

DEPARTMENT OF TRANSPORTATION**Research and Special Programs Administration**

49 CFR Parts 171, 172, 173, 175, 176, 178

[Docket No. HM-215B; Notice No. 96-20]

RIN 2137-AC82

Harmonization With the United Nations Recommendations, International Maritime Dangerous Goods Code, and International Civil Aviation Organization's Technical Instructions

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

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: This notice proposes to amend the Hazardous Materials Regulations to maintain alignment with corresponding provisions of international standards. Because of recent changes to the International Maritime Dangerous Goods Code (IMDG Code), the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Technical Instructions), and the United Nations Recommendations on the Transport of Dangerous Goods (UN Recommendations), these proposed revisions are necessary to facilitate the transport of hazardous materials in international commerce.

DATES: Comments must be received by November 25, 1996.

ADDRESSES: Address comments to the Dockets Unit (DHM-30), Research and Special Programs Administration, U.S. Department of Transportation, Washington, D.C. 20590-0001. Comments should identify the docket and be submitted in five copies. Persons wishing to receive confirmation of receipt of their comments should include a self-addressed stamped post card. The Dockets Unit is located in Room 8421 of the Nassif Building, 400 Seventh Street, SW., Washington, D.C. Public dockets may be reviewed between the hours of 8:30 a.m. and 5 p.m. Monday through Friday, except for Federal holidays.

FOR FURTHER INFORMATION CONTACT: Bob Richard, Assistant International Standards Coordinator, telephone (202) 366-0656, or Beth Romo, Office of Hazardous Materials Standards, telephone (202) 366-8553, Research and Special Programs Administration, U.S. Department of Transportation, 400 Seventh Street, S.W., Washington, D.C. 20590-0001.

SUPPLEMENTARY INFORMATION:**I. Background**

On December 21, 1990, the Research and Special Programs Administration (RSPA) published a final rule [Docket HM-181; 55 FR 52402] which comprehensively revised the Hazardous Materials Regulations (HMR), 49 CFR Parts 171 to 180, with respect to hazard communication, classification, and packaging requirements, based on the UN Recommendations. One intended effect of the rule was to facilitate the international transportation of hazardous materials by ensuring a basic consistency between the HMR and international regulations.

The UN Recommendations are not regulations, but are recommendations issued by the UN Committee of Experts on the Transport of Dangerous Goods. These recommendations are amended and updated biennially by the Committee of Experts and are distributed to nations throughout the world. They serve as the basis for national, regional, and international modal regulations (specifically the IMDG Code, issued by the International Maritime Organization (IMO), and the ICAO Technical Instructions, issued by the ICAO Dangerous Goods Panel). In 49 CFR 171.12, the HMR authorize shipments prepared in accordance with the IMDG Code if all or part of the transportation is by vessel, subject to certain conditions and limitations. Offering, accepting and transporting hazardous materials by aircraft, in conformance with the ICAO Technical Instructions, and by motor vehicle either before or after being transported by aircraft, are authorized in § 171.11 (subject to certain conditions and limitations).

On December 29, 1994, RSPA issued a final rule [Docket HM-215A; 59 FR 67390] amending the HMR by incorporating changes to more fully align the HMR with the seventh and eighth revised editions of the UN Recommendations, Amendment 27 to the IMDG Code and the 1995-96 ICAO Technical Instructions. The final rule provided consistency with international air and sea transportation requirements which became effective January 1, 1995.

This NPRM proposes changes to the HMR based on the ninth revised edition of the UN Recommendations, the 1997-98 ICAO Technical Instructions, and Amendment 28 to the IMDG Code. It is intended to more fully align the HMR with international air and sea transport requirements which become effective on January 1, 1997. Other proposed changes are based on feedback from the regulated industry and RSPA initiatives.

II. Overview of Proposed Changes

Some of the more significant proposed amendments in this notice include:

- A new definition for "Aerosol" and two new definitions for packagings—"salvage packaging" and "intermediate packaging"—would be added. "Intermediate packaging" is a term used for explosives packagings in the explosive packaging tables.
- New provisions for marking and use of salvage packagings.
- Amendments to the Hazardous Materials Table (HMT) which add, revise or remove certain proper shipping names, hazard class, packing groups, special provisions, packaging authorizations, air transport quantity limitations and vessel stowage requirements.
- Addition and removal of certain entries to the List of Marine Pollutants.
- New packaging requirements for explosives.
- More specific tests and criteria for classifying and assigning packing groups to flammable solids, pyrophoric liquids and solids, self-heating materials and water reactive materials.
- New definitions and packing group assignments for Division 5.1 solid and liquid materials based on new test methods and criteria.
- Revised definitions and packaging requirements for Division 5.2, Organic Peroxides including amendment of the diluent type B definition and requirements pertaining to the use of diluents for desensitization of organic peroxides.
- New criteria for classifying and assigning packing groups to mixtures of Division 6.1 materials possessing oral and dermal toxicity hazards.
- Addition of new self-reactive substances and revision of certain other self-reactive substances, based on amendments to Table 14.4 in the UN Recommendations.
- Amendments to the requirements for 31HZ2 composite intermediate bulk containers (IBCs).

III. Summary of Regulatory Change by Section**Part 171**

Section 171.7. Various American Society for Testing and Materials (ASTM) standards would be added or updated, including an ASTM standard for flash point determination (ASTM D-3828-93) which establishes whether a material is capable of sustaining combustion in relation to classifying flammable liquids (ASTM D-4206-94),

and the ASTM standard for assessing corrosivity to metals (ASTM G 31-72 (Reapproved 1995)). ASTM D-3828-93 is the Standard Test Method for Flash Point by Small Scale Closed Tester. This method is equivalent to ASTM D-3278 but specifically applies to testing petroleum products and lubricants. ASTM D 4206-89 (Reapproved 1994) Standard Test Method for Sustained Burning of Liquid Mixtures by the Setaflash Apparatus (Open Cup) is equivalent to the test method currently provided in Part 173, Appendix H—Method of Testing for Sustained Combustibility.

In addition, the most current versions of the ICAO Technical Instructions, the IMDG Code, the UN Recommendations and the UN Manual of Tests and Criteria would be incorporated. Two references would be added for incorporation under the Transportation of Dangerous Goods (TDG) Regulations issued by Transport Canada. These new entries reference Schedule 21 and Schedule 22, which were adopted in 1995.

Section 171.8. A new definition for "Aerosol" would be added, consistent with provisions of § 173.306(a)(3). The definition for aerosols in the IMDG Code and the ICAO Technical Instructions includes containers that are filled solely with a gas, whereas aerosol containers authorized in § 173.306(a)(3) may be charged with a gas only for the purpose of expelling a liquid, powder or paste. Corresponding proposed changes in §§ 171.11, 171.12 and 171.12a would clarify the proposed definition of aerosols as it applies to aerosols imported in accordance with the ICAO Technical Instructions, the IMDG Code and the TDG Regulations.

In addition, a definition for "SADT" (self-accelerating decomposition temperature) would be added with a reference to § 173.21(f) for determining SADT. New definitions for salvage packagings and intermediate packagings would be added consistent with those in the UN Recommendations. Intermediate packagings are prescribed in Part 173 for certain explosives.

Sections 171.11, 171.12, and 171.12a. These sections authorize shipments prepared under the ICAO Technical Instructions, the IMDG Code, and the TDG Regulations, respectively. The following proposed changes apply to all three sections.

RSPA is proposing to remove the requirement to include the words "Dangerous When Wet" on shipping papers in association with the basic description for Division 4.3 materials. This proposal is based on RSPA's belief that the "Dangerous When Wet" hazard is adequately communicated through an

indication of the Division 4.3 hazard class as part of the basic description on shipping papers. In addition, packagings are required to be labeled with Division 4.3 labels, and transport vehicles and bulk packagings are required to display Division 4.3 placards. Furthermore, emergency responders primarily use the UN number or shipping description as a basis for determining appropriate actions to be taken in the initial stages of an incident involving hazardous materials.

The words "Toxic Inhalation Hazard" would be added as an alternative to "Poison Inhalation Hazard" or "Inhalation Hazard" and "Toxic" or "Toxic Gas" would be added as alternatives to "Poison" or "Poison Gas".

New provisions would be added, as discussed above for § 171.8, to allow only aerosols meeting the definition of "aerosol" in § 171.8 or small receptacles containing gas conforming to §§ 173.304 and 173.306 to be imported in accordance with the ICAO Technical Instructions, IMDG Code and TDG regulations.

Part 172

Section 172.101. A new paragraph (c)(14) would be added to allow isomers of materials listed in the HMT which meet the same hazard class, subsidiary risk and packing group to be identified using the listed shipping description. A new paragraph (c)(15) would be added to allow hydrates of inorganic substances to be described using the proper shipping name for the equivalent anhydrous material. Paragraph (f) would be revised to acknowledge that Division 6.2 materials (other than regulated medical waste) do not have packing group assignments.

The Hazardous Materials Table (HMT) would be revised as follows:

New Packing Group I entries would be added for certain commodities, including Adhesives, Resin solutions, Paint and Paint-related material, Disinfectants, Dyes, and Oxidizing liquid, n.o.s.

An alternative proper shipping name "Refrigerant gas" plus the "R" number would be added to numerous entries, consistent with the ninth revised edition of the UN Recommendations. Current entries that contain an italicized "R" number would be revised to include the "R" number in Roman type as part of the "Refrigerant gas" alternative proper shipping name.

Certain Class 1 entries assigned NA numbers for domestic transportation would be removed. These include Explosive pest control devices and Propellant explosives (both liquid and

solid). Domestic exceptions for these explosives would be incorporated into the proposed explosive packing instructions, where applicable.

New entries would be added for compressed gases and liquefied gases which are toxic and also meet flammable, corrosive, or oxidizing criteria.

Packaging authorizations for the current entry "Gas, refrigerated liquid" would be revised to reference the packaging provisions for cryogenic liquids. In addition, two new entries "Gas, refrigerated liquid, flammable, n.o.s." and "Gas, refrigerated liquid, oxidizing, n.o.s." would be added.

Several entries, such as Phenyl isocyanate and Phosphorous trichloride, would be amended by revising the primary hazard class in Column (3) and/or Packing Group in Column (5). For some entries, such a change in hazard class or packing group also would result in a corresponding removal of the "+" in Column (1).

In Column (2) of the HMT, several proper shipping names are listed in Roman type, indicating that they are authorized proper shipping names. However, they are not listed as proper shipping names under the UN Recommendations, the ICAO Technical Instructions, or the IMDG Code. For consistency with the international regulations, RSPA proposes to amend a number of proper shipping names, including "Aircraft evacuation slides", from Roman type to italics to indicate that they are no longer authorized proper shipping names. RSPA is not proposing to remove them from the § 172.101 Table because they provide guidance by referencing authorized proper shipping names, e.g., "Calcium selenate, see Selenates or Selenites".

Certain entries, such as Diphenylmethane-4,4'-diisocyanate or Methyl benzoate, (which do not meet toxicity criteria for a Division 6.1 Packing Group III material), would be removed. These commodities were deleted from the List of Dangerous Goods in the ninth revised edition of the UN Recommendations.

Various proper shipping names would be clarified by the addition or removal of the word "compressed", "inhibited", "liquefied" or "solution".

RSPA is proposing adjustments to quantity limits for certain materials identified as poisonous by inhalation when transported by passenger or cargo aircraft or passenger railcar. Numerous proposed changes are consistent with current quantity limits prescribed in the ICAO Technical Instructions. Certain other materials would be forbidden for transportation by aircraft or passenger

railcar because they have been identified as poisonous by inhalation and assigned Hazard Zone A for liquids and Hazard Zones A and B for gases.

Other changes to the HMT include: (1) creating separate entries for "Ammonia, anhydrous" and "Ammonia solutions"; (2) adding "First aid kits" as an alternative proper shipping name for the entry "Chemical kits" if the first aid kits contain hazardous materials; (3) adding new entries for "Chemical sample, toxic, liquid (or solid)" to recognize samples taken for analysis in conjunction with procedures addressing antiproliferation measures associated with chemical weapons; (4) combining entries for "Chlorite solution" and "Hypochlorite solutions"; (5) removing "Methyl alcohol" as an authorized proper shipping name for "Methanol" but retaining it in italics as a cross reference; (6) adding a Class 3 subsidiary risk in Column (6) for several entries; and (7) creating a new entry for "Aerosols (engine starting fluid)" to indicate that these aerosols are prohibited on both passenger and cargo only aircraft.

Appendix B to § 172.101. A number of materials would be added, removed or amended in the HMR's List of Marine Pollutants. The changes would be based on Amendment 27 (to the extent not already incorporated in HM-215A) and Amendment 28 of the IMDG Code.

Section 172.102. A new special provision 15 would be added to prescribe quantity limits and packaging for chemical kits and first aid kits. Other special provisions would be added to authorize reclassification for certain commodities and to provide exceptions based on testing, concentrations, or stabilization for materials such as Maneb, aqueous solutions of inorganic solid nitrates, Ferrocium, and Ammonium nitrate.

A new special provision A25 would be added to authorize polyester resin kits in certain quantities to be packaged in non-specification packagings for transportation by aircraft.

In addition to revising the proper shipping name "Aluminum smelting by-products or Aluminum remelting by-products" (formerly Aluminum processing by-products), a new special provision B115 would be assigned to this entry to permit certain non-specification bulk packagings for these products.

Special provision N50, which provides an exception from Class 9 labeling for marine pollutants that are not hazardous substances or hazardous wastes, would be removed. This is consistent with Amendment 28 of the IMDG Code, which requires that Class 9

substances for which no label was required must now display a Class 9 label.

Section 172.203. RSPA is proposing to remove the requirement in paragraph (j) that the words "Dangerous When Wet" be annotated on shipping papers. As discussed previously, RSPA believes that the "Dangerous When Wet" hazard is adequately communicated through an indication of the Division 4.3 hazard class as part of the basic description on shipping papers. In addition, packagings are required to be labeled with Division 4.3 labels, and transport vehicles and bulk packagings are required to display Division 4.3 placards. Furthermore, emergency responders primarily use the UN number or shipping description as a basis for determining appropriate actions to be taken in the initial stages of an incident involving hazardous materials.

The list of generic proper shipping names which require inclusion of a technical name in paragraph (k)(3) would be amended by adding several entries for hydrocarbon gases, hydrocarbon gas mixtures, and compressed or liquefied toxic gases which have a subsidiary hazard of oxidizer, corrosivity or flammability.

In addition, RSPA is proposing to add the word "Toxic" and the phrase "Toxic-Inhalation Hazard" in paragraph (m)(3) as an alternative to "Poison". RSPA also is proposing a new paragraph (m)(4) to provide an exception from the requirement to indicate on a shipping paper that a material is toxic if the toxicity of the material is based solely on corrosive destruction of tissue rather than systemic poisoning. This proposed exception corresponds to an exception from subsidiary risk labeling adopted under HM-215A.

Part 173

Section 173.3. Paragraph (c)(3) would be amended to authorize the word "SALVAGE" as an alternative marking for salvage drums. In addition, a new paragraph (c)(7) would be added to allow the use of salvage packagings which have been certified and marked to UN standards. However, RSPA is not proposing to make mandatory other marking requirements adopted in the UN Recommendations such as: (1) adding the letter "T" in the package specification markings following the package identification code (e.g. 1A2T/Y300/...); (2) annotating the words "SALVAGE PACKAGING" after the basic description on the shipping papers; and (3) adopting salvage packaging performance tests requiring salvage packagings to be tested at the Packing Group II level using liquid as

the test medium. It is RSPA's view that additional costs incurred by such marking and performance testing requirements are not justified because salvage packaging provisions currently prescribed in the HMR are adequate.

Section 173.21. The last sentence of paragraph (f) would be revised to correctly reference the UN Manual of Tests and Criteria.

Section 173.32c. Based on a letter from an intermodal portable tank owner requesting consistency with a provision in the IMDG Code, RSPA is proposing to revise paragraph (j) to require that an intermodal (IM) portable tank or its compartment having a volume greater than 7500 L must have a minimum filling density of 80 percent. Currently, the HMR prohibits any IM portable tank or compartment of an IM portable tank having a volume greater than 5000 L from being filled to less than 80 percent by volume. This proposed change is consistent with other international codes related to minimum filling requirements. RSPA is soliciting comments concerning how many compartmented IM portable tanks are currently in service, and the capacities of those tanks.

Section 173.35. Under the IMDG Code, 31HZ2 composite IBCs are required to be transported in closed freight containers or transport vehicles for transportation by vessel. RSPA is not proposing any comparable requirement for domestic transportation by any mode at this time.

