculated in accordance with the formula prescribed in Section A8.01 of Appendix A of the AAR Specifications for Tank Cars applicable to compressed gases in insulated tanks if—

(1) The tank is equipped with a thermal protection system in accordance with § 179.105-4;

(2) In all of three consecutive simulation pool fire tests required by paragraph (d) of § 179.105-4, none of the thermocouples on the uninsulated side of the steel plate indicates a plate temperature in excess of 550 °F; and

(3) For tanks used for ethylene oxide, the valve capacity is at least 1100 scfm (31.1 cubic meters per minute) at 85 psig (586.1 kPa).

* * * * *

159. In § 179.105-8, paragraphs (d) and (e) would be added to read as follows:

§ 179.105-8 Stenciling.

* * * * *

(d) Each Specification 105 tank car that is equipped as prescribed in § 179.105-1(c) shall be stenciled with the letter "S" substituted for the letter "A" in the specification marking.

(e) Each Specification 105 tank car that is equipped as prescribed in § 179.105-1(d) shall be stenciled with the letter "J" substituted for the letter "A" in the specification marking.

§§ 179.106 through 179.106-4 [Removed and Reserved]

160. Sections 179.106 through 179.106-4 would be removed.

§§ 179.202 through 179.202-22 [Removed and Reserved]

161. Sections 179.202 through 179.202-22 would be removed and reserved.

§ 179.203 [Amended]

162. In § 179.203, paragraphs (c) and (d) would be removed from § 179.203-1 and paragraph (a)(1) would be removed from § 179.203-2.

§ 179.302 [Removed and Reserved]

163. Section 179.302 would be removed and reserved.

Issued in Washington, DC, on October 29, 1987 under authority delegated in 49 CFR Part 106, Appendix A.

Alan I. Roberts,

Director, Office of Hazardous Materials Transportation.

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Part III

Department of Labor

Occupational Safety and Health Administration

Workplace Drug Abuse Assistance Program Grants; Notice

DEPARTMENT OF LABOR

Occupational Safety and Health Administration

Workplace Drug Abuse Assistance Program Grants

AGENCY: Occupational Safety and Health Administration (OSHA), Labor.

ACTION: Notice of grant program.

SUMMARY: The Occupational Safety and Health Administration is implementing a new national grant program to collect information on efforts to assist employees and to demonstrate effective approaches for employee assistance with drug abuse in the workplace. This notice describes the scope and objectives of the grant program, and provides information about obtaining a grant application. Applications should not be submitted without first obtaining the detailed grant application mentioned later in the notice.

Authority for this program may be found in section 4303 of the Anti-Drug Abuse Act of 1986.

DATE: Application packages must be received by January 8, 1988.

ADDRESSES: Grant applications must be submitted to the OSHA Regional Office for the state in which the applicant is located. A complete listing of Regional Offices can be found in the addendum at the end of the supplementary information section of this notice.

FOR FURTHER INFORMATION CONTACT: James Foster, Director, Office of Information and Consumer Affairs, Occupational Safety and Health Administration, Room N3647, U.S. Department of Labor, 200 Constitution Avenue NW., Washington, DC 20210, telephone (202) 523-8148.

SUPPLEMENTARY INFORMATION:

Program Description

The workplace drug abuse assistance program will provide one-year grants for research and demonstration on efforts to assist employees with drug abuse in the workplace. Grant recipients will demonstrate effectiveness through:

1. Identification of programs and approaches which best inform and/or assist employees concerning workplace drug abuse;

2. Descriptions of identified programs which will enable employers, employees and other interested parties to replicate program components; and

3. Provision of materials and documentation needed to implement model programs and model approaches to workplace drug abuse.

Each grant will target a defined group of employees by occupation, industry, union membership, or other clearly identifiable criteria.

Grant activities may include the following:

1. Research to identify existing drug abuse assistance programs and to identify programs or program elements which have been effective in assisting employees.

2. Developing model programs for informing and/or assisting employees with drug abuse in the workplace. These programs should be based upon research conducted by the grant recipient. A model program will consist of documentation which provides step-by-step instructions on implementing such a program and may include training and educational materials. (No more than ten percent (10%) of the total grant funds should be used for developing training and educational materials.) As part of the development of model programs, grant recipients may conduct demonstration programs to test their findings and materials. Demonstration programs are limited in scope to outreach, education of employees and establishing mechanisms for employee assistance activities. Grant funds may not be used to provide counseling and other rehabilitation services.

All grant recipients are required to provide a minimum of twenty-five percent (25%) of the total program budget from non-Federal funds.

This grant program will be administered in compliance with 41 CFR Part 29-70, OMB Circular A-110, and OMB Circulars A-21 or A-122 (whichever is applicable to the recipient organization) as they relate to functions such as the use of funds; the operation of programs; the maintenance of records, books, accounts, and other documents; and financial and program reporting to OSHA.

Eligible Applicants

Any nonprofit organization is eligible to apply for a grant. Applicants will be required to submit a copy of their current tax exemption from the Internal Revenue Service (IRS) or other documentary evidence of their nonprofit status.

Review Procedures and Criteria

Applications for grants solicited in this announcement will be evaluated on a competitive basis by the Assistant Secretary of Labor for Occupational Safety and Health with assistance and advice from the Assistant Secretary of Labor for Policy.

The following factors, which are not ranked in order of importance, will be considered in evaluating grant applications.

1. Program

a. The identification of a clearly defined target group.

b. The responsiveness of the proposed program to the scope of this announcement.

c. Evidence of the applicant's previous experience with programs and/or services for the target group.

d. Evidence of the applicant's ability to begin program activities within four (4) weeks of grant award.

e. The technical and professional expertise and training of present or proposed program staff as presented in resumes, minimum qualifications for hiring, and position descriptions.

f. Evidence of the applicant's prior research projects and/or model progams related to the workplace.

2. Administrative

a. Evidence of the applicant organization's nonprofit status.

b. The managerial expertise of the applicant, as evidenced by the variety and complexity of current and/or recent programs it has administered.

c. The financial management capability of the applicant, as evidenced by a recent report from an independent audit firm or a recent report from another independent organization qualified to render judgment concerning the soundness of the applicant's financial practices. In the absence of such reports, the applicant may provide information which demonstrates that it is capable of meeting the financial management standards set forth in 41 CFR Part 29-70, section 207-2.

3. Budget

a. The reasonableness of the budget in relation to the proposed program activities.

b. Activities for the development of materials and programs total ten percent (10%) or less of the budget.

c. The proposed non-Federal share is at least twenty-five percent (25%) of the total budget.

In addition to the preceding factors, the Assistant Secretary will consider other factors, such as occupational and industrial areas covered and geographic mix of the proposals selected for funding.

Application Procedures

Those organizations meeting the eligibility requirements which are interested in conducting a workplace drug abuse assistance program may request a grant application package

from the OSHA Regional Administrator for the state in which the organization is located. A list of the names, addresses, and geographic areas of responsibility of the Regional Administrators is in the addendum to this notice.