Section 173.60. This section would be amended for consistency with the UN Recommendations. The proposed amendments are largely editorial and serve to streamline and consolidate general requirements for packaging explosives while eliminating redundant and unnecessary requirements. These proposed amendments serve to more clearly convey the general packaging requirements applicable to packaging explosives for transportation without imposing new requirements.

Section 173.62. The Explosives Table, which identifies explosives packing methods, would be revised to be consistent with recent changes adopted in the UN Recommendations. New packaging methods have been developed by the UN Committee of Experts on the Transport of Dangerous Goods. This effort incorporated suggestions from the explosives industry and national defense departments, including the US Department of Defense. The new methods would be significantly more flexible than the methods currently prescribed in the Explosives Table and would incorporate a broader range of

options for authorized inner, intermediate and outer packagings than currently permitted. In several instances, inner and intermediate packagings would no longer be required. For instance, certain blasting explosives with hard outer casings would not be required to be packaged in inner packagings. A new packing method (Packing Instruction 117) would incorporate authorization to transport certain Division 1.1D and 1.5D explosives in IBCs. Many of the explosive packing methods amendments were based on comments received from Department of Defense and explosive industry representatives, and on competent authority approvals and exemptions issued to shippers of explosives.

The current packing method designations (for example, E-15, E-159) would be replaced by Explosives Packing Instructions consistent with those adopted in the ICAO Technical Instructions. The proposed Packing Instructions would use designations ranging from Packing Instruction 101 through 144. Twenty-nine Packing Instructions are proposed. Packing Instruction 101 would be similar to E-103 in the current regulations in that it would cover explosives requiring competent authority packaging approval. Packing Instructions 110 through 117 would apply to explosive substances. Packing Instructions 130 through 144 would apply to explosive articles.

Under the current requirements five packing methods require competent authority approval (E-102, E-103, E-138, E-146 and E-149). The proposed Packing Instruction 101 would include all explosives requiring competent authority packaging approval under a single packing method. In addition, many explosives (particularly those shipped under not otherwise specified (n.o.s.) entries) which currently require competent authority packaging approval would be assigned to specific packing methods eliminating the requirement for the competent authority to approve the packaging for these explosives. A statement indicating that Packing Instruction 101 may be used for any explosive, subject to the approval of the Associate Administrator for Hazardous Materials Safety, would be added to authorize the competent authority to approve packagings not covered in the Explosives Packing Instructions. If adopted, these amendments would enhance safety, provide greater packaging flexibility and reduce the regulatory and paperwork burden on shippers of explosives.

The paragraph (d) table of particular packaging requirements and exceptions would be removed, as these provisions would be incorporated into the proposed Explosives Packing Instruction Table and the general packing requirements in § 173.60.

For clarity, and because of the extensive changes to the content and format of the tables, the entire proposed Explosives Table and Explosives Packing Instruction Table have been reprinted.

Section 173.124. Amendments to the test methods for flammable solids, pyrophoric materials, self heating substances and water reactive materials are proposed, consistent with the UN Recommendations. The Self-Reactive Materials Table would be updated to include seven new substances, consistent with the UN Recommendations. In the ninth revised edition of the UN Recommendations, Figure 14.2 (Flow Chart for Self-Reactive Substances) was amended. Paragraph (a)(2)(iv) of that chart is used to determine the generic type for a self-reactive material.

Section 173.125. The criteria for classification and packing group assignment for readily combustible materials of Division 4.1 would be amended for consistency with the UN Recommendations. Reference to Appendix E (which would be removed) would be replaced by references to the UN Manual of Tests and Criteria.

In paragraph (b), the UN burning rate test and criteria for classification would be incorporated. The classification criteria for readily combustible materials would be amended to require powdered, granular and pasty materials to be classified in Division 4.1 when the burning time for one or more of the test runs, according to the UN burning rate test method, is less than 45 seconds or the rate of burning is more than 2.2 mm/s. Powders of metals or metal alloys would be classified in Division 4.1 when they can be ignited and the reaction spreads over the whole length of the sample in 10 minutes or less.

Readily combustible solids would be assigned to Packing Group II if the burning time is less than 45 seconds and the flame passes the wetted zone. Packing Group II would be assigned to powders of metal or metal alloys if the zone of reaction spreads over the whole length of the sample in five minutes or less. Packing Group III would be assigned if the burning time is less than 45 seconds and the wetted zone stops the flame propagation for at least four minutes. Packing Group III would be assigned to metal powders if the reaction spreads over the whole length

of the sample in more than five minutes but not more than ten minutes.

In paragraph (c), Packing Group II and III assignment criteria for self-heating materials would be amended. The criteria would be revised to more accurately account for the volume of material being transported. For instance, certain self-heating materials which are packaged and transported in volumes less than 3 cubic meters or in quantities less than 450 liters would not be subject to the requirements of the HMR.

In paragraph (d), the packing group assignment criteria would be amended consistent with the UN Recommendations. These amendments would not significantly affect the packing group assignment criteria, but would be purely editorial to clarify the meaning of "spontaneous ignition."

Section 173.127. Proposed changes to this section would amend the definition for solid oxidizers and introduce a new definition, test, and criteria for liquid oxidizers. Liquid oxidizers would not be classified by analogy as currently required in the HMR. The references to Appendix F would be replaced by a reference to the UN Manual of Tests and Criteria.

Paragraph (b)(2) would be revised to include a statement indicating that the material must be tested in the concentration offered for transport. The criteria for packing group assignment would be revised to specify the ratios of solid oxidizing material and cellulose used in assessing the burning characteristics for comparison with the burning characteristics of potassium bromate, potassium perchlorate or potassium persulphate and cellulose mixtures. The revised criteria would be clearer, more precise and would eliminate the ambiguity associated with the criteria currently provided in the HMR.

Paragraph (b)(3) would be replaced with packing group assignment criteria for liquid oxidizers adopted in the ninth revised edition of the UN Recommendations. Incorporating specific criteria for liquid oxidizers would provide a more precise means for shippers to classify these products and would eliminate ambiguity involved in classifying these materials by analogy.

Section 173.128. In paragraph (c)(3) the reference to the UN Manual of Tests and Criteria would be amended to reflect its correct title. Paragraph (d) would be amended to update the reference to Figure 11.2 (Classification and Flowchart Scheme for Organic Peroxides).

Section 173.132. A new paragraph (b)(3)(iii) would be added to clarify when solid and liquid materials are

required to be tested for acute toxicity by inhalation. Current paragraph (c) would be redesignated as paragraph (d), and a new paragraph (c) would be added to authorize three methods for use in classifying and assigning packing groups to mixtures of materials possessing oral and dermal toxicity characteristics.

Section 173.136. A new paragraph (c) would be added to clarify that skin corrosion test data developed prior to September 30, 1995, would continue to be valid. In the preamble to the HM-215A final rule (December 29, 1994; 59 FR 67400), RSPA stated that it would not require retesting of materials classified under the previous test method in Appendix A of Part 173.

Section 173.137. Paragraph (b) would be revised to clarify that, when determining whether a material meets Class 8 Packing Group II, the material cannot meet Class 8 Packing Group I.

Section 173.152. Limited quantity provisions would be added for polyester resin kits being transported by highway, rail or vessel.

Section 173.162. A new sentence would be added at the end of the paragraph to provide an exception from the HMR for small quantities of gallium contained in manufactured articles or apparatuses.

Section 173.166. This section would be revised to remove all references to "seat-belt modules," consistent with changes in the UN Recommendations. Packaging provisions in paragraph (e) would be revised to add drums, jerricans, and plastic boxes to the array of authorized packagings. In addition to non-specification containers currently authorized for transporting air bags within a controlled distribution system, RSPA is proposing to also specifically authorize dedicated handling devices.

Section 173.185. This section would be revised for consistency with changes adopted in the ninth revised edition of the UN Recommendations and in the ICAO Technical Instructions.

Currently there are different quantity limitations in the HMR for determining whether lithium cells and batteries may be designated as items of Class 9 on the basis of whether they meet the tests and criteria provided in the UN Manual of Tests and Criteria. These limitations also apply to lithium cells and batteries contained in equipment. The limitations are based on whether the cells or batteries will be transported on passenger or cargo aircraft. Consistent with the ICAO Technical Instructions, RSPA is proposing to allow cells containing not more than 12 grams of lithium or lithium alloy and batteries containing not more than 500 grams of

lithium or lithium alloy to be designated as Class 9 when transported by passenger or cargo aircraft. This would also apply to lithium cells and batteries contained in equipment under specified conditions.

RSPA is also proposing to expand the types of packagings authorized for transporting cells and batteries by aircraft to include an array of boxes, drums, and jerricans. Additionally, RSPA is proposing to eliminate the requirement for equipment containing lithium cells and batteries to be packaged in waterproof outer packaging if the equipment itself is constructed to be waterproof (*i.e.*, lifesaving equipment designed to function underwater).

Sections 173.201–173.203 and 173.211–173.213. Aluminum jerricans, 3B1 or 3B2, would be added as authorized packagings in each of these sections.

Section 173.220. Consistent with proposed changes in § 176.905 for wet batteries transported by vessel, paragraph (c)(1) would be revised to remove the reference to § 176.905 and to state that a motor vehicle or mechanical equipment which is electrically powered is not subject to the HMR.

Section 173.224. In paragraph (b), the Self-Reactives Materials Table would be revised by adding seven new entries. The Packing Method Table for Generic Types in paragraph (c)(3) would be removed because the information is specifically listed in the Self-Reactives Materials Table, and paragraph (c)(4) would be redesignated paragraph (c)(3).

Section 173.225. Paragraph (b) explains column headings in the Organic Peroxide table. Specifically, paragraph (b)(2) describes the information comprised in the column entitled "ID Number." The word "Exempt" occasionally appears in place of an identification number, but is not defined in § 173.225. In this notice, RSPA proposes to amend paragraph (b)(2) of § 173.225 by adding a statement to clarify that the word "Exempt," if it appears in the Organic Peroxide Table, means that the material is not regulated as an organic peroxide.

In paragraph (b)(4)(ii), the use of type B diluents for desensitization of organic peroxides would be authorized for all organic peroxides provided that the boiling point is at least 60 °C (140 °F) greater than the SADT of the organic peroxide in a 50 kg package. Paragraph (b)(6) would be revised to indicate that lower control temperatures are required when IBCs and bulk packagings are used.

Paragraph (c)(2), which prohibits IBCs and bulk packagings unless authorized through an approval, would be

removed. The Packing Method Table for Generic Types in paragraph (c)(3) would be removed because the information is specifically listed in the Organic Peroxides Table, and paragraph (c)(4) would be redesignated paragraph (c)(3).

Paragraph (d) would be revised to consolidate two tables specifying packagings for liquid and solid organic peroxides and self-reactive materials into one table for both liquids and solids.

Paragraph (e)(5) would be revised to authorize the transport of stabilized peroxyacetic acid, type F (containing not more than 17 percent peroxyacetic acid) in type 31A IBCs. This proposal is based on a competent authority approval issued to authorize the use of 31A stainless steel IBCs. A corresponding proposal made by the United States has been tentatively approved by the UN Committee of Experts for incorporation into the tenth revised edition of the UN Recommendations.

Section 173.226. Paragraph (c)(1) would be amended to add aluminum jerricans as an authorized packaging.

Sections 173.316 and 173.318. These sections would be amended by adding a requirement for mixtures of cryogenic liquids, where charging requirements are not specifically prescribed, to be shipped in packagings approved by the Associate Administrator for Hazardous Materials Safety.

Appendix E and Appendix F. The guidelines for classification and packing group assignment for Classes 4 and 5 would be removed. RSPA believes the UN Manual of Tests and Criteria is a more appropriate reference for these test methods. By removing Appendix E and F, RSPA will decrease the number of amendments to the HMR necessary for consistency with the UN Manual and will reduce the number of pages in the HMR.

Part 175

Section 175.10. Paragraph (a)(22) would be amended to allow mercury thermometers (in addition to mercury barometers) to be carried in carry-on baggage by a representative of a government weather bureau or similar official agency, provided the individual advises the aircraft operator of its presence in the baggage.

Part 176

Section 176.78. Paragraph (k), which pertains to stowage of power-operated industrial trucks on board a vessel, would be revised to correspond to proposed revisions in § 176.905.

Section 176.84. A new note 17 would be added to prescribe segregation for a

compressed or liquefied gas which is toxic, flammable and corrosive.

Section 176.905. RSPA is proposing to revise the provisions for transporting motor vehicles or mechanical equipment powered by internal combustion engines by vessel to reflect recent changes which have occurred in the IMDG Code and in response to comments received during public outreach meetings. In Amendment 27 of the Code, the proper shipping name "Engines, Internal Combustion", UN3166 was added in order to regulate motor vehicles and other equipment powered by internal combustion engines. However, this proper shipping name has been removed and these materials were deregulated in Amendment 28 of the IMDG Code. Although RSPA is not providing total relief for the transport of motor vehicles by vessel, it is appropriate to modify the vessel carriage provisions to allow battery cables to remain connected in transport and allow vehicles transported on roll-on roll-off ships to be transported unregulated. Additionally, revisions to this section would clarify transport provisions for vehicles fueled with compressed gas and for certain battery-powered vehicles.

Part 178

Section 178.511. This section would be amended to adopt requirements for aluminum jerricans consistent with the UN Recommendations. Packaging codes 3B1 and 3B2 would be added. Paragraph (b) would be amended to incorporate construction requirements for aluminum jerricans consistent with the UN Recommendations.

Section 178.703. In paragraph (b)(6) requirements for marking inner receptacles of 31HZ2 composite IBCs would be added. This would require all inner receptacles to be marked with the code number designating the intermediate bulk container design type, the name or symbol of the manufacturer, the date of manufacture and the country authorizing the allocation of the mark. In addition, where the outer casing of a 31HZ2 IBC could be dismantled, each of the detachable parts would be required to be marked with the month and year of manufacture and the name or symbol of the manufacturer.

Section 178.707. In paragraph (c)(2) a new requirement would be added indicating that the outer packaging of 31HZ2 composite IBCs must enclose the inner receptacles on all sides. In paragraph (c)(3) a new requirement would be added indicating that inner receptacles of 31HZ2 composite IBCs must consist of at least three plies of film. In paragraph (c)(6) a new

requirement would be added indicating that IBCs of type 31HZ2 must be limited to a capacity of not more than 1250 liters.

Section 178.815. In paragraph (c)(3) the words "which bear the stacking load" would be added to clarify that rigid plastic IBCs and composite IBCs with plastic outer packagings need to be tested for 28 days at 40 °C (104 °F) when the plastic outer packagings bear the stacking load. As a result of this proposed change, IBCs with plastic outer packagings which are designed with metal corner posts which bear the stacking load would not be required to be tested for 28 days at 40 °C (104 °F).

RSPA is specifying a deadline for comments that is less than the 60 days recommended in Executive Order 12866. This shorter comment period is intended to enable RSPA to develop and issue a final rule to coincide with international standards which become effective on January 1, 1997. RSPA will consider late-filed comments to the greatest extent practicable.

IV. Rulemaking Analyses and Notices

A. Executive Order 12866 and DOT Regulatory Policies and Procedures

This proposed rule is not considered a significant regulatory action under section 3(f) of Executive Order 12866 and, therefore, was not reviewed by the Office of Management and Budget. The rule is not considered a significant rule under the Regulatory Policies and Procedures of the Department of Transportation [44 FR 11034].

B. Executive Order 12612

This proposed rule has been analyzed in accordance with the principles and criteria contained in Executive Order 12612 ("Federalism"). Federal hazardous materials transportation law, 49 U.S.C. 5701-5127, contains an express preemption provision (49 U.S.C. 5125(b)) that preempts State, local, and Indian tribe requirements on certain covered subjects. Covered subjects are:

- (i) the designation, description, and classification of hazardous material;
- (ii) the packing, repacking, handling, labeling, marking, and placarding of hazardous material;
- (iii) the preparation, execution, and use of shipping documents related to hazardous material and requirements related to the number, contents, and placement of those documents;
- (iv) the written notification, recording, and reporting of the unintentional release in transportation of hazardous material; or
- (v) the design, manufacturing, fabricating, marking, maintenance,

reconditioning, repairing, or testing of a packaging or container represented, marked, certified, or sold as qualified for use in transporting hazardous material.

This notice of proposed rulemaking addresses covered subjects under items i, ii, iii and v above and, if adopted as final, would preempt State, local, or Indian tribe requirements not meeting the "substantively the same" standard. Federal hazardous materials transportation law provides at § 5125(b)(2) that if DOT issues a regulation concerning any of the covered subjects DOT must determine and publish in the Federal Register the effective date of Federal preemption. The effective date may not be earlier than the 90th day following the date of issuance of the final rule and not later than two years after the date of issuance. RSPA has determined that the effective date of Federal preemption for these requirements will be 180 days after the effective date of a final rule under this docket. Thus, RSPA lacks discretion in this area, and preparation of a federalism assessment is not warranted.

C. Regulatory Flexibility Act

This proposed rule would incorporate changes introduced in the ninth revised edition of the UN Recommendations, the 1997-98 ICAO Technical Instructions, and Amendment 28 to the IMDG Code. It would apply to offerors and carriers of hazardous materials and would facilitate the transportation of hazardous materials in international commerce by providing consistency with international requirements. U.S. companies, including numerous small entities competing in foreign markets, will be forced to comply with a dual system of regulation, to their economic disadvantage, if the changes proposed in this NPRM are not adopted. The proposed changes are intended to avoid this result. I certify that 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.

D. Paperwork Reduction Act

The requirements for information collection have been approved by the Office of Management and Budget (OMB) under OMB control numbers 2137-0034 for shipping papers and 2137-0557 for approvals. Under the Paperwork Reduction Act of 1995, no person is required to respond to a collection of information unless it displays a valid OMB control number.

E. Regulation Identifier Number (RIN)

A regulation identifier number (RIN) is assigned to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. The RIN number contained in the heading of this document can be used to cross-reference this action with the Unified Agenda.

List of Subjects

49 CFR Part 171

Exports, Hazardous materials transportation, Hazardous waste, Imports, Incorporation by reference, Reporting and recordkeeping requirements.

49 CFR Part 172

Hazardous materials transportation, Hazardous waste, Labels, Markings,

Packaging and containers, Reporting and recordkeeping requirements.

49 CFR Part 173

Hazardous materials transportation, Packaging and containers, Radioactive materials, Reporting and recordkeeping requirements, Uranium.

49 CFR Part 175

Air carriers, Hazardous materials transportation, Radioactive materials, Reporting and recordkeeping requirements.

49 CFR Part 176

Hazardous materials transportation, Maritime carriers, Radioactive materials, Reporting and recordkeeping requirements.

49 CFR Part 178

Hazardous materials transportation, Motor vehicles safety, Packaging and

containers, Reporting and recordkeeping requirements.

In consideration of the foregoing, 49 CFR Chapter I is proposed to 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. 5101–5127; 49 CFR 1.53.

2. In the § 171.7(a)(3) Table, under the entry American Society for Testing and Materials, two new entries would be added in numerical order.

§ 171.7 Reference material.

(a) Matter incorporated by reference.

* * *

(3) Table of material incorporated by reference. * * *

	49 CFR reference
American Society for Testing and Materials	
ASTM D 3828–93, Standard Test Methods for Flash Point by Small Scale Closed Tester	173.120
ASTM D 4206–96 Standard Test Method for Sustained Burning of Liquid Mixtures by the Setaflash Apparatus (Open Cup)	173.120

* * * * *

§ 171.7 [Amended]

3. In addition, in § 171.7, in the table in paragraph (a)(3), the following changes would be made:

a. In the entry ASTM D 93–90, the wording “D 93–90” would be revised to read “D 93–96”.

b. In the entry ASTM D 3278–89, the wording “D 3278–89” would be revised to read “D 3278–96”.

c. In the entry ASTM G 31–72, the wording “(Reapproved 1990)” would be revised to read “(Reapproved 1995)”.

d. Under International Civil Aviation Organization (ICAO), for the entry Technical Instructions for the Safe Transport of Dangerous Goods by Air, the date “1995–1996” would be revised to read “1997–1998”.

e. Under International Maritime Organization (IMO), the entry “International Maritime Dangerous Goods (IMDG) Code, 1990 Consolidated Edition, as amended by Amendment 27 (1994) (English edition)” would be amended by removing the wording “1990 Consolidated Edition, as amended by Amendment 27 (1994)” and adding in its place “1994

Consolidated Edition, as amended by Amendment 28 (1996)”.

f. Under Transport Canada, the entry “Transportation of Dangerous Goods Regulations, 1 July 1985” would be amended by revising the reference “and SOR/94–264 (English edition)” at the end of the entry to read “, SOR/94–264 (English edition), SOR/95–241, and SOR/95–547”.

g. Under United Nations, for the entry “UN Recommendations on the Transport of Dangerous Goods, Eighth Revised Edition (1993)” the wording “Eighth Revised Edition (1993)” would be revised to read “Ninth Revised Edition (1995)”.

h. Under United Nations, for the entry “UN Recommendations on the Transport of Dangerous Goods, Tests and Criteria” the wording “Tests and Criteria, Second Edition, 1990” would be revised to read “Manual of Tests and Criteria, Second Revised Edition, 1995”.

4. In § 171.8, the following definitions would be added in the appropriate alphabetical order to read as follows:

§ 171.8 Definitions and abbreviations.

* * * * *

Aerosol means any non-refillable metal receptacle containing a gas compressed, liquefied or dissolved under pressure, the sole purpose of which is to expel a nonpoisonous (other than a Division 6.1 Packing Group III material) liquid, paste, or powder and fitted with a self-closing release device allowing the contents to be ejected in suspension in a gas.

* * * * *

Intermediate packaging means a packaging which encloses an inner packaging or article and is itself enclosed in an outer packaging.

* * * * *

SADT means self-accelerated decomposition temperature. See § 173.21(f) of this subchapter.

Salvage packagings means special packagings conforming to § 173.3 of this subchapter into which damaged, defective or leaking hazardous materials packages, or hazardous materials that have spilled or leaked, are placed for purposes of transport for recovery or disposal.

* * * * *

5. In § 171.11, paragraph (d)(4) would be revised and a new paragraph (d)(14) would be added, to read as follows:

§ 171.11 Use of ICAO Technical Instructions.

* * * * *

(d) * * *

(4) When a hazardous material that is regulated by this subchapter for transportation by highway is transported by motor vehicle on a public highway under the provisions of this section, the following requirements apply:

(i) The motor vehicle must be placarded in accordance with subpart F of part 172 of this subchapter; and

(ii) The shipping paper must include an indication that the shipment is being made under the provisions of this section or must include the letters "ICAO."

* * * * *

(14) Only aerosols as defined in § 171.8 may be transported in accordance with this section.

§ 171.11 [Amended]

6. In addition, in § 171.11, the following changes would be made:

a. In paragraph (d)(9)(i), the wording "Poison-Inhalation Hazard" would be revised to read "Toxic Inhalation Hazard" or "Poison Inhalation Hazard".

b. In paragraph (d)(9)(iii) the wording "POISON" or "POISON GAS" would be revised to read "TOXIC" or "TOXIC GAS" or "POISON" or "POISON GAS".

7. In § 171.12, a new paragraph (b)(17) would be added to read as follows:

§ 171.12 Import and export shipments.

* * * * *

(b) * * *

(17) Only aerosols as defined in § 171.8 may be transported in accordance with this section.

* * * * *

§ 171.12 [Amended]

8. In addition, in § 171.12, the following changes would be made:

a. In paragraph (b)(8)(i), the wording "Poison-Inhalation Hazard" would be revised to read "Toxic Inhalation Hazard" or "Poison Inhalation Hazard".

b. In paragraph (b)(8)(iii), the wording "POISON" or "POISON GAS" would be revised to read "TOXIC" or "TOXIC GAS" or "POISON" or "POISON GAS".

c. Paragraph (b)(13) would be removed and reserved.

9. In § 171.12a, a new paragraph (b)(16) would be added to read as follows:

§ 171.12a Canadian shipments and packagings.

* * * * *

(b) * * *

(16) Only aerosols as defined in § 171.8 or are assigned UN 2037 may be transported in accordance with this section.

§ 171.12a [Amended]

10. In addition, in § 171.12a, the following changes would be made:

a. In paragraph (b)(5)(i), the words "Poison Inhalation Hazard" would be revised to read "Toxic Inhalation Hazard" or "Poison Inhalation Hazard".

b. In paragraph (b)(5)(iii), the wording "POISON" or "POISON GAS" would be revised to read "TOXIC" or "TOXIC GAS" or "POISON" or "POISON GAS".

c. Paragraph (b)(12) would be removed and reserved.

PART 172—HAZARDOUS MATERIALS TABLE, SPECIAL PROVISIONS, HAZARDOUS MATERIALS COMMUNICATIONS, EMERGENCY RESPONSE INFORMATION, AND TRAINING REQUIREMENTS

11. The authority citation for part 172 would continue to read as follows:

Authority: 49 U.S.C. 5101–5127; 49 CFR 1.53.

12. In § 172.101, new paragraphs (c)(14) and (c)(15) would be added to read as follows:

§ 172.101 Purpose and use of hazardous materials table.

* * * * *

(c) * * *

(14) Isomers of a material which meet the same hazard class or division, subsidiary risks and packing group may be identified using the proper shipping name for that material.

(15) Hydrates of inorganic substances may be identified using the proper shipping name for the equivalent anhydrous substance.

* * * * *

§ 172.101 [Amended]

13. In addition, in § 172.101, in paragraph (f), in the second sentence, the wording "Classes 2 and 7 materials and ORM-D materials" would be revised to read "Class 2, Class 7, Division 6.2 (other than regulated medical wastes), and ORM-D materials".

14. In § 172.101, the Hazardous Materials Table would be amended by removing, adding, or revising, in appropriate alphabetical sequence, the following entries to read as follows:

§ 172.101 Purpose and use of hazardous materials table.

* * * * *

§ 172.101—HAZARDOUS MATERIALS TABLE

(1) Symbols	(2) Hazardous materials descriptions and proper shipping names	(3) Hazard class or division	(4) Identification numbers	(5) PG	(6) Label codes	(7) Special provisions	(8) Packaging (§ 173.***)		(9) Quantity limitations		(10) Vessel stowage	
							(8A) Exceptions	(8B) Non-bulk	(9A) Passenger aircraft/rail	(9B) Cargo aircraft only	(10A) Location	(10B) Other
	[REMOVE]											
	Aluminum processing by-products.	*	*		*					*		
1	Ammonia, anhydrous, liquefied or Ammonia solutions, relative density less than 0.880 at 15 degrees C in water, with more than 50 percent ammonia.	*	*		*					*		
D	Ammonia, anhydrous, liquefied or Ammonia solutions, relative density less than 0.880 at 15 degrees C in water, with more than 50 percent ammonia.	*	*		*					*		
	n-Amylene.	*	*		*					*		
	Boosters with detonator.	*			*					*		
	2-Bromo-2-nitropropane-1,3-diol.	*	*		*					*		
	n-Butyl bromide.	*	*		*					*		
	Butoxyl.	*	*		*					*		
	Butylpropionate.	*	*		*					*		
	Chemical kits.	*	*		*					*		
	Chlorite solution with more than 5 percent but less than 16 percent available chlorine.	*	*		*					*		

§ 172.101—HAZARDOUS MATERIALS TABLE—Continued

(1) Symbols	(2) Hazardous materials descriptions and proper shipping names	(3) Hazard class or division	(4) Identification numbers	(5) PG	(6) Label codes	(7) Special provisions	(8) Packaging (§ 173.***)		(9) Quantity limitations		(10) Vessel stowage	
							Exceptions (8A)	Non-bulk (8B)	Passenger aircraft/rail (9A)	Cargo aircraft only (9B)	Location (10A)	Other (10B)
1	Ammonia, solution, relative density less than 0.880 at 15 degrees C in water, with more than 50 percent ammonia.	* 2.3	UN3318	III	2.3, 8	4	None	304	Forbidden	25 kg	D	40, 57
D	Ammonia, solution, relative density less than 0.880 at 15 degrees C in water, with more than 50 percent ammonia.	* 2.2	UN3318	III	2.2	13	None	304	Forbidden	25 kg	D	40, 57
	2-Bromo-2-nitropropane-1,3-diol.	* 4.1	UN3241	III	4.1	46	151	213	240	25 kg	C	12, 25, 40
	1-Bromobutane	* 3	UN1126	II	3	T1	150	202	242	5 L	B	40
	Butyl propionates	* 3	UN1914	III	3	B1, T1	150	203	242	60 L	A	
	Calcium chlorate aqueous solution. [ADD]	* 5.1	UN2429	III	8	A2, N41, T8	152	203	241	2.5L	B	56, 68, 106
	Chemical kits or First aid kits (containing hazardous materials).	* 9	UN3316	III	9	15	None	None	None	10kg	A	
	Chemical sample, toxic liquid or solid.	* 6.1	UN3315	I	6.1	72	None	None	None	Forbidden	D	40
	Chlorite solution	* 8	UN1908	II	8	A3, A6, A7, B2, N34, T8	154	202	242	1L	B	26
		* 8	UN1908	III	8	A3, A6, A7, B2, N34, T8	154	203	241	5L	B	26

	*	3	UN1139	...	1	.....	3	.....	*	.....	T42	.....	150	.....	*	.....	201	.....	*	.....	243	.....	1L	.....	*	.....	30L	.....	E
Coating solution (includes surface treatments or coatings used for industrial or other purposes such as vehicle undercoating, drum or barrel lining).	*	3	UN1139	...	1	.....	3	.....	*	.....	T42	.....	150	.....	*	.....	201	.....	*	.....	243	.....	1L	.....	*	.....	30L	.....	E
Compressed gas, toxic, corrosive, n.o.s. Inhalation Hazard Zone A.	*	2.3	UN3304	...	2, 3, 8	.....	2, 3, 8	.....	*	.....	1	.....	None	.....	*	.....	192	.....	*	.....	245	.....	Forbidden	.....	Forbidden	.....	D	.....	40
Compressed gas, toxic, corrosive, n.o.s. Inhalation Hazard Zone B.	*	2.3	UN3304	...	2, 3, 8	.....	2, 3, 8	.....	*	.....	2	.....	None	.....	*	.....	302, 305	...	*	.....	314, 315	...	Forbidden	.....	Forbidden	.....	D	.....	40
Compressed gas, toxic, corrosive, n.o.s. Inhalation Hazard Zone C.	*	2.3	UN3304	...	2, 3, 8	.....	2, 3, 8	.....	*	.....	3	.....	None	.....	*	.....	302, 305	...	*	.....	314, 315	...	Forbidden	.....	Forbidden	.....	D	.....	40
Compressed gas, toxic, corrosive, n.o.s. Inhalation Hazard Zone D.	*	2.3	UN3304	...	2, 3, 8	.....	2, 3, 8	.....	*	.....	4	.....	None	.....	*	.....	302, 305	...	*	.....	314, 315	...	Forbidden	.....	Forbidden	.....	D	.....	40
Compressed gas, toxic, flammable, corrosive, n.o.s. Inhalation Hazard Zone A.	*	2.3	UN3305	...	2, 3, 2, 1, 8	.....	2, 3, 2, 1, 8	.....	*	.....	1	.....	None	.....	*	.....	192	.....	*	.....	245	.....	Forbidden	.....	Forbidden	.....	D	.....	17, 40
Compressed gas, toxic, flammable, corrosive, n.o.s. Inhalation Hazard Zone B.	*	2.3	UN3305	...	2, 3, 2, 1, 8	.....	2, 3, 2, 1, 8	.....	*	.....	2	.....	None	.....	*	.....	302, 305	...	*	.....	314, 315	...	Forbidden	.....	Forbidden	.....	D	.....	17, 40
Compressed gas, toxic, flammable, corrosive, n.o.s. Inhalation Hazard Zone C.	*	2.3	UN3305	...	2, 3, 2, 1, 8	.....	2, 3, 2, 1, 8	.....	*	.....	3	.....	None	.....	*	.....	302, 305	...	*	.....	314, 315	...	Forbidden	.....	Forbidden	.....	D	.....	17, 40
Compressed gas, toxic, flammable, corrosive, n.o.s. Inhalation Hazard Zone D.	*	2.3	UN3305	...	2, 3, 2, 1, 8	.....	2, 3, 2, 1, 8	.....	*	.....	4	.....	None	.....	*	.....	302, 305	...	*	.....	314, 315	...	Forbidden	.....	Forbidden	.....	D	.....	17, 40
Compressed gas, toxic, oxidizing, corrosive, n.o.s. Inhalation Hazard Zone A.	*	2.3	UN3306	...	2, 3, 5, 1, 8	.....	2, 3, 5, 1, 8	.....	*	.....	1	.....	None	.....	*	.....	192	.....	*	.....	244	.....	Forbidden	.....	Forbidden	.....	D	.....	40, 89, 90
Compressed gas, toxic, oxidizing, corrosive, n.o.s. Inhalation Hazard Zone B.	*	2.3	UN3306	...	2, 3, 5, 1, 8	.....	2, 3, 5, 1, 8	.....	*	.....	2	.....	None	.....	*	.....	302, 305	...	*	.....	314, 315	...	Forbidden	.....	Forbidden	.....	D	.....	40, 89, 90
Compressed gas, toxic, oxidizing, corrosive, n.o.s. Inhalation Hazard Zone C.	*	2.3	UN3306	...	2, 3, 5, 1, 8	.....	2, 3, 5, 1, 8	.....	*	.....	3	.....	None	.....	*	.....	302, 305	...	*	.....	314, 315	...	Forbidden	.....	Forbidden	.....	D	.....	40, 89, 90
Compressed gas, toxic, oxidizing, corrosive, n.o.s. Inhalation Hazard Zone D.	*	2.3	UN3306	...	2, 3, 5, 1, 8	.....	2, 3, 5, 1, 8	.....	*	.....	4	.....	None	.....	*	.....	302, 305	...	*	.....	314, 315	...	Forbidden	.....	Forbidden	.....	D	.....	40, 89, 90