All applications must be received in the applicable OSHA Regional Office no later than 5 p.m. local time, January 8, 1988.

Following review and selection, the Assistant Secretary will notify in writing those organizations selected as potential grant recipients. An applicant whose proposal is not selected will also be notified in writing to that effect. Notice of selection as a potential grant recipient will not constitute approval of the grant application as submitted. Prior to actual grant award, representatives of the potential grant recipient and OSHA will enter into negotiations concerning such items as program components, funding levels, and administrative systems. If negotiations do not result in an acceptable grant within six (6) weeks of initial notification, the Assistant Secretary reserves the right to terminate the negotiation and decline to fund the proposal.

Signed at Washington, DC, this 2nd day of November, 1987.

John A. Pendergrass,

Assistant Secretary of Labor.

Addendum

Region I

Regional Administrator, U.S. Department of Labor—OSHA, 16–18 North Street, 1 Dock Square Building, 4th Floor, Boston, Massachusetts 02109

Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

Region II

Regional Administrator, U.S. Department of Labor—OSHA, 201 Varick Street, Room 670, New York, New York 10014

New Jersey, New York, Puerto Rico, Virgin Islands

Region III

Regional Administrator, U.S. Department of Labor—OSHA, Gateway Building, Suite 2100, 3535 Market Street, Philadelphia, Pennsylvania 19104

Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia

Region IV

Regional Administrator, U.S. Department of Labor—OSHA, 1375 Peachtree Street, NE, Suite 587, Atlanta, Georgia 30367

Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee

Region V

Regional Administrator, U.S. Department of Labor—OSHA, 230 South Dearborn Street, Room 3244, Chicago, Illinois 60604

Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin

Region VI

Regional Administrator, U.S. Department of Labor—OSHA, 525 Griffin Street, Room 602, Dallas, Texas 75202

Arkansas, Louisiana, New Mexico, Oklahoma, Texas

Region VII

Regional Administrator, U.S. Department of Labor—OSHA, 911 Walnut Street, Room 406, Kansas City, Missouri 64106

Iowa, Kansas, Missouri, Nebraska

Region VIII

Regional Administrator, U.S. Department of Labor—OSHA, Federal Building, Room 1554, 1961 Stout Street, Denver, Colorado 80294

Colorado, Montana, North Dakota, South Dakota, Wyoming

Region IX

Regional Administrator, U.S. Department of Labor—OSHA, 71 Stevenson, Street, 4th Floor, San Francisco, California, 94105

American Samoa, Arizona, California, Guam, Hawaii, Nevada, Trust Territory of the Pacific Islands

Region X

Regional Administrator, U.S. Department of Labor—OSHA, Federal Office Building, Room 6003, 909 First Avenue, Seattle, Washington 98174

Alaska, Idaho, Oregon, Washington

[FR Doc. 876–25670 Filed 11–5–87; 8:45 am]

BILLING CODE 4510–26–M

Friday
November 6, 1987

Part IV

Department of the Interior

Bureau of Indian Affairs
Office of Hearings and Appeals

25 CFR Part 2
43 CFR Part 4

Department Hearings and Appeals Procedures; Proposed Rules

DEPARTMENT OF THE INTERIOR

Bureau of Indian Affairs

25 CFR Part 2

Appeals From Administrative Actions

September 22, 1987.

AGENCY: Bureau of Indian Affairs, Interior.

ACTION: Proposed rule.

SUMMARY: The Bureau of Indian Affairs (BIA) is proposing to revise its rules governing the appeals process which is used for requesting review of actions by BIA officials which adversely affect an appellant. These changes are being made to facilitate and expedite the total appeal process.

DATE: Public comments must be received on or before January 5, 1988.

ADDRESS: Mail or hand deliver comments to: Anne Bolton, Management Analyst, Division of Personnel, Bureau of Indian Affairs, Room 320, Interior South, 1951 Constitution NW., Washington, DC 20245.

FOR FURTHER INFORMATION CONTACT: Anne Bolton, Management Research & Evaluation, Bureau of Indian Affairs, Room 334, S. Interior, Department of the Interior, Washington, DC 20245, telephone number: (202) 343–4689.

SUPPLEMENTARY INFORMATION: This proposed rule is published in exercise of authority delegated by the Secretary of the Interior to the Assistant Secretary for Indian Affairs by 209 DM 8. The policy of the Department is, whenever practical, to afford the public an opportunity to participate in the rulemaking process. Accordingly, interested persons may submit written comments regarding the proposed rule to the location identified in the address section of this preamble.

The proposed revision is published as previously titled, Appeals from Administrative Actions. This revision will eliminate Central Office action on most of the appeals which originate in the field. Appeals will be sent directly to the Interior Board of Indian Appeals from the field.

When the Board of Indian Appeals finds that an issue in an appeal was decided by the Bureau of Indian Affairs in the exercise of discretionary authority, it will not adjudicate the issue, but will dismiss the appeal as to that issue or refer the issue to the Assistant Secretary—Indian Affairs, pursuant to the Board's regulations in 43 CFR 4.330(b)(2) and 4.337(b). The Assistant Secretary—Indian Affairs will also have an opportunity to decide to issue a decision in any appeal, prior to the Board's acquisition of jurisdiction over the appeal.

In addition, these regulations will clarify procedures and stipulate timeframes for Bureau action.

A proposed revision of the regulations governing appeals to the Interior Board of Indian Appeals, 43 CFR 4.310–4.340, immediately follows this proposal.

In accordance with Office of Management and Budget regulations in 5 CFR 1320.3(c), approval of information collections contained in this regulation is not required.

The primary author of this document is Anne Bolton, Management Analyst, Division of Personnel, Bureau of Indian Affairs, Room 320, Interior South, 5951 Constitution Ave. NW., Washington, DC 20245, telephone number (202) 343–4689.

This rule does not constitute a major Federal action significantly affecting the quality of the human environment under the National Environmental Policy Act of 1969. The Department of the Interior has determined that this document is not a major rule and does not require a regulatory analysis under Executive Order 12291. These revised regulations do not have a significant economic effect on a substantial number of small entities within the meaning of the Regulatory Flexibility Act, 5 U.S.C. 601 *et seq.* (1982). These regulations will affect only administrative appeals from decisions by certain BIA officials. They will not have an impact on small entities as defined in the Act.

List of Subjects in 25 CFR Part 2

Administrative practice and procedure.

For the reasons set forth in the preamble, the Bureau of Indian Affairs proposes to revise Title 25, Chapter 1, Subchapter A of the Code of Federal Regulations as follows:

PART 2—APPEALS FROM ADMINISTRATIVE DECISIONS

Sec.

Authority: R.S. 463, 465; 5 U.S.C. 301, 25 U.S.C. 2, 9.

§ 2.1 Information collection requirements.

In accordance with Office of Management and Budget Regulations in 5 CFR 1320.3(c), approval of information collections contained in this regulation is not required.