§ 172.101—HAZARDOUS MATERIALS TABLE—Continued

(1) Symbols	(2) Hazardous materials descriptions and proper shipping names	(3) Hazard class or division	(4) Identification numbers	(5) PG	(6) Label codes	(7) Special provisions	(8) Packaging (§ 173.***)		(9) Quantity limitations		(10) Vessel stowage	
							Exceptions (8A)	Non-bulk (8B)	Bulk (8C)	Passenger aircraft/rail (9A)	Cargo aircraft only (9B)	Location (10A)	Other (10B)
	Compressed gas, toxic, oxidizing, n.o.s. <i>Inhalation Hazard Zone A.</i>	2.3	UN3303	II	2.3, 5.1	1	None	192	Forbidden	Forbidden	D	40
	Compressed gas, toxic, oxidizing, n.o.s. <i>Inhalation Hazard Zone B.</i>	2.3	UN3303	II	2.3, 5.1	2	None	302, 305	Forbidden	Forbidden	D	40
	Compressed gas, toxic, oxidizing, n.o.s. <i>Inhalation Hazard Zone C.</i>	2.3	UN3303	II	2.3, 5.1	3	None	302, 305	Forbidden	Forbidden	D	40
	Compressed gas, toxic, oxidizing, n.o.s. <i>Inhalation Hazard Zone D.</i>	2.3	UN3303	II	2.3, 5.1	4	None	302, 305	Forbidden	Forbidden	D	40
	Detonator assemblies, nonelectric for blasting.	1, 4S	UN0500	II	1, 4S	104	63(f), 63(g)	62	25kg	100kg	A	
	1,2-Dichloropropane	3	UN1279	II	3	N36,T1	150	202	5L	60L	B	
	2-Diethylaminoethanol	8	UN2686	II	8.3	B2, T15, T26.	None	202	1L	30L	A	
	2-Dimethylaminoethyl acrylate.	6.1	UN3302	II	6.1	T8	None	202	5L	60L	D	25
	Disinfectant, liquid, corrosive, n.o.s.	8	UN1903	I	8	A7, B10, T42.	None	202	0.5L	2.5L	B	
	Dyes, liquid, corrosive, n.o.s. or Dye intermediates, liquid, corrosive, n.o.s.	8	UN2801	I	8	11, B10	None	201	0.5L	2.5L	A	
	Firefighters	4.1	UN2623	II	4.1	A1, A19	None	213	25 kg	100 kg	A	
	Furaldehydes	6.1	UN1199	II	6.1, 3	T15	None	202	5L	60L	A	
	Gas cartridges. (flammable) without a release device, non-refillable.	2.1	UN2037	III	2.1		306	304	1 kg	15 kg	B	40

* 2.1	UN3312	...	2.1	...	*	None	...	316	...	*	318	...	Forbidden	D	40	
Gas refrigerated liquid, flammable, n.o.s. (cryogenic liquid).																
2.2	UN3311	...	2.2, 5.1	...		None	...	316	...		318	...	Forbidden	D		
Gas, refrigerated liquid, oxidizing, n.o.s. (cryogenic liquid).																
* 8	UN1791	...	8	...	*	A7, B2, B15, N34, T7, B104, N34, T7	...	202	...	*	242	...	1L	...	30 L	26
...	8	...		154	...	203	...		241	...	5L	...	60 L	26
Hypochlorite solutions																
* 2.3	UN3308	...	2.3, 8	...	*	1	...	192	...	*	245	...	Forbidden	D	40	
Liquefied gas, toxic, corrosive, n.o.s. Inhalation Hazard Zone A.																
2.3	UN3308	...	2.3, 8	...		2	...	304	...		314, 315	...	Forbidden	D	40	
Liquefied gas, toxic, corrosive, n.o.s. Inhalation Hazard Zone B.																
2.3	UN3308	...	2.3, 8	...		3	...	304	...		314, 315	...	Forbidden	D	40	
Liquefied gas, toxic, corrosive, n.o.s. Inhalation Hazard Zone C.																
2.3	UN3308	...	2.3, 8	...		4	...	304	...		314, 315	...	Forbidden	D	40	
Liquefied gas, toxic, corrosive, n.o.s. Inhalation Hazard Zone D.																
* 2.3	UN3309	...	2.3, 2.1, 8	...	*	1	...	192	...	*	245	...	Forbidden	D	17, 40	
Liquefied gas, toxic, flammable, corrosive, n.o.s. Inhalation Hazard Zone A.																
2.3	UN3309	...	2.3, 2.1, 8	...		2	...	304	...		314, 315	...	Forbidden	D	17, 40	
Liquefied gas, toxic, flammable, corrosive, n.o.s. Inhalation Hazard Zone B.																
2.3	UN3309	...	2.3, 2.1, 8	...		3	...	304	...		314, 315	...	Forbidden	D	17, 40	
Liquefied gas, toxic, flammable, corrosive, n.o.s. Inhalation Hazard Zone C.																
2.3	UN3309	...	2.3, 2.1, 8	...		4	...	304	...		314, 315	...	Forbidden	D	17, 40	
Liquefied gas, toxic, flammable, corrosive, n.o.s. Inhalation Hazard Zone D.																
* 2.3	UN3310	...	2.3, 5.1, 8	...	*	1	...	192	...	*	245	...	Forbidden	D	40, 89, 90	
Liquefied gas, toxic, oxidizing, corrosive, n.o.s. Inhalation Hazard Zone A.																
2.3	UN3310	...	2.3, 2.1, 8	...		2	...	304	...		314, 315	...	Forbidden	D	40, 89, 90	
Liquefied gas, toxic, oxidizing, corrosive, n.o.s. Inhalation Hazard Zone B.																
2.3	UN3310	...	2.3, 2.1, 8	...		3	...	304	...		314, 315	...	Forbidden	D	40, 89, 90	
Liquefied gas, toxic, oxidizing, corrosive, n.o.s. Inhalation Hazard Zone C.																

§ 172.101—HAZARDOUS MATERIALS TABLE—Continued

(1) Symbols	(2) Hazardous materials descriptions and proper shipping names	(3) Hazard class or division	(4) Identification numbers	(5) PG	(6) Label codes	(7) Special provisions	(8) Packaging (§ 173.***)		(9) Quantity limitations		(10) Vessel stowage	
							(8A) Exceptions	(8B) Non-bulk	(9A) Passenger aircraft/rail	(9B) Cargo aircraft only	(10A) Location	(10B) Other
	Liquefied gas, toxic, oxidizing, corrosive, n.o.s. <i>Inhalation Hazard Zone D.</i>	2.3	UN3310 ...		2.3, 2.1, 8	4	None	304	Forbidden	Forbidden	D	40, 89, 90
	Liquefied gas, toxic, oxidizing, n.o.s. <i>Inhalation Hazard Zone A.</i>	2.3	UN3307 ...		2.3, 5.1	1	None	192	Forbidden	Forbidden	D	40
	Liquefied gas, toxic, oxidizing, n.o.s. <i>Inhalation Hazard Zone B.</i>	2.3	UN3307 ...		2.3, 5.1	2	None	304	Forbidden	Forbidden	D	40
	Liquefied gas, toxic, oxidizing, n.o.s. <i>Inhalation Hazard Zone C.</i>	2.3	UN3307 ...		2.3, 5.1	3	None	304	Forbidden	Forbidden	D	40
	Liquefied gas, toxic, oxidizing, n.o.s. <i>Inhalation Hazard Zone D.</i>	2.3	UN3307 ...		2.3, 5.1	4	None	304	Forbidden	Forbidden	D	40
	Mannitol hexanitrate wetted or Nitromannite, wetted with not less than 40 percent water, or mixture of alcohol and water, by mass.	* 1.1D	UN0133 ...	II	1.1D	121	None	62	Forbidden	Forbidden	B	IE, 5E
	2-Methyl-2-heptanethiol.	* 6.1	UN3023 ...	I	6.1, 3	2, B9, B14, B32, B74, T38, T43, T45.	None	227	Forbidden	Forbidden	D	40, 102
	Methyl vinyl ketone, stabilized.	* 6.1	UN1251 ...	I	6.1, 3, 8	1, 25, B9, B14, B30, B72, T38, T43, T44.	None	226	Forbidden	Forbidden	B	40
	<i>n</i> -Butyl bromide, see 1-Bromobutane.											
	Nitroglycerin mixture with more than 2 percent but not more than 10 percent nitroglycerin, by mass, desensitized.	* 4.1	UN3319 ...		4.1	118	None	None	Forbidden	Forbidden	1	0.5 kg

Organic pigments, self-heating.	*	4.2	UN3313	...	II	4.2	*	B101	.....	None	.....	212	.....	241	.....	15 kg	.....	50 kg	.....	C
	*				III	4.2	*	B101	.....	None	.....	213	.....	241	.....	25 kg	.....	100 kg	.....	C
Oxidizing liquid, n.o.s.	*	5.1	UN3139	...	I	5.1	*	127, A2	.....	None	.....	201	.....	243	.....	Forbidden	.....	2.5L	.....	D
	*				I	5.1	*	127, A2	.....	None	.....	201	.....	243	.....	Forbidden	.....	2.5L	.....	56, 58, 69, 106
Paint including paint, lacquer, enamel, stain, shellac solutions, varnish, polish, liquid filler, and liquid lacquer base.	*	3	UN1263	...	I	3	*	T8, T31	.....	150	.....	201	.....	243	.....	1L	.....	30L	.....	E
Paint related material including paint thinning, drying, re-movng, or reducing compound.	*	3	UN1263	...	I	3	*	T8, T31	.....	150	.....	201	.....	243	.....	1L	.....	30L	.....	E
Pentane-2,4-dione	*	3	UN2310	...	III	3.6.1	*	B1, T1	.....	150	.....	203	.....	242	.....	60L	.....	220L	.....	A
1-Pentane (n-amyl-ene).	*	3	UN1108	...	I	3	*	T14	.....	150	.....	201	.....	243	.....	1L	.....	301	.....	E
Perchlorates, inorganic, aqueous solution, n.o.s. [ADD]	*	5.1	UN3211	.....	III	5.1	*	T8	.....	152	.....	203	.....	241	.....	2.5L	.....	30L	.....	56, 58, 69, 106
Plastic molding compound in dough, sheet or extruded rope form evolving flammable vapor.	*	9	UN3314	...	III	9	*	32	.....	155	.....	213	.....	None	.....	100 kg	.....	200 kg	.....	A
Potassium chlorate, aqueous solution [ADD]	*	5.1	UN1485	.....	III	5.1	*	A2, T8	.....	152	.....	203	.....	241	.....	2.5L	.....	30L	.....	56, 58, 69, 106
Resin solution, flammable.	*	3	UN1866	...	I	3	*	B52, T8, T31.	.....	150	.....	201	.....	243	.....	1L	.....	30L	.....	E
Sodium borohydride and sodium hydroxide solution, with not more than 12 percent sodium borohydride and not more than 40 percent sodium hydroxide by mass.	*	8	UN3320	...	II	8	*	B2, N34, T8.	.....	154	.....	202	.....	242	.....	1L	.....	30L	.....	A
	*				III	8	*	B2, N34, T7.	.....	154	.....	203	.....	241	.....	5L	.....	60L	.....	A

§ 172.101—HAZARDOUS MATERIALS TABLE—Continued

(1) Symbols	(2) Hazardous materials descriptions and proper shipping names	(3) Hazard class or division	(4) Identification numbers	(5) PG	(6) Label codes	(7) Special provisions	(8) Packaging (§ 173.***)		(9) Quantity limitations		(10) Vessel stowage		
							Exceptions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo aircraft only	Location	Other
	Sodium chlorate aqueous solution [ADD]	*	5.1 UN2428	III	5.1	A2, T8	152	203	241	2.5L	30L	B	56, 58, 69, 106
	Tributylamine	*	6.1 UN2542	II	6.1	B110, T14	None	202	243	5 L	60 L	A	
	[REVISE]	*											
	Chloroacetone, stabilized.	*	6.1 UN1695	I	6.1, 3, 8	2, B9, B14, B32, B74, N12, N32, N34, T38, T43, T45.	None	227	244	Forbidden	Forbidden	D	20, 40, 95
	Cyclohexyl isocyanate	*	6.1 UN2488	I	6.1, 3	B9, B14, B32, B74, B77, T38, T43, T45.	None	277	244	Forbidden	Forbidden	D	20, 40, 95
	Gas, refrigerated liquid, n.o.s. (cryogenic liquid).	*	2.2 UN3158		2.2		None	316	318	50 kg	500 kg	D	
	Methyl chloracetate	*	6.1 UN2295	I	6.1, 3	T42	None	201	243	1L	30L	D	
	Methyl isothiocyanate	*	6.1 UN2477	I	6.1, 3	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	Forbidden	Forbidden	A	
	Phenyl isocyanate	*	6.1 UN2487	I	6.1, 3	2, B9, B14, B32, B74, B77, N33, N34, T38, T43, T45.	None	227	244	Forbidden	Forbidden	D	20, 40, 95

* 6.1 UN1809 1	* 6.1, 8	* 2, B9, B14, B15, B32, B74, B77, N34, T38, T43, T45.	* None	* 227	* 244	* Forbidden	* Forbidden C	* 40
* 2.3 UN1082	* 2.3, 2.1	* 3, B14	* None	* 304	* 314, 315	* Forbidden	* Forbidden D	* 40
* 6.1 UN3073 II	* 6.1, 3, 8	* B100, T8	* None	* 202	* 243	* 1 L	* 30 L	* B
*	*	*	*	*	*	*	*	*

Phosphorous tri-chloride.

Trifluorochloro-ethylene, inhibited.

Vinylpyridines, inhibited.