§ 2.2 Definitions.

"Appeal" means a written request for review of an action by an official of the Bureau of Indian Affairs that is claimed to adversely affect the interested party making the request.

"Appellant" means any interested party who files an appeal under this part.

"Interested party" means any person whose interests could be adversely affected by a decision in the appeal.

"Legal holiday" means a Federal holiday as designated by the President or the Congress of the United States.

"Notice of appeal" means the written document sent to the official designated in this part, indicating that a decision is being appealed.

"Person" includes any Indian or non-Indian individual, corporation, tribe or other organization.

"Statement of reasons" means a written document submitted by the appellant explaining why the decision is being appealed.

§ 2.3 Applicability.

(a) Except as provided in paragraph (b) of this section, this Part applies to all appeals from decisions by officials of the Bureau of Indian Affairs by persons who are or will be adversely affected by such decisions.

(b) This part does not apply if any other regulation or Federal statute provides a different administrative appeal procedure applicable to a specific type of decision.

§ 2.4 Officials who may decide appeals.

The following officials may decide appeals:

(a) An Area Director, if the subject of appeal is a decision by a person under the authority of that Area Director.

(b) An Area Education Programs Administrator, Agency Superintendent for Education, President of a Post-Secondary School, or the Deputy to the Assistant Secretary/Director—Indian

Affairs (Indian Education Programs), if the appeal is from a decision by an Office of Indian Education Programs (OIEP) official under their jurisdiction.

(c) The Assistant Secretary—Indian Affairs pursuant to the provisions of § 2.20 of this part.

(d) The Interior Board of Indian Appeals, pursuant to the provisions of 43 CFR Part 4, Subpart D, if the appeal is from a decision made by an Area Director, or the Deputy to the Assistant Secretary/ Director—Indian Affairs (Indian Education Programs).

§ 2.5 Appeal bond.

(a) If a person believes that he/she may suffer a measurable and substantial financial loss as a direct result of the delay caused by an appeal, that person may request that the official before whom the appeal is pending require the posting of a reasonable bond by the appellant adequate to protect against that financial loss.

(b) A person requesting that a bond be posted bears the burden of proving the likelihood that he/she may suffer a measurable and substantial financial loss as a direct result of the delay caused by the appeal.

(c) In those cases in which the official before whom an appeal is pending determines that a bond is necessary to protect the financial interests of an Indian or Indian tribe, that official may require the posting of a bond on his/her own initiative.

§ 2.6 Finality of decisions.

(a) Decisions of the Assistant Secretary—Indian Affairs are final for the Department and effective immediately unless the Assistant Secretary—Indian Affairs provides otherwise.

(b) No decision, which at the time of its rendition is subject to appeal to a superior authority in the Department, shall be considered final so as to constitute Departmental action subject to judicial review under 5 U.S.C. 704, unless the official to whom the appeal is made rules that public safety, safety of trust resources, or other public exigency requires that the decision be made effective immediately.

§ 2.7 Notice of administrative action.

(a) The official making a decision shall give all interested parties written notice of the decision by personal delivery or mail.

(b) Failure to give written notice shall not affect the validity of the decision, but the time to file a notice of appeal regarding such a decision shall not begin to run until effective notice has been given.

(c) All decisions for which there is a right to appeal shall so state and shall state the time allowed for filing a notice of appeal, and the title and address of the official to whom an appeal may be made.

§ 2.8 Appeal from a decision unreasonably delayed.

(a) A person or persons whose interests are impaired, or whose ability to protect such interests is impeded by the failure of an official to act on a request to the official, can make the official's inaction the subject of appeal, as follows:

(1) Request in writing that the official take the action originally asked of him/her;

(2) Describe the interest affected by the official's inaction, including a description of the loss, impairment or impediment to such interest caused by the official's inaction;

(3) State that, unless the official involved either takes action on the merits of the written request within 10 days of receipt of such request by the official (within 5 days for student appeals pertaining to expulsion or suspension), or establishes a date by which action will be taken, an appeal shall be filed in accordance with this part.

(b) The official receiving a request as specified in paragraph (a) of this section, must either make a decision on the merits of the initial request within 10 days from receipt of the request for a decision (within 5 days for student appeals pertaining to expulsion or suspension), or establish a reasonable later date by which the decision shall be made. If an official establishes a date by which a requested decision shall be made, this date shall be the date by which failure to make a decision shall be appealable under this part. If the official, within the 10-day (or 5-day) period specified in paragraph (a) of this section, neither makes a decision on the merits of the initial request nor establishes a later date by which a decision shall be made, the official's inaction shall be appealable to the next official in the process established in this part.

§ 2.9 Notice of an appeal.

(a) An appellant must file a written notice of appeal in the office of the official whose decision is being appealed. The appellant must also send a copy of the notice of appeal to the official who will decide the appeal and to known interested parties. The notice of appeal must be filed in the office of the official whose decision is being appealed within 30 days of personal delivery or mailing of the notice of administrative action described in § 2.7 (if a student is appealing an expulsion or suspension, the appeal must be filed within 10 days). No extension of time shall be granted for filing a notice of appeal. Notices of appeal not filed in the specified time shall not be considered, and the decision involved shall be considered final for the Department and effective immediately.

(b) The notice of appeal shall:

(1) Include name, address and phone number of appellant.

(2) Be clearly labeled or titled with the words "NOTICE OF APPEAL."

(3) Have on the face of any envelope in which the notice is mailed or delivered, in addition to the address, the clearly visible words "NOTICE OF APPEAL."

(4) Contain a statement of the decision being appealed that is sufficient to permit identification of the decision.

(5) If possible, attach either a copy of the notice of administrative action received under § 2.7, or a copy of the appellant's request for action under § 2.8 when an official has failed to make a decision.

(6) Certify that copies of the notice of appeal have been served on interested parties, as prescribed in § 2.12(a).

§ 2.10 Statement of reasons.

(a) A statement of reasons explains why the appellant believes that the decision being appealed is in error and should be accompanied by or otherwise incorporate all supporting documentation.

(b) The statement of reasons may be filed with the notice of appeal.

(c) If the statement of reasons is not filed with the notice of appeal, the appellant shall file a separate statement of reasons in the office of the official whose decision is being appealed within 30 days after the notice of appeal was filed in that office.

(d) The statement of reasons whether filed with the notice of appeal or filed separately should:

(1) Be clearly labeled "STATEMENT OF REASONS".

(2) Have on the face of any envelope in which the statement of reasons is mailed or delivered, in addition to the address, the clearly visible words "STATEMENT OF REASONS."

§ 2.11 Statement of interested party.

(a) Any interested party wishing to participate in an appeal proceeding should file a written answer responding to the appellant's notice of appeal and statement of reasons. An answer should

describe the party's interest in the appeal, explain how the decision on appeal may impair or otherwise affect that interest or the party's ability to protect that interest, and state the party's position or response in any manner the party deems appropriate.