§ 172.101 [Amended]

15. In addition, in the § 172.101 Hazardous Materials Table, the following changes would be made:

15-1. In Column 2, the following hazardous materials descriptions and proper shipping names would be revised as follows:

Current column 2 entry	Revise to read:
Air bag inflators or Air bag modules or Seat-belt pre-tensioners or Seat-belt modules.	Air bag inflators or Air bag modules or Seat-belt pretensioners.
Aircraft evacuation slides, see Life saving appliances etc	<i>Aircraft evacuation slides, see Life saving appliances etc.</i>
Aircraft survival kits, see Life saving appliances etc	<i>Aircraft survival kits, see Life saving appliances etc.</i>
Alcohols, toxic, n.o.s	Alcohols, flammable, toxic, n.o.s.
Aldehydes, toxic, n.o.s	Aldehydes, flammable, toxic, n.o.s.
Amyl methyl ketone	n-Amyl methyl ketone.
Arsenic compounds, liquid, n.o.s	Arsenic compounds, liquid, n.o.s. <i>inorganic.</i>
Arsenic compounds, solid, n.o.s	Arsenic compounds, solid, n.o.s. <i>inorganic.</i>
Barium selenate, see Selenates or Selenites	<i>Barium selenate, see Selenates or Selenites.</i>
Barium selenite, see Selenates or Selenites	<i>Barium selenite, see Selenates or Selenites.</i>
Battery-powered vehicle or Battery-powered equipment <i>wet battery</i>	Battery-powered vehicle or Battery-powered equipment.
Boron trifluoride	Boron trifluoride, compressed.
Bromotrifluoromethane R13B1	Bromotrifluoromethane or Refrigerant gas R13B1.
Butane or Butane mixtures	Butane.
n-Butyl methacrylate	n-Butyl methacrylate, inhibited.
Butylacrylate	Butyl acrylates, inhibited.
Calcium selenate, see Selenates or Selenites	<i>Calcium selenate, see Selenates or Selenites.</i>
Carbon dioxide and oxygen mixtures	Carbon dioxide and oxygen mixtures, compressed.
Carbon monoxide	Carbon monoxide, compressed.
Carbon monoxide and hydrogen mixture	Carbon monoxide and hydrogen mixture, compressed.
Carbonyl fluoride	Carbonyl fluoride, compressed.
Cartridges, safety, blank, see Cartridges for weapons, blank (UN 0014)	<i>Cartridges, safety, blank, see Cartridges for weapons, blank (UN 0014).</i>
Cartridges, safety, see Cartridges for weapons, other than blank or Cartridges, power device (UN 0323).	<i>Cartridges, safety, see Cartridges for weapons, other than blank or Cartridges, power device (UN 0323).</i>
1-Chloro-1,1-difluoroethanes R142b	1-Chloro-1,1-difluoroethane or Refrigerant gas R142b.
1-Chloro-1,2,2,2-tetrafluoroethane R124	1-Chloro-1,2,2,2-tetrafluoroethane or Refrigerant gas R124.
1-Chloro-2,2,2-trifluoroethane R133a	1-Chloro-2,2,2-trifluoroethane or Refrigerant gas R133a.
Chlorodifluorobromomethane R12B1	Chlorodifluorobromomethane or Refrigerant gas R12B1.
Chlorodifluoromethane and chloropentafluoroethane mixture with fixed boiling point, with approximately 49 percent chlorodifluoromethane, R502.	Chlorodifluoromethane and chloropentafluoroethane mixture or Refrigerant gas R502 with fixed boiling point, with approximately 49 percent chlorodifluoromethane.
Chlorodifluoromethane R22	Chlorodifluoromethane or Refrigerant gas R22.
Chloropentafluoroethane R115	Chloropentafluoroethane or Refrigerant gas R115.
Chlorotrifluoromethane and trifluoromethane azeotropic mixture with approximately 60 percent chlorotrifluoromethane, R503.	Chlorotrifluoromethane and trifluoromethane azeotropic mixture or Refrigerant gas R503 with approximately 60 percent chlorotrifluoromethane.
Chlorotrifluoromethane R13	Chlorotrifluoromethane or Refrigerant gas R13.
Coal gas	Coal gas, compressed.
Copper selenate, see Selenates or Selenites	<i>Copper selenate, see Selenates or Selenites.</i>
Copper selenite, see Selenates or Selenites	<i>Copper selenite, see Selenates or Selenites.</i>
Cyanogen, liquefied	Cyanogen.
Cyclopropane, liquefied	Cyclopropane.
Deuterium	Deuterium, compressed.
Diborane	Diborane, compressed.
Dichlorodifluoromethane and difluoroethane azeotropic mixture with approximately 74 percent dichlorodifluoromethane, R500.	Dichlorodifluoromethane and difluoroethane azeotropic mixture or Refrigerant gas R500 with approximately 74 percent dichlorodifluoromethane.
Dichlorodifluoromethane R12	Dichlorodifluoromethane or Refrigerant gas R12.
Dichloroethylene	1,2-Dichloroethylene.
Dichlorofluoromethane R21	Dichlorofluoromethane or Refrigerant gas R21.
Dichlorotetrafluoroethane R114	1,2-Dichloro-1,1,2,2-Tetrafluoroethane or Refrigerant gas R114.
1,1-Difluoroethane R152a	1,1-Difluoroethane or Refrigerant gas R152a.
1,1-Difluoroethylene R1132a	1,1-Difluoroethylene or Refrigerant gas R1132a.
Difluoromethane	Difluoromethane or Refrigerant gas R32.
Dimethylaminoethyl methacrylate	2-Dimethylaminoethyl methacrylate.
Dinitrogen tetroxide, liquefied	Dinitrogen tetroxide.
Dipropyl ether	Di-n-propyl ether.
Disodium trioxosilicate, pentahydrate	Disodium trioxosilicate.
Ethane, compressed	Ethane.
Ethyl fluoride	Ethyl fluoride or Refrigerant gas R161.
Ethylene, acetylene and propylene in mixtures, refrigerated liquid	Ethylene, acetylene and propylene mixture, refrigerated liquid.
Flammable gas in lighters, see Lighters or lighter refills, containing flammable gas.	<i>Flammable gas in lighters, see Lighters or lighter refills, cigarettes, containing flammable gas.</i>
Fuse, instantaneous, non-detonating or Quickmatch	Fuse, non-detonating.
Heptafluoropropane	Heptafluoropropane or Refrigerant gas R227.
Hexafluoroethane R1116	Hexafluoroethane, compressed or Refrigerant gas R116.
Hexafluoropropylene R1216	Hexafluoropropylene, compressed or Refrigerant gas R1216.

Current column 2 entry	Revise to read:
Hydriotic acid, solution	Hydriotic acid.
Hydrobromic acid solution (four entries)	Hydrobromic acid.
Hydrocarbon gases, compressed, n.o.s. or Hydrocarbon gases mixtures, compressed, n.o.s.	Hydrocarbon gas mixture, compressed, n.o.s.
Hydrocarbon gases, liquefied, n.o.s. or Hydrocarbon gases mixtures, liquefied, n.o.s.	Hydrocarbon gas mixture, liquefied, n.o.s.
Hydrochloric acid, solution	Hydrochloric acid.
Hydrofluoric acid solution (both entries)	Hydrofluoric acid.
Hydrogen sulfide, liquefied	Hydrogen sulfide.
Isobutane or Isobutane mixtures <i>see also</i> Petroleum gases, liquefied ...	Isobutane <i>see also</i> Petroleum gases, liquefied.
Isobutyl acrylate	Isobutyl acrylate, inhibited.
Isobutyl methacrylate	Isobutyl methacrylate, inhibited.
Isopentane, <i>see</i> Pentane	<i>Isopentane, see</i> Pentane.
Jet thrust unit (Jato), <i>see</i> Rocket motors	<i>Jet thrust unit (Jato), see</i> Rocket motors.
Magnesium bisulfite solution, <i>see</i> Bisulfites, aqueous solutions, n.o.s. ...	<i>Magnesium bisulfite solution, see</i> Bisulfites, aqueous solutions, n.o.s.
Mercury iodide	Mercury iodide, <i>solid</i> .
Methacrylaldehyde	Methacrylaldehyde, inhibited.
Methanol or Methyl alcohol (both entries)	Methanol (both entries).
Methyl alcohol <i>see</i> Methanol	<i>Methyl alcohol see</i> Methanol.
Methyl chloride	Methyl chloride or Refrigerant gas R40.
Methyl fluoride	Methyl fluoride or Refrigerant gas R41.
Methylmorpholine	4-Methylmorpholine or n-methylmorpholine.
Nitric oxide	Nitric oxide, compressed.
Nitrogen trifluoride (both entries)	Nitrogen trifluoride, compressed.
Nitrogen dioxide, liquefied	Nitrogen dioxide.
Nitrous oxide, compressed	Nitrous oxide.
2,5-Norbornadiene or Dicycloheptadiene	2,5-Norbornadiene or Bicyclo[2,2,1]hepta-2,5-diene, inhibited.
Octafluorobut-2-ene	Octafluorobut-2-ene or Refrigerant gas R1318.
Octafluorocyclobutane RC318	Octafluorocyclobutane or Refrigerant gas RC318.
Octafluoropropane R218	Octafluoropropane or Refrigerant gas R218.
Oil gas	Oil gas, compressed.
Oxygen difluoride	Oxygen difluoride, compressed.
Pentafluoroethane	Pentafluoroethane or Refrigerant gas R125.
Perfluoroethyl vinyl ether	Perfluoro(ethyl vinyl ether).
Perfluoromethyl vinyl ether	Perfluoro(methyl vinyl ether).
Phosphorus pentafluoride	Phosphorus pentafluoride, compressed.
Polyalkylamines, n.o.s., <i>see</i> Amines, <i>etc</i>	<i>Polyalkylamines, n.o.s., see</i> Amines, <i>etc</i> .
Potassium bisulfite solution, <i>see</i> Bisulfites, inorganic, aqueous solutions, n.o.s.	<i>Potassium bisulfite solution, see</i> Bisulfites, inorganic, aqueous solutions, n.o.s.
Potassium selenate, <i>see</i> Selenates or Selenites	<i>Potassium selenate, see</i> Selenates or Selenites.
Potassium selenite, <i>see</i> Selenates or Selenites	<i>Potassium selenite, see</i> Selenates or Selenites.
Propane or propane mixtures	Propane.
Rare gases mixture	Rare gases mixture, compressed.
Rare gases and nitrogen mixture	Rare gases and nitrogen mixture, compressed.
Rare gases and oxygen mixture	Rare gases and oxygen mixture, compressed.
Receptacles, small, containing gas (both entries)	Receptacles, small, containing gas (gas cartridges) (both entries).
Refrigerating machines, containing non-flammable, non-toxic, liquefied gas or ammonia solutions (UN2073).	Refrigerating machines, containing non-flammable, non-toxic, liquefied gas or ammonia solution (UN2672).
Silane	Silane, compressed.
Silicon tetrafluoride	Silicon tetrafluoride, compressed.
Sodium hydrogendifluoride	Sodium hydrogendifluoride, solid.
Steel swarf, <i>see</i> Ferrous metal borings, <i>etc</i>	<i>Steel swarf, see</i> Ferrous metal borings, <i>etc</i> .
Sulfur dioxide, liquefied	Sulfur dioxide.
Sulfur trioxide, inhibited	Sulfur trioxide, inhibited or Sulfur trioxide, stabilized.
1,1,1,2-Tetrafluoroethane	1,1,1,2-Tetrafluoroethane or Refrigerant gas R134a.
Tetrafluoromethane, R14	Tetrafluoromethane, compressed or Refrigerant gas R14.
Toluene sulfonic acid, <i>see</i> Alkyl, or Aryl sulfonic acid <i>etc</i>	<i>Toluene sulfonic acid, see</i> Alkyl, or Aryl sulfonic acid <i>etc</i> .
Trifluoroethane, compressed, R143	1,1,1-Trifluoroethane, compressed or Refrigerant gas, R143.
Trifluoromethane	Trifluoromethane or Refrigerant gas, R23.
Vinyl toluene, inhibited, <i>mixed isomers</i>	Vinyltoluenes, inhibited.
Vinyltrichlorosilane	Vinyltrichlorosilane, inhibited.
Xenon	Xenon, compressed.
Zinc bisulfite solution, <i>see</i> Bisulfites, inorganic aqueous solutions, n.o.s.	<i>Zinc bisulfite solution, see</i> Bisulfites, aqueous solutions, n.o.s.
Zinc selenate, <i>see</i> Selenates or Selenites	<i>Zinc selenate, see</i> Selenates or Selenites.
Zinc selenite, <i>see</i> Selenates or Selenites	<i>Zinc selenite, see</i> Selenates or Selenites.

15-2. For the entry "Alkali metal alcoholates, self-heating, corrosive, n.o.s.", in Column (7), special provision "64" would be added.

15-3. For the entry "Alkaline earth metal alcoholates, n.o.s.", in Column (7), special provision "65" would be added.

15-4. For the entry "Ammonium nitrate, liquid (*hot concentrated solution*)" in Column (7), special provision "68," would be added as the first special provision.

15-5. For the entry "Battery-powered vehicle or Battery-powered equipment" in Column (10A), the "A" would be removed.

15-6. For the entry "Benzaldehyde", in Column (7), special provision "T1" would be added.

15-7. For the entry "Carbon dioxide and oxygen mixtures", in Column (6), the designation ",5.1" would be added immediately following "2.2".

15-8. For the entry "Charges, propelling" UN0491, in Column (7), special provision "122" would be added.

15-9. For the entry "Corrosive liquids, toxic, n.o.s.", in Packing Group I, in Column (7), special provisions ", T18,T27" would be added immediately following "B10".

15-10. For the entry "Corrosive liquids, toxic, n.o.s.", in PG II, in Column (7), special provisions ", T18,T26" would be added immediately following "B3".

15-11. For the entry "Corrosive liquids, toxic, n.o.s.", in PG III, in Column (7), special provision ", T8" would be added.

15-12. For the entry "Cyclohexyl isocyanate", in Columns (9A) and (9B), the wording "5 L" and "60 L" would be revised to read "Forbidden" in each column.

15-13. For the entry "Divinyl ether, inhibited", in Column (9A), the wording "5 L" would be revised to read "1 L".

15-14. For the entry "Ethyl isocyanate", in Column (9B), the wording "30 L" would be revised to read "Forbidden".

15-15. For the entry "Ethylene oxide and carbon dioxide mixture with more than 87 percent ethylene oxide", in Column (9B), the wording "75 kg" would be revised to read "25 kg".

15-16. For the entry "Explosives, blasting, type C", in Column (7), special provision "123" would be added.

15-17. For the entry "Ferrocium", in Column (7), special provision "59," would be added as the first entry.

15-18. For the entry "Hexafluoroacetone", in Column (9B), the wording "25 kg" would be revised to read "Forbidden".

15-19. For the entry "Isobutyl isocyanate", in Column (9B), the wording "60 L" would be revised to read "Forbidden".

15-20. For the entry "Isopropyl isocyanate", in Column (9B), the wording "30 L" would be revised to read "Forbidden".

15-21. For the entry "Isosorbide-5-mononitrate", in Column (7), special provision "66" would be added.

15-22. For the entry "Maneb or Maneb preparations", in Column (7),

special provision "57," would be added as the first entry.

15-23. For the entry "Metal catalyst, dry" in PG II, in Column (8C), the word "None" would be removed and "242" would be added in its place.

15-24. For the entry "Metal catalyst, dry" in PG III, in Column (8C), the word "None" would be removed and "241" would be added in its place.

15-25. For the entry "Methylacrylic acid, inhibited", in Column (7), special provision "45" would be removed and "T47" added in its place.

15-26. For the entry "Methoxyethyl isocyanate", in Column (9B), the wording "30 L" would be revised to read "Forbidden".

15-27. For the entry "Nitrates, inorganic, aqueous solution, n.o.s.", for PG II and III, in Column (7) special provision "58," would be added as the first entry.

15-28. For the entry "Oil gas", in Column (9B), the wording "150 kg" would be revised to read "25 kg".

15-29. For the entry "Oxidizing liquid, n.o.s." in PG II and III, in Column (7), special provision "127," would be added as the first entry.

15-30. For the entry "Pentaerythrite tetranitrate or Pentaerythritol tetranitrate, or PETN, with not less than 7 percent wax by mass", in Column (7), special provision "120" would be added.

15-31. For the entry "Pentaerythrite tetranitrate, wetted or Pentaerythritol tetranitrate, wetted or PETN, wetted with not less than 25 percent water, by mass", in Column (1), the letter "D" would be removed, and in Column (7), special provision "121" would be added.

15-32. For the entry "Polyester resin kit", in Column (7), special provision ", A25" would be added immediately following "40"; and in Column (8A), the wording "None" would be removed and "152" added in its place.

15-33. For the entry "Potassium", in Column (9A), the wording "1 kg" would be revised to read "Forbidden".

15-34. the entry "Potassium metal alloys", in Column (9A), the wording "1 kg" would be revised to read "Forbidden".

15-35. For the entries "Propellant, liquid", UN0495 and "Propellant, liquid", UN0497, in Column (7), special provisions ", 125, 126" would be added following "37".

15-36. For the entry "Silicon tetrafluoride", in Column (9B), the wording "25 kg" would be revised to read "Forbidden".

15-37. For the entry "Sodium", in Column (9A), the wording "1 kg" would be revised to read "Forbidden".

15-38. For the entry "Sulfur UN1350", in Column (7), special provision "30," would be added as the first entry; and in Columns (8A) and (8B), the references "151" and "213" would be revised to read "None" in each column.

15-39. For the entry "Sulfur tetrafluoride", in Column (9B), the wording "25 kg" would be revised to read "Forbidden".

15-40. For the entry "Toxic liquids, oxidizing, n.o.s." inhalation hazard in PG I, Zone A, in Column (9B), the wording "2.5 L" would be revised to read "Forbidden".

15-41. For the entry "Trifluoroacetyl chloride", in Column (6), the designation ",8" would be added after "2.3".

15-42. For the entry "Urea nitrate dry or wetted with less than 20 percent water, by mass", in Column (7), special provision "119" would be added.

15-43. In Column (6), the wording ",3" would be added as the last entry for each of the following entries:

Allyl isothiocyanate, inhibited
Bromoacetone
n-Butyl chloroformate
Cyclobutyl chloroformate
Epibromohydrin
Epichlorohydrin
Ethyl bromoacetate
Ethyl chloroacetate
Isocyanatobenzotrifluorides
Propylene chlorohydrin

16. In Appendix B to § 172.101, the List of Marine Pollutants would be amended by adding the following materials in appropriate alphabetical order:

Appendix B to § 172.101—List of Marine pollutants.

S.M.P	Marine pollutant
(1)	(2)
[ADD:]	
*	*
*	*
*	*
*	*
*	*
	Acetaldehyde.
	Alkyl (C ₁₀ -C ₂₁) ester of phenol. sulphonic acid
	Anisole.
	Benzaldehyde.
	Bromobenzene.
	Butanedione.
	normal-Butyraldehyde.
	Camphor oil.
	Coconitrite.
PP	Cymenes (o-;m-;p-).
	normal-Decaldehyde.
	normal-Decanol.
	Di-normal-butyl ketone.
	sym-Dichlorodiethyl ether.
	Dimethyl disulphide.

S.M.P (1)	Marine pollutant (2)	
		Copper metal powder
		Esfenvalerate
		Fenbutatin oxide
		1,3-Hexachlorobutadiene
		Quizalofop
		Quizalofop-p-ethyl
		Tetrachlorovinfos
		Tetraethyl lead
		Tricresyl phosphate with more than 3% ortho isomer
		g. The following entries would be removed:
		Acetylene dibromide
		Arsenates, liquid, n.o.s.
		Arsenates, solid, n.o.s.
		Arsenic bromide
		Arsenic chloride
		Arsenical pesticides liquid, toxic, flammable, n.o.s.
		Biphenyl phenyl ether and diphenyl oxide, mixtures
		1-Butanethiol
		Carbon bisulphide
		Chlorobenzylchlorides
		alpha-Chloropropylene
		1-Chloropropylene
		2-Chloropropylene
		Chromyl chloride
		Copper arsenate
		1,2-Dibromethene
		1,2-Dibromoethane
		o-Dichlorobenzene
		p-Dichlorobenzene
		Dichloroether
		Dichloroethyl oxide
		Dimethylarsinic acid
		Ethylene chloride
		Ethylene dichloride
		Ethylidene dichloride
		Isopropyltoluene
		Maneb preparations with not less than 60% maneb
		Mercuric sulphide
		Mercury iodine, solution
		Metaarsenic acid
		3-Methyl pyridine
		Methylchloroform
		Methylene bromide
		Methylene dibromide
		Naphtha, coal tar
		Nitrates, inorganic, n.o.s.
		Nitrites, inorganic, n.o.s.
		Potassium dihydrogen arsenate
		Propenyl chloride (cis-; trans-)
		Propylene dichloride
		Propylidene dichloride
		Sodium metaarsenite
		Sodium orthoarsenate
		Strontium orthoarsenite
		Turpentine substitute
		White arsenic

Special Provisions 57, 58, 59, 64, 65, 66, 68, 72, 74, 118, 119, 120, 121, 122, 123, 125, 126, and 127 would be added; in paragraph (c)(2), Special Provision A25 would be added; in paragraph (c)(3), Special Provision B115 would be added; in paragraph (c)(5) Special Provision N50 would be removed; and in paragraph (c)(7)(ii), Special Provision T47 would be added, to read as follows:

§ 172.102 Special provisions.

* * * * *
 (c) * * *
 (1) * * *
 * * * * *

15. Chemical kits and first aid kits are boxes, cases, etc., containing small amounts of various compatible dangerous goods which are used for medical, analytical, or testing purposes and for which exceptions are provided in this subchapter. For transportation by aircraft, any hazardous materials forbidden in passenger aircraft may not be included in these kits. Inner packagings may not exceed 250 mL for liquids or 250 g for solids and must be protected from other materials in the kit. The total quantity of hazardous materials in any one kit may not exceed either 1 L or 1 kg. The packing group assigned to the kit as a whole must be the most stringent packing group assigned to any individual substance contained in the kit. Kits must be packed in wooden boxes (4C1, 4C2), plywood boxes (4D), reconstituted wood boxes (4F), fiberboard boxes (4G) or plastic boxes (4H1, 4H2); these packagings must meet the requirements appropriate to the packing group assigned to the kit as a whole. The total quantity of hazardous materials in any one package may not exceed either 10 L or 10 kg. Kits which are carried on board vehicles for first-aid or operating purposes are not subject to the requirements of this subchapter.

* * * * *

23. * * * Quantities of not more than 500 g per package with not less than 10 percent water by mass may also be classed in Division 4.1, provided a negative test result is obtained when tested in accordance with test series 6(c) of the UN Manual of Tests and Criteria.

* * * * *

32. Polymeric beads and molding compounds may be made from polystyrene, poly(methyl methacrylate) or other polymeric material.

* * * * *

43. * * * Packagings should be so constructed that explosion is not possible by reason of increased internal pressure.

* * * * *

57. Maneb or Maneb preparations stabilized against self-heating need not be classified in Division 4.2 when it can be demonstrated by testing that a cubic volume of 1 m³ of substance does not self-ignite and that the temperature at the center of the sample does not exceed 200°C, when the sample is maintained at a temperature of not less than 75°C±2°C for a period of 24 hours,

Appendix B to § 172.101 [Amended]

17. In addition, in Appendix B to § 172.101, the List of Marine Pollutants would be amended as follows:

a. The entry "Azenphos-methyl" would be revised to read "Azinphos-methyl".

b. The designation "PP" in column (1) of the List of Marine Pollutants would be removed for the entry "Diethylbenzenes (mixed isomers)".

c. The entry "Mononitrobenzene" would be revised to read "Nitrobenzene".

d. The entry "1,1,2,2-Tetrabromoethane" would be revised to read "Tetrabromoethane".

e. The entry "1,1,2,2-Tetrachloroethylene" would be revised to read "Tetrachloroethylene".

f. The designation "PP" would be added in column (1) for the following materials:

- Chlorinated paraffins (C-10—C-13)
- Copper chloride (solution)

18. In § 172.102, in paragraph (c)(1), Special Provision 45 would be removed, Special Provisions 15 and 32 would be revised, a sentence would be added at the end of Special Provisions 23 and 43, a sentence would be added at the beginning of Special Provision 102,

in accordance with procedures set forth for testing self-heating materials in the UN Manual of Tests and Criteria.

58. Aqueous solutions of Division 5.1 inorganic solid nitrate substances are considered as not meeting the criteria of Division 5.1 if the concentration of the substances in solution at the minimum temperature encountered in transport is not greater than 80% of the saturation limit.

59. Ferrocium, stabilized against corrosion, with a minimum iron content of 10 percent is not subject to the requirements of this subchapter.

64. The group of alkali metals includes lithium, sodium, potassium, rubidium, and caesium.

65. The group of alkaline earth metals includes magnesium, calcium, strontium, and barium.

66. Formulations of these substances containing not less than 30 percent non-volatile, non-flammable phlegmatizer are not subject to this subchapter.

68. Provided the ammonium nitrate remains in solution under all conditions of transport, aqueous solutions of ammonium nitrate, with not more than 0.2% combustible material, in a concentration not exceeding 80% are not subject to this subchapter.

* * * * *

72. This entry may only be used for samples of chemicals taken for analysis in connection with the implementation of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction. The transport of substances under this entry must be in accordance with the chain of custody and security procedures specified by the Organization for the Prohibition of Chemical Weapons. The chemical sample may only be transported provided prior approval has been granted by the Associate Administrator for Hazardous Materials Safety or the Director General of the Organization for the Prohibition of Chemical Weapons and provided the sample complies with the following requirements:

- a. The sample must be packaged in accordance with the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air; and
- b. During transport, the sample must be accompanied by a copy of the document of approval for transport, showing the quantity limitations and the packing requirements.

74. During transport, this material must be protected from direct sunshine and stored or kept in a cool and well-ventilated place, away from all sources of heat.

* * * * *

102. The ends of the detonating cord must be tied fast so that the explosive cannot escape. * * *

* * * * *

118. This substance may not be transported under the provisions of Division 4.1 unless specifically approved by the Associate Administrator for Hazardous Materials Safety. The method of packing and the assignment of the packing group must also be approved by the Associate Administrator for Hazardous Materials Safety.

119. This substance, when in quantities of not more than 11.5 kg (25.3 pounds), with not less than 10 percent water, by mass, also may be classed in Division 4.1, provided a negative test result is obtained when tested in accordance with test series 6(c) of the UN Manual of Tests and Criteria.

120. The phlegmatized substance must be significantly less sensitive than PETN.

121. This substance, when containing less alcohol, water or phlegmatizer than specified, may not be transported unless approved by the Associate Administrator for Hazardous Materials Safety.

122. Metal packagings must be so constructed that the risk of explosion, by reason of increase in internal pressure from internal or external causes is prevented.

123. Any explosives, blasting, type C containing chlorates must be segregated from explosives containing ammonium nitrate or other ammonium salts.

125. Inner packagings must have taped screw cap closures and be not more than 5 liters capacity each. Inner packagings must be surrounded with non-combustible absorbent cushioning materials. The amount of absorbent cushioning material must be sufficient to absorb the liquid contents. Metal receptacles must be cushioned from each other. Net mass of propellant is limited to 30 kg (66 pounds) per package when outer packagings are boxes.

126. When intermediate packagings are drums, they must be surrounded with non-combustible cushioning material in a quantity sufficient to absorb the liquid contents. A composite packaging consisting of a plastic receptacle in a metal drum may be used instead of the inner and intermediate packagings. The net volume of propellant in each package may not exceed 120 L (31.7 gallons).

127. This entry does not apply to mixtures containing more than 70 percent ammonium nitrate and more than 0.4 percent combustible material (calculated as carbon), excluding water.

(2) * * * * *

A25. A polyester resin kit containing a net quantity of organic peroxide not to exceed 125 ml or 500 g per kit, with not more than 30 ml or 100 g per inner packaging, and a flammable liquid not to exceed 900 g per kit may be packaged in non-specification packaging.

* * * * *

(3) * * * * *

* * * * *

B115. Rail cars, highway trailers, roll-on/roll-off bins, or other non-specification bulk packagings are authorized. Packagings must be sift-proof, prevent liquid water from reaching the hazardous material, and be provided with sufficient venting to preclude dangerous accumulation of flammable, corrosive, or toxic gaseous emissions such as methane, hydrogen, and ammonia. The material must be loaded dry.

* * * * *

(7) * * * * *

(ii) * * * * *

T47. Temperature must be maintained between 18°C (64.4°F) and 40°C (104°F)

when carried in tanks. Tanks containing solidified methacrylic acid may not be reheated during transport.

* * * * *

§ 172.102 [Amended]

19. In addition, in § 172.102, in paragraph (c)(1), in special provisions 38 and 46, in the first sentence of each special provision, the wording "OP6B" would be revised to read "OP6" each place it appears.

20. In § 172.203, paragraph (j) would be removed and reserved, paragraph (k)(3) would be amended by adding 14 new entries in appropriate alphabetical order to the list of proper shipping names, and a new paragraph (m)(4) would be added, to read as follows:

§ 172.203 Additional description requirements.

* * * * *

(k) * * * * *

(3) * * * * *

Compressed gas, toxic, corrosive, n.o.s.
Compressed gas, toxic, flammable, corrosive, n.o.s.

Compressed gas, toxic, oxidizing, corrosive, n.o.s.

Compressed gas, toxic, oxidizing, n.o.s.

* * * * *

Gas, refrigerated liquid, flammable, n.o.s.

* * * * *

Gas, refrigerated liquid, oxidizing, n.o.s.

* * * * *

Hydrocarbon gases, compressed, n.o.s.

Hydrocarbon gases mixtures, compressed, n.o.s.

Hydrocarbon gases, liquefied, n.o.s.

Hydrocarbon gases mixtures, liquefied, n.o.s.

* * * * *

Liquefied gas, toxic, corrosive, n.o.s.

Liquefied gas, toxic, flammable, corrosive, n.o.s.

Liquefied gas, toxic, oxidizing, corrosive, n.o.s.

Liquefied gas, toxic, oxidizing, n.o.s.

* * * * *

(m) * * * * *

(4) The provisions of paragraphs (m)(1) through (m)(3) of this section do not apply to a material if the toxicity of the material is based solely on the corrosive destruction of tissue rather than systemic poisoning.

* * * * *

§ 172.203 [Amended]

21. In addition, in § 172.203, in paragraph (m)(3), in the first sentence, the wording "or 'Toxic-Inhalation Hazard'" would be added immediately following "'Poison-Inhalation Hazard'"; and in the second sentence the wording "'Poison'" would be revised to read "'Poison' or 'Toxic'".

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

22. The authority citation for part 173 would continue to read as follows:

Authority: 49 U.S.C. 5101–5127; 49 CFR 1.53.

23. In § 173.3, paragraph (c)(3) would be revised and a new paragraph (c)(7) would be added, to read as follows:

§ 173.3 Packaging and exceptions.

* * * * *

(c) * * *

(3) Each salvage packaging must be marked with the proper shipping name of the hazardous material inside the packaging and the name and address of the consignee. In addition, the packaging must be marked "SALVAGE" or "SALVAGE DRUM".

* * * * *

(7) A salvage packaging marked "T" in accordance with applicable provisions in the UN Recommendations may be used.

§ 173.3 [Amended]

24. In addition, in § 173.3, in paragraph (c)(1), at the beginning of the paragraph, the wording "The drum" would be revised to read "Except as provided in paragraph (c)(7) of this section, the drum".

25. In § 173.21, the last sentence in paragraph (f) introductory text would be revised to read as follows:

§ 173.21 Forbidden materials and packages.

* * * * *

(f) * * * The SADT may be determined by any of the test methods described in Part II of the UN Manual of Tests and Criteria.

* * * * *

§ 173.32c [Amended]

26. In § 173.32c, in paragraph (j), the wording "5,000 liters (1,900 gallons)" would be revised to read "7500 L".

27. Section 173.60 would be revised to read as follows:

§ 173.60 General packaging requirements for explosives.

(a) Unless otherwise provided in this subpart and in § 173.7(a), packaging used for Class 1 (explosives) materials must meet Packing Group II requirements. Each packaging used for an explosive must be capable of meeting the test requirements of subpart M of part 178 of this subchapter, at the specified level of performance, and the applicable general packaging requirements of paragraph (b) of this section.

(b) The general requirements for packaging of explosives are as follows:

(1) Nails, staples, and other closure devices, made of metal, having no protective covering may not penetrate to the inside of the outer packaging unless the inner packaging adequately protects the explosive against contact with the metal.

(2) The closure device of containers for liquid explosives must provide double protection against leakage, such as a screw cap secured in place with tape.

(3) Inner packagings, fittings, and cushioning materials, and the placing of explosive substances or articles in packages, must be such that the explosive substance is prevented from becoming loose in the outer packaging during transportation. Metallic components of articles must be prevented from making contact with metal packagings. Articles containing explosive substances not enclosed in an outer casing must be separated from each other in order to prevent friction and impact. Padding, trays, partitioning in the inner or outer packaging, molded plastics or receptacles may be used for this purpose.

(4) When the packaging includes water that could freeze during transportation, a sufficient amount of anti-freeze, such as denatured ethyl alcohol, must be added to the water to prevent freezing. If the anti-freeze creates a fire hazard, it may not be used. When a percentage of water in the substance is specified, the combined weight of water and anti-freeze may be substituted.

(5) If an article is fitted with its own means of ignition or initiation, it must be effectively protected from accidental actuation during normal conditions of transportation.

(6) The entry of explosive substances into the recesses of double-seamed metal packagings must be prevented.

(7) The closure device of a metal drum must include a suitable gasket; if the closure device includes metal-to-metal screw-threads, the ingress of explosive substances into the threading must be prevented.

(8) Whenever loose explosive substances or the explosive substance of an uncased or partly cased article may come into contact with the inner surface of metal packagings (1A2, 1B2, 4A, 4B and metal receptacles), the metal packaging should be provided with an inner liner or coating.

(9) Packagings must be made of materials compatible with, and impermeable to, the explosives contained in the package, so that neither interaction between the explosives and

the packaging materials, nor leakage, causes the explosive to become unsafe in transportation, or the hazard division or compatibility group to change.

(10) An explosive article containing an electrical means of initiation that is sensitive to external electromagnetic radiation, must have its means of initiation effectively protected from electromagnetic radiation sources (for example, radar or radio transmitters) through either design of the packaging or of the article, or both.

(11) Plastic packagings may not be able to generate or accumulate sufficient static electricity to cause the packaged explosive substances or articles to initiate, ignite or inadvertently function. Metal packagings must be compatible with the explosive substance they contain.

(12) Explosive substances may not be packed in inner or outer packagings where the differences in internal and external pressures, due to thermal or other effects, could cause an explosion or rupture of the package.

(13) Packagings for water soluble substances must be water resistant. Packagings for desensitized or phlegmatized substances must be closed to prevent changes in concentration during transport. When containing less alcohol, water, or phlegmatizer than specified in its proper shipping description, the substance is a "forbidden" material.

28. Section 173.62 would be revised to read as follows:

§ 173.62 Specific packaging requirements for explosives.

(a) Except as provided in paragraph (e) of this section, when the § 172.101 Table specifies that an explosive must be packaged in accordance with this section, only non-bulk packagings which conform to the provisions of paragraphs (b), (c) and (d) of this section and the applicable requirements in §§ 173.60 and 173.61 may be used unless otherwise approved by the Associate Administrator. Intermediate bulk packagings may be used for explosives assigned to Packing Instruction 117 in paragraph (b) of this section. Intermediate bulk packagings must conform with the requirements of this subchapter.