(b) All answers must be filed within 30 days after receipt of the statement of reasons by the person filing an answer.

(c) An answer and any supporting documents shall be filed in the office of the official before whom the appeal is pending as specified in § 2.13.

(d) An answer should:

(1) Be clearly labelled or titled with the words "STATEMENT OF INTERESTED PARTY,"

(2) Have on the face of any envelope in which the answer is mailed or delivered, in addition to the address, the clearly visible words "STATEMENT OF INTERESTED PARTY," and

(3) Contain a statement of the decision being appealed that is sufficient to permit identification of the decision.

§ 2.12 Service of appeal documents.

(a) All persons filing documents in an appeal must serve copies of those documents on other interested parties known to the person making the filing. A person serving a document either by mail or personal delivery must, at the time of filing the document, also file a written statement certifying service on each interested party, showing the document involved, the name and address of the party served, and the date of service.

(b) If an appeal is filed with the Interior Board of Indian Appeals, a copy of the Notice of Appeal shall also be sent to the Assistant Secretary—Indian Affairs.

(c) If the appellant is an Indian or Indian tribe not represented by counsel, the official with whom the appeal is filed (i.e., official making the decision being appealed) shall, in the manner prescribed in this section, personally or by mail serve a copy of all appeal documents on the official who will decide the appeal and on each interested party known to the official making such service.

(d) Service of any document under this part shall be by personal delivery or by mail to the record address as specified in § 2.14. Service on a tribe shall be to the principal or designated tribal official or to the governing body.

(e) In all cases where a party is represented by an attorney in an appeal, service of any document on the attorney is service on the party represented. Where a party is represented by more than one attorney, service on any one attorney is sufficient. The certificate of service on an attorney shall include the name of the party whom the attorney represents and indicate that service was made on the attorney, representing that party.

(f) When an official deciding an appeal determines that there has not been service of a document affecting a person's interest, the official shall either serve the document on the person or direct the appropriate legal counsel to serve the document on the person and allow the person an opportunity to respond.

§ 2.13 Filing documents.

(a) An appeal document is properly filed with an official of the Bureau of Indian Affairs:

(1) By mail when received in the facility officially designated for receipt of mail addressed to the official, or

(2) By personal delivery during regular business hours to the person designated to receive mail in the immediate office of the official.

(b) Bureau of Indian Affairs offices receiving a misdirected appeal document shall forward the document to the proper office promptly. If a person delivers an appeal document to the wrong office or mails an appeal document to an incorrect address, no extension of time should be allowed because of the time necessary for a Bureau office to redirect the document to the correct address.

(c) Notwithstanding any other provision of this section, an official deciding an appeal shall allow late filing of a misdirected document where the official finds that the misdirection is the fault of the government.

§ 2.14 Record address.

(a) Every interested party who files a document in connection with an appeal shall, when he/she files the document, also indicate his/her address. Thereafter, any change of address shall be promptly reported to the official with whom the previous address was filed. The most current address on file under this subsection shall be deemed the proper address for all purposes under this Part.

(b) The successors in interest of a party shall also promptly inform the official specified in paragraph (a) of this section of their interest in the appeal and their address.

(c) An appellant or interested party failing to file an address or change of address as specified in this section may not object to lack of notice or service attributable to his/her failure to indicate a new address.

§ 2.15 Computation of time.

In computing any period of time prescribed or allowed in this Part, calendar days shall be used. Computation shall not include the day on which a decision being appealed was made, service or notice was received, a document was filed, or other event occurred causing time to begin to run. Computation shall include the last day of the period, unless it is a Saturday, a Sunday, or a legal holiday, in which event the period runs until the end of the next day which is not a Saturday, a Sunday, or a legal holiday.

§ 2.16 Extensions of time.

An official to whom an appeal is made may, upon a showing of good cause by a party and with notice to all other parties, extend the period for filing or serving any document; *provided,* however, that no extension will be granted for filing a notice of appeal under § 2.9 of this part or serve by itself to extend any period specified by law or regulation other than in this Part.

§ 2.17 Summary dismissal.

Appeals under this Part may be subject to summary dismissal for the following causes:

(a) If a statement of reasons for the appeal is not filed as required by this part.

(b) If the appeal documents do not state an issue on which a decision can be made on appeal.

(c) If the appellant has been required to post a bond and fails to do so.

§ 2.18 Consolidation of appeals.

Separate proceedings pending before one official under this part and involving common questions of law or fact may be consolidated by the official conducting such proceedings, pursuant to a motion by any party or on the initiative of the official.

§ 2.19 Action by Area Directors and Education Programs Officials on appeal.

(a) Education Programs Officials shall render written decisions within 5 days after receipt of the appeal in which a student is appealing an expulsion or a suspension. Area Directors, Area Education Programs Administrators, Agency Superintendents for Education, Presidents of Post-Secondary Schools and the Deputy to the Assistant Secretary/Director Indian Affairs (Indian Education Programs) shall render written decisions in all other cases appealed to them within 60 days after all time for pleadings (including all extensions granted) has expired, shall include in the decision a statement that the decision may be appealed, identify

the official to whom it may be appealed, and indicate the appeal procedures.

(b) A copy of the decision shall be sent to the appellant and each known interested party by certified or registered mail, return receipt requested. Such receipts shall become a permanent part of the record.

§ 2.20 Action by the Assistant Secretary—Indian Affairs on appeal.

(a) When a decision is appealed to the Interior Board of Indian Appeals, a copy of the notice of appeal shall be sent to the Assistant Secretary—Indian Affairs.

(b) The notice of appeal sent to the Interior Board of Indian Appeals shall certify that a copy has been sent to the Assistant Secretary—Indian Affairs.

(c) In accordance with the provisions of § 4.332(b) of Title 43 of the Code of Federal Regulations, a notice of appeal to the Board of Indian Appeals shall not be effective until 20 days after receipt by the Board, during which time the Assistant Secretary—Indian Affairs shall have authority to decide to issue a decision in the appeal. If the Assistant Secretary—Indian Affairs decides to issue the decision in an appeal, he/she notifies the Board of Indian Appeals, the deciding official, the appellant, and interested parties within 15 days of his/her receipt of a copy of the notice of appeal. Upon receipt of the notification, the Board of Indian Appeals shall transfer the appeal to the Assistant Secretary—Indian Affairs. The decision shall be signed by the Assistant Secretary—Indian Affairs within 60 days after all time for pleadings (including all extensions granted) has expired, and shall be final for the Department and immediately effective unless the Assistant Secretary—Indian Affairs provides otherwise.

(d) A copy of the decision shall be served on the appellant and each known interested party by certified or registered mail, return receipt requested. Such receipts shall become a permanent part of the record.

(e) If the Assistant Secretary—Indian Affairs does not make a decision within 60 days after all time for pleadings (including all extensions granted) has expired, any party may move the Board of Indian Appeals to assume jurisdiction. A motion for Board decision under this section shall invest the Board with jurisdiction as of the date the motion was received by the Board.

(f) When the Board of Indian Appeals, in accordance with 43 CFR 4.337(b), refers an appeal containing one or more discretionary issues to the Assistant Secretary—Indian Affairs for further consideration, the Assistant Secretary—Indian Affairs shall take action on the appeal consistent with the procedures in this section.

§ 2.21 Scope of review.

(a) When a decision has been appealed, any information available to the reviewing official may be used in reaching a decision, whether part of the record or not.

(b) Where the official deciding an appeal takes into account information not in the record, the official shall include in the record a description of the information used, and the source of the information. Interested parties shall be informed of the information and shall be given an opportunity to respond.

Ross O. Swimmer,

Assistant Secretary, Indian Affairs.

[FR Doc. 87-25641 Filed 11-5-87; 8:45 am]

BILLING CODE 4310-02-M

Office of Hearings and Appeals

43 CFR Part 4

Department Hearings and Appeals Procedures

AGENCY: Office of Hearings and Appeals, Interior.

ACTION: Proposed rule.

SUMMARY: This office proposes to amend its regulations governing appeals to the Board of Indian Appeals, in order to ensure compatibility between those regulations and regulations of the Bureau of Indian Affairs. These proposed amendments incorporate substantive amendments to several specific regulations.

DATE: Public comments must be received on or before January 5, 1988.

ADDRESS: Mail or hand deliver comments to: Kathryn Lynn, Administrative Judge, Board of Indian Appeals, Office of Hearings and Appeals, 4015 Wilson Boulevard, Arlington, Virginia 22203.

FOR FURTHER INFORMATION CONTACT: Kathryn Lynn (703) 235-3816.

SUPPLEMENTARY INFORMATION: The Bureau of Indian Affairs is proposing revisions to its appeal regulations in 25 CFR Part 2. Because this office's regulations in 43 CFR Part 4, Subpart D, were written in conjunction with the Bureau's regulations in 25 CFR part 2, changes to the Bureau's regulations result in discrepancies with the regulations of this office. The amendments proposed here are needed to ensure compatibility between the two sets of regulations.

In addition, this office had previously identified certain specific regulations in 43 CFR Part 4, Subpart D, that needed amendment. In the process of reviewing its regulations in regard to the amendment of 25 CFR Part 2, other regulations needing amendment were identified. All of these changes are proposed in this document.

The Department of the Interior has determined that this document is not a major rule under E.O. 12291 and certifies that this document will not have a significant economic effect on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*). This determination is based on the fact that the amendments concern Departmental appeals procedures only.

Paperwork Reduction Act

This rule does not contain information collection requirements which require approval by the Office of Management and Budget under 44 U.S.C. 3051 *et seq.*

The Department of the Interior has determined that the rule does not constitute a major Federal action significantly affecting the quality of the human environment under the National Environmental Policy Act of 1969, *as amended* (42 U.S.C. 4321-4347).

This rule was written by Kathryn Lynn, Administrative Judge, Office of Hearings and Appeals.

List of Subjects in 43 CFR Part 4

Administrative practice and procedure, Indians.

Dated: September 29, 1987.

Paul T. Baird,

Director.

43 CFR Part 4 is proposed to be amended as follows:

PART 4—[AMENDED]

1. The authority citation for Part 4, continues to read as follows:

Authority: R.S. 2478, as amended, 43 U.S.C. sec. 1201, unless otherwise noted.

2. 43 CFR 4.1(b)(2) is proposed to be revised to read as follows:

§ 4.1 Scope of authority; applicable regulations.

* * * * *

(b) * * *

(2) *Board of Indian Appeals.* The Board decides finally for the Department appeals to the head of the Department pertaining to:

(i) Administrative actions of officials of the Bureau of Indian Affairs, issued under 25 CFR Chapter I, except as limited in 25 CFR Chapter I or § 4.330 of this part, and

(ii) Orders and decisions of administrative law judges in Indian

probate matters other than those involving estates of the Five Civilized Tribes of Indians and Osage Indian wills.

The Board also decides such other matters pertaining to Indians as are referred to it by the Secretary, the Director of the Office of Hearings and Appeals, or the Assistant Secretary—Indian Affairs for exercise of review authority of the Secretary. Special regulations applicable to proceedings before the Board are contained in Subpart D of this part.

* * * * *

3. 43 CFR Part 4, in Subpart D, §§ 4.310–4.340 are proposed to be revised to read as follows:

General Rules Applicable to Proceedings on Appeal Before the Interior Board of Indian Appeals

§ 4.310 Documents.

(a) *Filing.* The effective date for filing a notice of appeal or other document with the Board during the course of an appeal is the date of mailing or the date of personal delivery, except that a motion for the Board to assume jurisdiction over an appeal under 25 CFR 2.20(e) shall be effective the date it is received by the Board.

(b) *Service.* Notices of appeal and pleadings shall be served on all parties in interest in any proceeding before the Interior Board of Indian Appeals by the party filing the notice or pleading with the Board. Service shall be accomplished upon personal delivery or mailing.

(c) *Computation of time for filing and service.* Except as otherwise provided by law, in computing any period of time prescribed for filing and serving a document, the day upon which the decision or document to be appealed or answered was served or the day of any other event after which a designated period of time begins to run is not to be included. The last day of the period so computed is to be included, unless it is a Saturday, Sunday, Federal legal holiday, or other nonbusiness day, in which event the period runs until the end of the next day which is not a Saturday, Sunday, Federal legal holiday, or other nonbusiness day. When the time prescribed or allowed is 7 days or less, intermediate Saturdays, Sundays, Federal legal holidays, and other nonbusiness days shall be excluded in the computation.

(d) *Extensions of time.* (1) The time for filing or serving any document except a notice of appeal may be extended by the Board.

(2) A request to the Board for an extension of time must be filed within the time originally allowed for filing.

(3) For good cause the Board may grant an extension of time on its own initiative.

(e) *Retention of documents.* All documents received in evidence at a hearing or submitted for the record in any proceeding before the Board will be retained with the official record of the proceeding. The Board, in its discretion, may permit the withdrawal of original documents while a case is pending or after a decision becomes final upon conditions as required by the Board.

§ 4.311 Briefs on appeal.

(a) The appellant may file an opening brief within 30 days after receipt of the notice of docketing. Appellant shall serve copies of the opening brief upon all interested parties or counsel and file a certificate with the Board showing service upon the named parties. Opposing parties or counsel shall have 30 days from receipt of appellant's brief to file answer briefs, copies of which shall be served upon the appellant or counsel and all other parties in interest. A certificate showing service of the answer brief upon all parties or counsel shall be attached to the answer filed with the Board.

(b) Appellant may reply to an answering brief within 15 days from its receipt. A certificate showing service of the reply brief upon all parties or counsel shall be attached to the reply filed with the Board. Except by special permission of the Board, no other briefs will be allowed on appeal.