(b) Explosives Table. The Explosives Table specifies the Packing Instructions assigned to each explosive. Explosives are identified in the first column in numerical sequence by their identification number (ID #), which is listed in column 4 of the § 172.101 Table, of this subchapter. The second column of the Explosives Table specifies the Packing Instruction (PI)

which must be used for packaging the explosive. The Explosives Packing Method Table in paragraph (c) of this section defines the methods of packaging. The Packing Instructions are identified using a 3 digit designation. The Packing Instructions prefixed by the letters "US" are those particular to the United States and not found in applicable international regulations.

EXPLOSIVES TABLE—Continued

EXPLOSIVES TABLE—Continued

EXPLOSIVES TABLE

ID No.	PI
UN0004	112
UN0005	130
UN0006	130
UN0007	130
UN0009	130
UN0010	130
UN0012	130
UN0014	130
UN0015	130
UN0016	130
UN0018	130
UN0019	130
UN0020	101
UN0021	101
UN0027	113
UN0028	113
UN0029	131
UN0030	131
UN0033	130
UN0034	130
UN0035	130
UN0037	130
UN0038	130
UN0039	130
UN0042	132
UN0043	133
UN0044	133
UN0048	130
UN0049	135
UN0050	135
UN0054	135
UN0055	136
UN0056	130
UN0059	137
UN0060	132
UN0065	139
UN0066	140
UN0070	134
UN0072	112(a)
UN0073	133
UN0074	110(a) or 110(b)
UN0075	115
UN0076	112
UN0077	114
UN0078	112
UN0079	112(b) or 112(c)
UN0081	116
UN0082	116 or 117
UN0083	116
UN0084	116
UN0092	135
UN0093	135
UN0094	113
UN0099	134
UN0101	140
UN0102	139
UN0103	140
UN0104	139
UN0105	140
UN0106	141

ID No.	PI
UN0107	141
UN0110	141
UN0113	110(a) or 110(b)
UN0114	110(a) or 110(b)
UN0118	112
UN0121	142
UN0124	US1
UN0129	110(a) or 110(b)
UN0130	110(a) or 110(b)
UN0131	142
UN0132	114(b)
UN0133	112(a)
UN0135	110(a) or 110(b)
UN0136	130
UN0137	130
UN0138	130
UN0143	115
UN0144	115
UN0146	112
UN0147	112(b)
UN0150	112(a) or 112(b)
UN0151	112
UN0153	112(b) or 112(c)
UN0154	112
UN0155	112(b) or 112(c)
UN0159	111
UN0160	114(b)
UN0161	114(b)
UN0167	130
UN0168	130
UN0169	130
UN0171	130
UN0173	134
UN0174	134
UN0180	130
UN0181	130
UN0182	130
UN0183	130
UN0186	130
UN0190	101
UN0191	135
UN0192	135
UN0193	135
UN0194	135
UN0195	135
UN0196	135
UN0197	135
UN0204	134
UN0207	112(b) or 112(c)
UN0208	112(b) or 112(c)
UN0209	112
UN0212	133
UN0213	112(b) or 112(c)
UN0214	112
UN0215	112
UN0216	112(b) or 112(c)
UN0217	112(b) or 112(c)
UN0218	112(b) or 112(c)
UN0219	112
UN0220	112
UN0221	130
UN0222	112(b) or 112(c)
UN0224	110(a) or 110(b)
UN0225	133
UN0226	112(a)
UN0234	114
UN0235	114
UN0236	114
UN0237	138
UN0238	130
UN0240	130
UN0241	116 or 117

ID No.	PI
UN0242	130
UN0243	130
UN0244	130
UN0245	130
UN0246	130
UN0247	101
UN0248	144
UN0249	144
UN0250	101
UN0254	130
UN0255	131
UN0257	141
UN0266	112
UN0267	131
UN0268	133
UN0271	143
UN0272	143
UN0275	134
UN0276	134
UN0277	134
UN0278	134
UN0279	130
UN0280	130
UN0281	130
UN0282	112
UN0283	132
UN0284	141
UN0285	141
UN0286	130
UN0287	130
UN0288	138
UN0289	139
UN0290	139
UN0291	130
UN0292	141
UN0293	141
UN0294	130
UN0295	130
UN0296	134
UN0297	130
UN0299	130
UN0300	130
UN0301	130
UN0303	130
UN0305	113
UN0306	133
UN0312	135
UN0313	135
UN0314	142
UN0315	142
UN0316	141
UN0317	141
UN0318	141
UN0319	133
UN0320	133
UN0321	130
UN0322	101
UN0323	134
UN0324	130
UN0325	142
UN0326	130
UN0327	130
UN0328	130
UN0329	130
UN0330	130
UN0331	116 or 117
UN0332	116 or 117
UN0333	135
UN0334	135
UN0335	135
UN0336	135
UN0337	135

EXPLOSIVES TABLE—Continued		EXPLOSIVES TABLE—Continued		EXPLOSIVES TABLE—Continued	
ID No.	PI	ID No.	PI	ID No.	PI
UN0338	130	UN0408	141	UN0481	101
UN0339	130	UN0409	141	UN0482	101
UN0340	112(a) or 112(b)	UN0410	141	UN0483	112(b) or 112(c)
UN0341	112(b)	UN0411	112(b) or 112(c)	UN0484	112(b) or 112(c)
UN0342	114(a)	UN0412	130	UN0486	101
UN0343	111	UN0413	130	UN0487	135
UN0344	130	UN0414	130	UN0488	130
UN0345	130	UN0415	143	UN0489	112(b) or 112(c)
UN0346	130	UN0417	130	UN0490	112(b) or 112(c)
UN0347	130	UN0418	135	UN0491	143
UN0348	130	UN0419	135	UN0492	135
UN0349	101	UN0420	135	UN0493	135
UN0350	101	UN0421	135	UN0494	US1
UN0351	101	UN0424	130	UN0495	115
UN0352	101	UN0425	130	UN0496	112(b) or 112(c)
UN0353	101	UN0426	130	UN0497	115
UN0354	101	UN0427	130	UN0498	114(b)
UN0355	101	UN0428	135	UN0499	114(b)
UN0356	101	UN0429	135	UN0500	131
UN0357	101	UN0430	135	NA0124	US1
UN0358	101	UN0431	135	NA0276	134
UN0359	101	UN0432	135	NA0323	134
UN0360	131	UN0433	111	NA0337	135
UN0361	131	UN0434	130	NA0349	133
UN0362	130	UN0435	130	NA0494	US1
UN0363	130	UN0436	130		
UN0364	133	UN0437	130		
UN0365	133	UN0438	130		
UN0366	133	UN0439	137		
UN0367	141	UN0440	137		
UN0368	141	UN0441	137		
UN0369	130	UN0442	137		
UN0370	130	UN0443	137		
UN0371	130	UN0444	137		
UN0372	141	UN0445	137		
UN0373	135	UN0446	136		
UN0374	134	UN0447	136		
UN0375	134	UN0448	114(b)		
UN0376	133	UN0449	101		
UN0377	133	UN0450	101		
UN0378	133	UN0451	130		
UN0379	136	UN0452	141		
UN0380	101	UN0453	130		
UN0381	134	UN0454	142		
UN0382	101	UN0455	131		
UN0383	101	UN0456	131		
UN0384	101	UN0457	130		
UN0385	112(b) or 112(c)	UN0458	130		
UN0386	112(b) or 112(c)	UN0459	130		
UN0387	112(b) or 112(c)	UN0460	130		
UN0388	112(b) or 112(c)	UN0461	101		
UN0389	112(b) or 112(c)	UN0462	101		
UN0390	112(b) or 112(c)	UN0463	101		
UN0391	112(a)	UN0464	101		
UN0392	112(b) or 112(c)	UN0465	101		
UN0393	112(b)	UN0466	101		
UN0394	112(a)	UN0467	101		
UN0395	101	UN0468	101		
UN0396	101	UN0469	101		
UN0397	101	UN0470	101		
UN0398	101	UN0471	101		
UN0399	101	UN0472	101		
UN0400	101	UN0473	101		
UN0401	112	UN0474	101		
UN0402	112(b) or 112(c)	UN0475	101		
UN0403	135	UN0476	101		
UN0404	135	UN0477	101		
UN0405	135	UN0478	101		
UN0406	114(b)	UN0479	101		
UN0407	114(b)	UN0480	101		

(c) Explosives Packing Instruction Table. Explosives must be packaged in accordance with the following table:

(1) The first column lists, in alphanumeric sequence, the packing methods prescribed for explosives in the Explosives Table of paragraph (b) of this section.

(2) The second column specifies the inner packagings that are required. If inner packagings are not required, a notation of "Not necessary" appears in the column. The term "Not necessary" means that a suitable inner packaging may be used but is not required.

(3) The third column specifies the intermediate packagings that are required. If intermediate packagings are not required, a notation of "Not necessary" appears in the column. The term "Not necessary" means that a suitable intermediate packaging may be used but is not required.

(4) The fourth column specifies the outer packagings which are required. If inner packagings and/or intermediate packagings are specified in the second and third columns, then the packaging specified in the fourth column must be used as the outer packaging of a combination packaging; otherwise it may be used as a single packaging.

(5) Packing Instruction 101 may be used for any explosive substance or article if an equivalent level of safety is shown to be maintained subject to the approval of the Associate Administrator.

TABLE OF PACKING METHODS

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
<p>101</p> <p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <p>1. Samples of new or existing explosive substances or articles may be transported as directed by the Associate Administrator for Hazardous Materials Safety for purposes including: testing, classification, research and development, quality control, or as a commercial sample. Explosive samples which are wetted or desensitized must be limited to 25 kg. Explosive samples which are not wetted or desensitized must be limited to 10 kg in small packages as specified by the Associate Administrator for Hazardous Materials Safety.</p>	<p>This Packing Instruction may be used as an alternative to a specifically assigned packing method with the approval of the Associate Administrator for Hazardous Materials Safety prior to transportation. When this packing instruction is used, the following must be marked on the shipping documents: "Packaging approved by the competent authority of the United States of America (USA)".</p>		
<p>110(a)</p> <p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <p>1. The Intermediate packagings must be filled with water saturated material such as an anti-freeze solution or wetted cushioning.</p> <p>2. Outer packagings must be filled with water saturated material such as an anti-freeze solution or wetted cushioning. Outer packagings must be constructed and sealed to prevent evaporation of the wetting solution, except when 0224 is being carried dry.</p>	<p>Bags</p> <p>plastics textile, plastic coated or lined rubber textile, rubberized textile</p>	<p>Bags</p> <p>plastics textile, plastic coated or lined rubber textile, rubberized</p> <p>Receptacles</p> <p>plastics metal</p>	<p>Drums</p> <p>steel, removable (1A2). plastics, removable head (1H2)</p>
<p>110(b)</p> <p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <p>For UN 0074, 0113, 0114, 0129, 0130, 0135 and 0224, the following conditions must be satisfied:</p> <p>a. inner packagings must not contain more than 50 g of explosive substance (quantity corresponding to dry substance);</p> <p>b. each inner packaging must be separated from other inner packagings by dividing partitions; and</p> <p>c. the outer packaging must not be partitioned with more than 25 compartments.</p>	<p>Receptacles</p> <p>metal wood rubber, conductive plastics, conductive</p> <p>Bags</p> <p>rubber, conductive plastics, conductive</p>	<p>Dividing partitions</p> <p>metal wood plastics fibreboard</p>	<p>Boxes</p> <p>natural wood, sift-proof wall (4C2) plywood (4D). reconstituted wood (4F)</p>
<p>111</p> <p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <p>For UN 0159, inner packagings are not required when metal (1A2 or 1B2) or plastics (1H2) drums are used as outer packagings.</p>	<p>Bags</p> <p>paper, waterproofed plastics textile, rubberized</p> <p>Sheets</p> <p>plastics textile, rubberized</p>	<p>Not necessary</p>	<p>Boxes</p> <p>steel (4A). aluminium (4B). natural wood, ordinary (4C1) natural wood, sift proof (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, expanded (4H1) plastics, solid (4H2)</p> <p>Drums</p> <p>steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibreboard (1G) plastics, removable head (1H2)</p>
<p>112(a)</p> <p>This packing instruction applies to wetted solids.</p>			

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <ol style="list-style-type: none"> For UN Nos. 0004, 0076, 0078, 0154, 0219 and 0394, packagings must be lead free. Intermediate packagings are not required if leakproof drums are used as the outer packaging. For UN 0072 and UN 0226, intermediate packagings are not required. <p style="text-align: center;">112(b)</p> <p>This packing instruction applies to dry solids other than powders.</p> <p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <ol style="list-style-type: none"> For UN 0004, 0076, 0078, 0154, 0216, 0219 and 0386, packagings must be lead free. For UN 0209, bags, sift-proof (5H2) are recommended for flake or prilled TNT in the dry state and a maximum net mass of 30 kg. For UN 0222 and UN 0223, inner packagings are not required. <p style="text-align: center;">112(c)</p> <p>This packing instruction applies to solid dry powders</p> <p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <ol style="list-style-type: none"> For UN 0004, 0076, 0078, 0154, 0216, 0219 and 0386, packagings must be lead free. For UN 0209, bags, sift-proof (5H2) are recommended for flake or prilled TNT in the dry state. Bags must not exceed a maximum net mass of 30 kg. Inner packagings are not required if drums are used as the outer packaging. At least one of the packagings must be sift-proof. <p style="text-align: center;">113</p> <p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <ol style="list-style-type: none"> For UN 0077, 0234, 0235 and 236, packagings must be lead free For UN 0342, inner packagings are not required when metal (1A2 or 1B2) or plastics (1H2) drums are used as outer packagings Intermediate packagings are not required if leakproof removable head drums are used as the outer packaging. <p style="text-align: center;">114(a)</p> <p>This packing instruction applies to wetted solids.</p>	<p>Bags paper, multiwall, water resistant plastics textile textile, rubberized woven plastics</p> <p>Receptacles metal plastics</p> <p>Bags paper, Kraft paper, multiwall, water resistant plastics textile textile, rubberized woven plastics</p> <p>Bags paper, multiwall, water resistant plastics woven plastics</p> <p>Receptacles fibreboard metal plastics wood</p> <p>Bags paper plastics textile, rubberized</p> <p>Receptacles fibreboard metal plastics wood</p> <p>Sheets paper, kraft paper, waxed</p>	<p>Bags plastics textile, plastic coated or lined</p> <p>Receptacles metal plastics</p> <p>Bags (for UN 0150 only) plastics textile, plastic coated or lined</p> <p>Bags paper, multiwall water resistant with inner lining plastics</p> <p>Receptacles metal plastics</p> <p>Not necessary</p>	<p>Boxes steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift proof (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, expanded (4H1) plastics, solid (4H2)</p> <p>Drums steel, removable head (1A2) aluminium, removable head (1B2) fibre (1G) plastics, removable head (1H2)</p> <p>Bags woven plastics, sift-proof (5H2/3) plastics, film (5H4) textile, sift-proof (5L2) textile, water resistant (5L3) paper, multiwall, water resistant (5M2)</p> <p>Boxes steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift proof (4C2) plywood (4D) reconstituted wood (4F) fibre board (4G) plastics, expanded (4H1) plastics, solid (4H2)</p> <p>Drums steel, removable head (1A2) aluminium, removable head (1B2) fibre (1G) plastics, removable head (1H2)</p> <p>Boxes steel (4A) natural wood, ordinary (4C1) natural wood, sift proof (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)</p> <p>Drums steel, removable head (1A2) aluminium, removable head (1B2) fibre (1G).</p> <p>Boxes steel (4A) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)</p> <p>Drums steel, removable head (1A2) aluminium, removable head (1B2) fibre (1G)</p>