(c) The Bureau of Indian Affairs shall be considered an interested party in any proceeding before the Board. The Board may request that the Bureau submit a brief in any case before the Board.

(d) An original only of each document should be filed with the Board.

(e) The Board may also specify a date on or before which a brief is due. Unless expedited briefing has been granted, such date shall not be less than the appropriate period of time established in this section.

§ 4.312 Decisions.

Decisions of the Board will be made in writing and will set forth findings of fact and conclusions of law. The decision may adopt, modify, reverse or set aside any proposed finding, conclusion or order of an administrative law judge. Distribution of decisions shall be made by the Board to all parties concerned. Unless otherwise stated in the decision, rulings by the Board are final for the Department and shall be given immediate effect.

§ 4.313 Amicus Curiae; intervention; joinder motions.

(a) Any interested person or Indian tribe desiring to intervene or to join other parties or to appear as amicus curiae or to obtain an order in an appeal before the Board shall apply in writing to the Board stating the grounds for the action sought. Permission to intervene, to join parties, to appear, or for other relief, may be granted for purposes and subject to limitations established by the Board. This section shall be liberally construed.

(b) Motions to intervene, to appear as amicus curiae, to join additional parties, or to obtain an order in an appeal pending before the Board shall be served in the same manner as appeal briefs.

§ 4.314 Exhaustion of administrative remedies.

(a) No decision of an administrative law judge or an official of the Bureau of Indian Affairs, which at the time of its rendition is subject to appeal to the Board, shall be considered final so as to constitute agency action subject to judicial review under 5 U.S.C. 704, unless made effective pending decision on appeal by order of the Board.

(b) No further appeal will lie within the Department from a decision of the Board.

(c) The filing of a petition for reconsideration is not required to exhaust administrative remedies.

§ 4.315 Reconsideration.

(a) Reconsideration of a decision of the Board will be granted only in extraordinary circumstances. Any party to the decision may petition for reconsideration. The petition must be filed with the Board within 30 days from the date of the decision and shall contain a detailed statement of the reasons why reconsideration should be granted.

(b) A party may file only one petition for reconsideration.

(c) The filing of a petition shall not stay the effect of any decision or order and shall not affect the finality of any decision or order for purposes of judicial review, unless so ordered by the Board.

§ 4.316 Remands from courts.

Whenever any matter is remanded from any court to the Board for further proceedings, the Board will either remand the matter to an administrative law judge or to the Bureau of Indian Affairs, or to the extent the court's directive and time limitations will permit, the parties shall be allowed an opportunity to submit to the Board a

report recommending procedures for it to follow to comply with the court's order. The Board will enter special orders governing matters on remand.

§ 4.317 Standards of conduct.

(a) *Inquiries about cases.* All inquiries with respect to any matter pending before the Board shall be made to the Chief Administrative Judge of the Board or the administrative judge assigned the matter.

(b) *Disqualification.* An administrative judge may withdraw from a case in accordance with standards found in the recognized canons of judicial ethics if the judge deems such action appropriate. If, prior to a decision of the Board, a party files an affidavit of personal bias or disqualification with substantiating facts, and the administrative judge concerned does not withdraw, the Director of the Office of Hearings and Appeals shall determine the matter of disqualification.

§ 4.318 Scope of review.

An appeal shall be limited to those issues which were before the administrative law judge upon the petition for rehearing, reopening, or regarding tribal purchase of interests, or before the official of the Bureau of Indian Affairs on review. However, except as specifically limited in this part or in Title 25 of the Code of Federal Regulations, the Board shall not be limited in its scope of review and may exercise the inherent authority of the Secretary to correct a manifest injustice or error where appropriate.

Appeals to the Board of Indian Appeals in Probate Matters

§ 4.320 Who may appeal.

A party in interest shall have a right of appeal to the Board of Indian Appeals from an order of an administrative law judge on a petition for rehearing, a petition for reopening, or regarding tribal purchase of interests in a deceased Indian's trust estate.

(a) *Notice of Appeal.* Within 60 days from the date of the decision, an appellant shall file a written notice of appeal signed by appellant, appellant's attorney, or other qualified representative as provided in 43 CFR 1.3, with the Board of Indian Appeals, Office of Hearings and Appeals, U.S. Department of the Interior, 4015 Wilson Boulevard, Arlington, Virginia 22203. A statement of the errors of fact and law upon which the appeal is based shall be included in either the notice of appeal or in any brief filed. The notice of appeal shall include the names and addresses of parties served.

(b) *Service of copies of notice of appeal.* The appellant shall personally deliver or mail the original notice of appeal to the Board of Indian Appeals. A copy shall be served upon the administrative law judge whose decision is appealed as well as all interested parties. The notice of appeal filed with the Board shall certify that service was made as required by this section.

(c) *Action by administrative law judge; record inspection.* The administrative law judge, upon receiving a copy of the notice of appeal, shall notify the Superintendent concerned to return the duplicate record filed under §§ 4.236(b) and 4.241(d), or under § 4.242(f) of this part, to the land titles and records office designated under § 4.236(b) of this part. The duplicate record shall be conformed to the original by the land titles and records office and shall thereafter be available for inspection either at the land titles and records office or at the office of the Superintendent.

§ 4.321 Notice of transmittal of record on appeal.

The original record on appeal shall be forwarded by the land titles and records office to the Board by certified mail. Any objection to the record as constituted shall be filed with the Board within 15 days of receipt of the notice of docketing issued under § 4.332 of this part.

§ 4.322 Docketing.

The appeal shall be docketed by the Board upon receipt of the administrative record from the land titles and records office. All interested parties as shown by the record on appeal shall be notified of the docketing. The docketing notice shall specify the time within which briefs may be filed and shall cite the procedural regulations governing the appeal.

§ 4.323 Disposition of the record.

Subsequent to a decision of the Board, other than remands, the record filed with the Board and all documents added during the appeal proceedings, including the Board's decision, shall be forwarded by the Board to the land titles and records office designated under § 4.236(b) of this part. Upon receipt of the record by the land titles and records office, the duplicate record required by § 4.320(c) of this part shall be conformed to the original and forwarded to the Superintendent concerned.

Appeals to the Board of Indian Appeals From Administrative Actions of Officials of the Bureau of Indian Affairs: Administrative Review in Other Indian Matters Not Relating to Probate Proceedings

§ 4.330 Scope.

(a) The definitions set forth in 25 CFR 2.2 apply also to these special rules. These regulations apply to the practice and procedure for: (1) Appeal to the Board of Indian Appeals from administrative actions or decisions of officials of the Bureau of Indian Affairs issued under regulations in 25 CFR Chapter 1, and (2) administrative review by the Board of Indian Appeals of other matters pertaining to Indians which are referred to it for exercise of review authority of the Secretary or the Assistant Secretary—Indian Affairs.

(b) Except as otherwise permitted by the Secretary or the Assistant Secretary—Indian Affairs by special delegation or request, the Board shall not adjudicate:

(1) Tribal enrollment disputes;

(2) matters decided by the Bureau of Indian Affairs through exercise of its discretionary authority; or

(3) appeals from decisions pertaining to final recommendations or actions by officials of the Minerals Management Service, unless the decision is based on an interpretation of Federal Indian law (decisions not so based which arise from determinations of the Mineral Management Service, are appealable to the Interior Board of Land Appeals in accordance with 43 CFR 4.410).

§ 4.331 Who may appeal.

Any interested party affected by a final administrative action or decision of an official of the Bureau of Indian Affairs issued under regulations in Title 25 of the Code of Federal Regulations may appeal to the Board of Indian Appeals, except—

(a) To the extent that decisions which are subject to appeal to a higher official within the Bureau of Indian Affairs must first be appealed to that official;

(b) Where the decision has been approved in writing by the Secretary or Assistant Secretary—Indian Affairs prior to promulgation; or

(c) Where otherwise provided by law or regulation.

§ 4.332 Appeal to the Board; how taken; mandatory time for filing; preparation assistance; requirement for bond.

(a) A notice of appeal shall be in writing, signed by the appellant or by his attorney of record or other qualified representative as provided by 43 CFR 1.3, and filed with the Board of Indian

Appeals, Office of Hearings and Appeals, U.S. Department of the Interior, 4015 Wilson Boulevard, Arlington, Virginia, 22203, within 30 days after mailing or personal delivery of the decision. A copy of the notice of appeal shall simultaneously be filed with the Assistant Secretary—Indian Affairs. As required by § 4.333 of this part, the notice of appeal sent to the Board shall certify that a copy has been sent to the Assistant Secretary—Indian Affairs. A notice of appeal not timely filed shall be dismissed for lack of jurisdiction. A notice of appeal shall include:

(1) A full identification of the case;

(2) A statement of the reasons for the appeal and of the relief sought; and

(3) The names and addresses of all additional interested parties, Indian tribes, tribal corporations, or groups having rights or privileges which may be affected by a change in the decision, whether or not they participated as interested parties in the earlier proceedings.

(b) In accordance with 25 CFR 2.20(c), a notice of appeal shall not be effective for 20 days from receipt by the Board, during which time the Assistant Secretary—Indian Affairs may decide to render the decision on appeal. If the Assistant Secretary—Indian Affairs properly notifies the Board that he has decided to review the appeal, any documents concerning the case filed with the Board shall be transmitted to the Assistant Secretary—Indian Affairs.

(c) When the appellant is an Indian or Indian tribe not represented by counsel, the official who issued the decision appealed shall, upon request of the appellant, render such assistance as is appropriate in the preparation of the appeal.

(d) At any time during the pendency of an appeal, an appropriate bond may be required to protect the interest of any Indian, Indian tribe, or other parties involved.

§ 4.333 Service of notice of appeal.

(a) On or before the date of filing of the notice of appeal the appellant shall serve a copy of the notice upon each known interested party, upon the official of the Bureau of Indian Affairs from whose decision the appeal is taken, and upon the Assistant Secretary—Indian Affairs. The notice of appeal filed with the Board shall certify that service was made as required by this section and shall show the names and addresses of all parties served. If the appellant is an Indian or an Indian tribe not represented by counsel, the appellant may request the official of the Bureau whose decision is appealed to assist in service of copies of the notice of appeal and any supporting documents.

(b) The notice of appeal will be considered to have been served upon the date of personal service or mailing.

§ 4.334 Extensions of time.

Requests for extensions of time to file documents may be granted upon a showing of good cause, except for the time fixed for filing a notice of appeal which, as specified in § 4.332 of this part, may not be extended.

§ 4.335 Preparation and transmittal of record by official of the Bureau of Indian Affairs.

(a) Within 20 days after receipt of a notice of appeal, or upon notice from the Board, the official of the Bureau of Indian Affairs whose decision is appealed shall assemble and transmit the record to the Board. The record on appeal shall include, without limitation, copies of transcripts of testimony taken; all original documents, petitions, or applications by which the proceeding was initiated; all supplemental documents which set forth claims of interested parties; and all documents upon which all previous decisions were based.

(b) The administrative record shall include a Table of Contents noting, at a minimum, inclusion of the following:

(1) The decision appealed from;

(2) The notice of appeal or copy thereof; and

(3) Certification that the record contains all information and documents utilized by the deciding official in rendering the decision appealed.

(c) If the deciding official receives notification that the Assistant Secretary—Indian Affairs has decided to review the appeal before the administrative record is transmitted to the Board, the administrative record should be fowarded to the Assistant Secretary—Indian Affairs rather than to the Board.

§ 4.336 Docketing.

An appeal shall be assigned a docket number by the Board 20 days after receipt of the notice of appeal unless the Board has been properly notified that the Assistant Secretary—Indian Affairs has assumed jurisdiction over the appeal. A notice of docketing shall be sent to all interested parties as shown by the record on appeal upon receipt of the administrative record. Any objection to the record as constituted shall be filed with the Board within 15 days of receipt of the notice of docketing. The docketing notice shall specify the time within which briefs shall be filed, cite the procedural regulations governing the appeal and include a copy of the Table of Contents furnished by the deciding official.

§ 4.337 Action by the Board.

(a) The Board may make a final decision, or where the record indicates a need for further inquiry to resolve a genuine issue of material fact, the Board may require a hearing. All hearings shall be conducted by an administrative law judge of the Office of Hearings and Appeals. The Board may, in its discretion, grant oral argument before the Board.

(b) Where the Board finds that one or more issues involved in an appeal or a matter referred to it were decided by the Bureau of Indian Affairs based upon the exercise of discretionary authority committed to the Bureau, and the Board has not otherwise been permitted to adjudicate the issue(s) pursuant to § 4.330(b) of this part, the Board shall dismiss the appeal as to the issue(s) or refer the issue(s) to the Assistant Secretary—Indian Affairs for further consideration.

§ 4.338 Submission by administrative law judge of proposed findings, conclusions and recommended decision.

(a) When an evidentiary hearing pursuant to § 4.337(a) of this part is concluded, the administrative law judge shall recommend findings of fact and conclusions of law, stating the reasons for such recommendations. A copy of the recommended decision shall be sent to each party to the proceeding, the Bureau official involved, and the Board. Simultaneously, the entire record of the proceedings, including the transcript of the hearing before the administrative law judge, shall be forwarded to the Board.

(b) The administrative law judge shall advise the parties at the conclusion of the recommended decision of their right to file exceptions or other comments regarding the recommended decision with the Board in accordance with § 4.339 of this part.

§ 4.339 Exceptions or comments regarding recommended decision by administrative law judge.

Within 30 days after receipt of the recommended decision of the administrative law judge, any party may

file exceptions to or other comments on the decision with the Board.

§ 4.340 Disposition of the record.

Subsequent to a decision by the Board, the record filed with the Board and all documents added during the appeal proceedings, including the Board's decision, shall be forwarded to the official of the Bureau of Indian Affairs whose decision was appealed for proper disposition in accordance with rules and regulations concerning treatment of Federal records.

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Friday
November 6, 1987

Part V

Department of Transportation

Research and Special Programs Administration

McGil Specialized Carriers, Inc.; Application for Inconsistency Ruling; Public Notice and Invitation to Comment

DEPARTMENT OF TRANSPORTATION

Research and Special Programs Administration

[Docket No. IRA-41]

McGil Specialized Carriers, Inc.; Application for Inconsistency Ruling

AGENCY: Research and Special Programs Administration, DOT.

ACTION: Public notice and invitation to comment.

SUMMARY: McGil Specialized Carriers, Inc. (McGil) has applied for an administrative ruling determining whether a certain provision of the City of San Antonio (Texas) Code, adopting the 1979 Edition of the Uniform Fire Code, is, to a limited extent, inconsistent with the Hazardous Materials Regulations (HMR) issued under the Hazardous Materials Transportation Act (HMTA), and, therefore, preempted under section 112(a) of the HMTA.

DATES: Comments received on or before December 31, 1987, and rebuttal comments received on or before February 19, 1988, will be considered before an administrative ruling is issued by the Director of the Office of Hazardous Materials Transportation. Rebuttal comments may discuss only those issues raised by comments received during the initial comment period and may not discuss new issues.

ADDRESSES: The application and any comment received may be reviewed in the Dockets Branch, Research and Special Programs Administration, Room 8426, Nassif Building, 400 7th Street, SW., Washington, DC 20590. Comments and rebuttal comments on the application may be submitted to the Dockets Branch at the above address, and should include the Docket Number, IRA-41. Three copies are requested. A copy of each comment and rebuttal comment must also be sent to Grant R. Brooker, Esq., Corporate Counsel, McGil Specialized Carriers, Inc., P.O. Box 6426-A, Marietta, Georgia 30065 and to Elizabeth Viesca, Esq., Assistant City Attorney, City of San Antonio, 214 W. Mueva St., San Antonio, TX 78207, and that fact certified to at the time comment is submitted to the Dockets Branch. (The following format is suggested: "I hereby certify that copies of this comment have been sent to Mr. Brooker and Ms. Viesca at the addresses specified in the **Federal Register**.")

FOR FURTHER INFORMATION CONTACT: Edward H. Bonekemper, III, Office of the Chief Counsel, Research and Special Programs Administration, 400 7th Street, SW., Washington, DC 20590, telephone 202-366-4401.

SUPPLEMENTARY INFORMATION:

1. Background

The HMTA (49 App. U.S.C. 1801 et seq.) at section 112(a) (49 App. U.S.C. 1811(a)) expressly preempts "any requirement, of a State or political subdivision thereof, which is inconsistent with any requirement" of the HMTA or the HMR issued thereunder.

Procedural regulations implementing section 112(a) of the HMTA and providing for the issuance of inconsistency rulings are codified at 49 CFR 107.201 through 107.211. An inconsistency ruling is an advisory administrative opinion as to the relationship between a state or political subdivision requirement and a requirement of the HMTA or HMR. Section 107.209(c) sets forth the following factors which are considered in determining whether a state or local is inconsistent:

(1) Whether compliance with both the state or local requirement and the HMTA or HMR is possible (the "dual compliance" test); and

(2) The extent to which the state or local requirement is an obstacle to the accomplishment and execution of the HMTA and the HMR (the "obstacle" test).

2. The Application for Inconsistency Ruling

On September 2, 1987, McGil Specialized Carriers, Inc., (McGil) filed an application for an administrative ruling seeking a determination that a certain provision of the City of San Antonio (Texas) Code, adopting the 1979 Edition of the Uniform Fire Code, is, to a limited extent, inconsistent with the HMR. McGil contends that Section 11-31 of the San Antonio Code, entitled "Adoption of the Uniform Fire Code," is inconsistent with the HMR to the extent that it adopts Article 77, Section 302(j) of the 1979 Edition of the Uniform Code.

McGil contends that, on June 4, 1987, San Antonio cited one of McGil's drivers for failure to display an "Explosives" sign on a motor vehicle in violation of Article 77, Section 302(j) of the Uniform Fire Code.The vehicle was transporting a shipment of two skids of "CLS Launchers" and two boxes of "Electric Squibb Class C Explosives" from Sunnyvale, California to Titusville, Florida. The vehicle did not have an "Explosives" placard affixed to it, which, McGil alleges, would have been in violation of the HMR.

McGil asserts that Section 77.302(j) of the Uniform Fire Code is unduly vague. Section 77.302(j) provides as follows:

> Vehicles transporting explosives shall display explosives signs on both sides, front and rear conforming to the requirements of the Vehicle Code.

McGil alleges that the term "Vehicle Code" is defined neither in the Uniform Fire Code nor in the local ordinance of the City of San Antonio. McGil further claims that there is no provision which qualifies the language of this section to make it consistent with the HMR.

McGil states that the authors of the Uniform Fire Code are considering a proposal by the Institute of Makers of Explosives to change several provisions relating to explosive materials so that they will consistent with the HMR. McGil states that this proposal would change Section 77.302(j) to read:

> Vehicles transporting explosives shall display all placards, lettering or numbering required by the United States Department of Transportation.

McGil contends that Section 77.302(j) conflicts with the HMR. It asserts that the pertinent sections of the HMR (49 CFR) with which there is an inconsistency are, and characterizes them, as follows:

(1) Section 172.504, Table 1 requires that "Explosives A" and "Explosives B" placards be displayed when materials classified under this Table are transported.

(2) Section 172.504, Table 2 requires that "Dangerous" placards be displayed for Class C explosives.

(3) Section 172.504(c) provides that no placard is required when the gross weight of all hazardous materials covered by Table 2 is less than 1,000 pounds.

(4) Section 172.502(a)(2) prohibits the display of any placard other than one which represents a hazard of the hazardous material being transported.

McGil also seeks comparison with §§ 172.519 et seq., 172.521, 172.522, and 172.523. In summary, McGil contends that if "Explosives" signs required by the San Antonio Code provision and the Uniform Fire Code had been displayed, it would have been in violation of these Federal regulations prohibiting such placarding. It urges a finding of inconsistency under both the "dual compliance" and "obstacle" tests.

3. Public Comment

Comments should be restricted to the issue of whether Section 11-31 of the City of San Antonio Code is inconsistent with the HMR to the extent that it adopts Article 77, section 302(j) of the

1979 Edition of the Uniform Fire Code. Persons intending to comment on the application should examine the complete application in the RSPA Dockets Branch, and the procedures governing the Department's consideration of applications for inconsistency rulings (49 CFR 107.201–107.211).

Alan I. Roberts,

Director, Office of Hazardous Materials Transportation.

Issued in Washington, DC, on October 30, 1987.

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