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <ol style="list-style-type: none"> For UN 0077, 0234, 0235 and 0236, packagings must be lead free For UN 0342, inner packagings are not required when metal (1A2 or 1B2) or plastics (1H2) drums are used as outer packagings Intermediate packagings are not required if leakproof removable head drums are used as the outer packaging. <p>114(b)</p> <p>This packaging instruction applies to dry solids</p>	<p>Bags</p> <ul style="list-style-type: none"> plastics textile woven plastics <p>Receptacles</p> <ul style="list-style-type: none"> metal plastics 	<p>Bags</p> <ul style="list-style-type: none"> plastics textile, plastic coated or lined <p>Receptacles</p> <ul style="list-style-type: none"> metal plastics 	<p>Boxes</p> <ul style="list-style-type: none"> steel (4A) natural wood, ordinary (4C1) natural wood, sift proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) <p>Drums</p> <ul style="list-style-type: none"> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <ol style="list-style-type: none"> For UN 0077, 0132, 0234, 0235 and 0236, packagings must be lead free. For UN 0160 and UN 0161, when metal drums (1A2 or 1B2) are used as the outer packaging, metal packagings must be so constructed that the risk of explosion, by reason of increase internal pressure from internal or external causes is prevented. For UN 0160 and UN 0161, inner packagings are not required if drums are used as the outer packaging. <p>115</p>	<p>Bags</p> <ul style="list-style-type: none"> paper, kraft plastics textile, sift-proof woven plastics, sift-proof <p>Receptacles</p> <ul style="list-style-type: none"> fibreboard metal paper plastics woven plastics, sift-proof 	<p>Not necessary</p>	<p>Boxes</p> <ul style="list-style-type: none"> natural wood, ordinary (4C1) natural wood, sift proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) <p>Drums</p> <ul style="list-style-type: none"> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <ol style="list-style-type: none"> For liquid explosives, inner packagings must be surrounded with non-combustible absorbent cushioning material in sufficient quantity to absorb the entire liquid content. Metal receptacles should be cushioned from each other. The net mass of explosive per package may not exceed 30 kg when boxes are used as outer packaging. The net volume of explosive in each package other than boxes must not exceed 120 litres. For UN 0075, 0143, 0495 and 0497 when boxes are used as the outer packaging, inner packagings must have taped screw cap closures and be not more than 5 litres capacity each. A composite packaging consisting of a plastic receptacle in a metal drum (6HA1) may be used in lieu of combination packagings. Liquid substances must not freeze at temperatures above -15°C (+5°F). For UN 0144, intermediate packagings are not necessary. 	<p>Receptacles</p> <ul style="list-style-type: none"> metal plastics 	<p>Bags</p> <ul style="list-style-type: none"> plastics in metal receptacles <p>Drums</p> <ul style="list-style-type: none"> metal 	<p>Boxes</p> <ul style="list-style-type: none"> natural wood, ordinary (4C1) natural wood, sift proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) <p>Drums</p> <ul style="list-style-type: none"> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) <p>Specification MC 200 containers may be used for transport by motor vehicle.</p>

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
<p>116</p> <p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <ol style="list-style-type: none"> For UN 0082, 0241, 0331 and 0332, inner packagings are not necessary if leakproof removable head drums are used as the outer packaging. For UN 0082, 0241, 0331 and 0332, inner packagings are not required when the explosive is contained in a material impervious to liquid. For UN 0081, inner packagings are not required when contained in rigid plastic which is impervious to nitric esters. For UN 0331, inner packagings are not required when bags (5H2), (5H3) or (5H4) are used as outer packagings. Bags (5H2 or 5H3) must be used only for UN 0082, 0241, 0331 and 0332. For UN 0081, bags must not be used as outer packagings. 	<p>Bags</p> <p>paper, water and oil resistant plastics</p> <p>textile, plastic coated or lined</p> <p>woven plastics, sift-proof</p> <p>Receptacles</p> <p>fibreboard, water resistant</p> <p>metal</p> <p>plastics</p> <p>wood, sift-proof</p> <p>Sheets</p> <p>paper, water resistant</p> <p>paper, waxed</p> <p>plastics</p>	Not necessary	<p>Bags</p> <p>woven plastics (5H1/2/3).</p> <p>paper, multiwall, water resistant (5M2)</p> <p>plastics, film (5H4)</p> <p>textile, sift-proof (5L2)</p> <p>textile, water resistant (5L3)</p> <p>Boxes</p> <p>steel (4A)</p> <p>aluminium (4B)</p> <p>wood, natural, ordinary (4C1)</p> <p>natural wood, sift proof walls (4C2)</p> <p>plywood (4D)</p> <p>reconstituted wood (4F)</p> <p>fibreboard (4G)</p> <p>plastics, solid (4H2)</p> <p>Drums</p> <p>steel, removable head (1A2)</p> <p>aluminium, removable head (1B2)</p> <p>fibre (1G)</p> <p>plastics, removable head (1H2)</p> <p>Jerricans</p> <p>steel, removable head (3A2)</p> <p>plastics, removable head (3H2)</p>
<p>117</p> <p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <ol style="list-style-type: none"> This packing instruction may only be used for explosives of 0082 when they are mixtures of ammonium nitrate or other inorganic nitrates with other combustible substances which are not explosive ingredients. Such explosives must not contain nitroglycerin, similar liquid organic nitrates, liquid or solid nitrocarbons, or chlorates. This packing instruction may only be used for explosives of UN 0241 which consist of water as an essential ingredient and high proportions of ammonium nitrate or other oxidizers, some or all of which are in solution. The other constituents may include hydrocarbons or aluminium powder, but must not include nitro-derivatives such as trinitrotoluene. Metal IBCs must not be used for UN 0082 and 0241. Flexible IBCs may only be used for solids. 	Not necessary	Not necessary	<p>IBCs</p> <p>metal (11A), (11B), (11N), (21A), (21B), (21N), (31A), (31B), (31N)</p> <p>flexible (13H2), (13H3), (13H4), (13L2), (13L3), (13L4), (13M2)</p> <p>rigid plastics (11H1), (11H2), (21H1), (21H2), (31H1), (31H2)</p> <p>composite (11HZ1), (11HZ2), (21HZ1), (21HZ2), (31HZ1), (31HZ2)</p>

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
<p>130</p> <p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <p>1. The following applies to UN 0006, 0009, 0010, 0015, 0016, 0018, 0019, 0034, 0035, 0038, 0039, 0048, 0056, 0137, 0138, 0168, 0169, 0171, 0181, 0182, 0183, 0186, 0221, 0238, 0243, 0244, 0245, 0246, 0254, 0280, 0281, 0286, 0287, 0297, 0299, 0300, 0301, 0303, 0321, 0328, 0329, 0344, 0345, 0346, 0347, 0362, 0363, 0370, 0412, 0424, 0425, 0434, 0435, 0436, 0437, 0438, 0451, 0459 and 0488. Large and robust explosives articles, normally intended for military use, without their means of initiation or with their means of initiation containing at least two effective protective features, may be carried unpackaged. When such articles have propelling charges or are self-propelled, their ignition systems must be protected against stimuli encountered during normal conditions of transport. A negative result in Test Series 4 on an unpackaged article indicates that the article can be considered for transport unpackaged. Such unpackaged articles may be fixed to cradles or contained in crates or other suitable handling devices.</p>	Not necessary	Not necessary	<p>Boxes</p> <p>steel (4A)</p> <p>aluminium (4B)</p> <p>wood natural, ordinary (4C1)</p> <p>natural wood, sift proof walls (4C2)</p> <p>plywood (4D)</p> <p>reconstituted wood (4F)</p> <p>fibreboard (4G)</p> <p>plastics, expanded (4H1)</p> <p>plastics, solid (4H2)</p> <p>Drums</p> <p>steel, removable head (1A2)</p> <p>aluminium, removable head (1B2)</p> <p>fibre (1G)</p> <p>plastics, removable head (1H2)</p>
<p>131</p> <p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <p>1. For UN 0029, 0267 and 0455, bags and reels may not be used as inner packagings.</p> <p>2. For UN 0030, 0255 and 0456, inner packagings are not required when detonators are packed in pasteboard tubes, or when their leg wires are wound on spools with the caps either placed inside the spool or securely taped to the wire on the spool, so as to restrict freedom of movement of the caps and to protect them from impact forces.</p> <p>3. For UN 0360, 0361 and 0500, detonators are not required to be attached to the safety fuse, metal-clad mild detonating cord, detonating cord, or shock tube. Inner packagings are not required if the packing configuration restricts freedom of movement of the caps and protects them from impact forces.</p>	<p>Bags</p> <p>paper</p> <p>plastics</p> <p>Receptacles</p> <p>fibreboard</p> <p>metal</p> <p>plastics</p> <p>wood</p> <p>Reels</p>	Not necessary	<p>Boxes</p> <p>steel (4A)</p> <p>aluminium (4B)</p> <p>wood, natural, ordinary (4C1)</p> <p>natural wood, sift proof walls (4C2)</p> <p>plywood (4D)</p> <p>reconstituted wood (4F)</p> <p>fibreboard (4G)</p> <p>Drums</p> <p>steel, removable head (1A2)</p> <p>aluminium, removable head (1B2)</p> <p>fibre (1G)</p> <p>plastics, removable head (1H2)</p>
<p>132(a)</p>	Not necessary	Not necessary	<p>Boxes</p> <p>steel (4A)</p> <p>aluminium (4B)</p> <p>wood, natural, ordinary (4C1)</p> <p>wood, natural, sift proof walls (4C2)</p> <p>plywood (4D)</p> <p>reconstituted wood (4F)</p> <p>fibreboard (4G)</p> <p>plastics, solid (4H2)</p>

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
132(b)	Receptacles fibreboard metal plastics Sheets paper plastics	Not necessary	Boxes steel (4A) aluminium (4B) wood, natural, ordinary (4C1) wood, natural, sift proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)
133 PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 1. For UN 0043, 0060, 0225, 0268 and 0306 trays are not authorized as inner packagings. 2. Intermediate packagings are only required when trays are used as inner packagings.	Receptacles fibreboard metal plastics wood Trays, fitted with dividing partitions fibreboard plastics wood	Receptacles fibreboard metal plastics wood	Boxes steel (4A) aluminium (4B) wood, natural, ordinary (4C1) wood, natural, sift proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)
134	Bags water resistant Receptacles fibreboard metal plastics wood Sheets fibreboard, corrugated Tubes fibreboard	Not necessary	Boxes steel (4A) aluminium (4B) wood, natural, ordinary (4C1) wood, natural, sift proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) Drums steel, removable head (1A2) aluminium, removable head (1B2)
135	Bags paper plastics Receptacles fibreboard metal plastics wood Sheets paper plastics	Not necessary	Boxes steel (4A) aluminium (4B) wood, natural, ordinary (4C1) wood, natural, sift proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, expanded (4H1) plastics, solid (4H2) Drums steel, removable head (1A2) aluminium, removable head (1B2) fibre (1G) plastics, removable head (1H2)
136	Bags plastics textile Boxes fibreboard plastics wood Dividing partitions in the outer packagings	Not necessary	Boxes steel (4A) aluminium (4B) wood, natural, ordinary (4C1) wood, natural, sift proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) Drums steel, removable head (1A2) aluminium, removable head (1B2) fibre (1G) plastics, removable head (1H2)

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
<p>137</p> <p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: For UN 0059, 0439, 0440 and 0441, when the shaped charges are packed singly, the conical cavity must face downwards and the package marked "THIS SIDE UP". When the shaped charges are packed in pairs, the conical cavities must face inwards to minimize the jetting effect in the event of accidental initiation.</p>	<p>Bags</p> <ul style="list-style-type: none"> plastics <p>Boxes</p> <ul style="list-style-type: none"> fibreboard <p>Tubes</p> <ul style="list-style-type: none"> fibreboard metal plastics <p>Dividing partitions in the outer packagings</p>	Not necessary	<p>Boxes</p> <ul style="list-style-type: none"> steel (4A) aluminium (4B) wood, natural, ordinary (4C1) wood, natural, sift proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G)
<p>138</p> <p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: If the ends of the articles are sealed, inner packagings are not necessary.</p>	<p>Bags</p> <ul style="list-style-type: none"> plastics 	Not necessary	<p>Boxes</p> <ul style="list-style-type: none"> steel (4A) aluminium (4B) wood, natural, ordinary (4C1) wood, natural, sift proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) <p>Drums</p> <ul style="list-style-type: none"> steel, removable head (1A2) aluminium, removable head (1B2)
<p>139</p> <p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <ol style="list-style-type: none"> 1. For UN 0065, 0102, 0104, 0289 and 0290, the ends of the detonating cord must be sealed, for example, by a plug firmly fixed so that the explosive cannot escape. The ends of CORD DETONATING flexible must be fastened securely. 2. For UN 0065 and UN 0289, inner packagings are not required when they are fastened securely in coils. 	<p>Bags</p> <ul style="list-style-type: none"> plastics <p>Receptacles</p> <ul style="list-style-type: none"> fibreboard metal plastics wood <p>Reels</p> <p>Sheets</p> <ul style="list-style-type: none"> paper plastics 	Not necessary	<p>Boxes</p> <ul style="list-style-type: none"> steel (4A) aluminium (4B) wood, natural, ordinary (4C1) wood, natural, sift proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) <p>Drums</p> <ul style="list-style-type: none"> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)
<p>140</p> <p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <ol style="list-style-type: none"> 1. If the ends of UN 0105 are sealed, no inner packagings are required. 2. For UN 0101, the packaging must be sift-proof except when the fuse is covered by a paper tube and both ends of the tube are covered with removable caps. 3. For UN 0101, steel or aluminium boxes or drums must not be used. 	<p>Bags</p> <ul style="list-style-type: none"> plastics <p>Reels</p> <p>Sheets</p> <ul style="list-style-type: none"> paper, kraft plastics 	Not necessary	<p>Boxes</p> <ul style="list-style-type: none"> steel (4A) aluminium (4B) wood, natural, ordinary (4C1) wood, natural, sift proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) <p>Drums</p> <ul style="list-style-type: none"> steel, removable head (1A2) aluminium, removable head (1B2) fibre (1G)
<p>141</p>	<p>Receptacles</p> <ul style="list-style-type: none"> fibreboard metal plastics wood <p>Trays, fitted with dividing partitions</p> <ul style="list-style-type: none"> plastics wood <p>Dividing partitions in the outer packagings</p>	Not necessary	<p>Boxes</p> <ul style="list-style-type: none"> steel (4A) aluminium (4B) wood, natural, ordinary (4C1) wood, natural, sift proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) <p>Drums</p> <ul style="list-style-type: none"> steel, removable head (1A2) aluminium, removable head (1B2) fibre (1G) plastics, removable head (1H2)

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
142	Bags paper plastics Receptacles fibreboard metal plastics wood Sheets paper Trays, fitted with dividing partitions plastics	Not necessary	Boxes steel (4A) aluminium (4B) wood, natural, ordinary (4C1) wood, natural, sift proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) Drums steel, removable head (1A2) aluminium, removable head (1B2) fibre (1G) plastics, removable head (1H2)
143 PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 1. For UN 0271, 0272, 0415 and 0491 when metal packagings are used, metal packagings must be so constructed that the risk of explosion, by reason of increase in internal pressure from internal or external causes is prevented. 2. Composite packagings (6HH2) (plastic receptacle with outer solid box) may be used in lieu of combination packagings.	Bags paper, kraft plastics textile textile, rubberized Receptacles fibreboard metal plastics Trays, fitted with dividing partitions plastics wood	Not necessary	Boxes steel (4A) aluminium (4B) wood, natural, ordinary (4C1) wood, natural, sift proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) Drums steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)
144 PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: For UN 0248 and UN 0249, packagings must be protected against the ingress of water. When CONTRIVANCES, WATER ACTIVATED are transported unpackaged, they must be provided with at least two independent protective features which prevent the ingress of water.	Receptacles fibreboard metal plastics Dividing partitions in the outer packagings	Not necessary	Boxes steel (4A) aluminium (4B) wood, natural, ordinary (4C1) with metal liner plywood (4D) with metal liner reconstituted wood (4F) with metal liner plastics, expanded (4H1)

US 1

1. A jet perforating gun, charged, oil well may be transported under the following conditions:

a. Initiation devices carried on the same motor vehicle or offshore supply vessel must be segregated; each kind from every other kind, and from any gun, tool or other supplies, unless approved in accordance with § 173.56. Segregated initiation devices must be carried in a container having individual pockets for each such device or in a fully enclosed steel container lined with a non-sparking material. No more than two segregated initiation devices per gun may be carried on the same motor vehicle.

b. Each shaped charge affixed to the gun may not contain more than 112 g (4 ounces) of explosives.

c. Each shaped charge if not completely enclosed in glass or metal, must be fully protected by a metal cover after installation in the gun.

d. A jet perforating gun classed as 1.1D or 1.4D may be transported by highway by private or contract carriers engaged in oil well operations.

(i) A motor vehicle transporting a gun must have specially built racks or carrying cases designed and constructed so that the gun is securely held in place during transportation and is not subject to damage by contact, one to the other or any other article or material carried in the vehicle, and;

(ii) The assembled gun packed on the vehicle may not extend beyond the body of the motor vehicle.

e. A jet perforating gun classed as 1.4D may be transported by a private offshore supply vessel only when the gun is carried in a motor vehicle as specified in paragraph (d) of this packing method or on offshore well tool pallets provided that:

(i) All the conditions specified in paragraphs (a), (b), and (c) of this packing method are met;

(ii) The total explosive contents do not exceed 9.1 kg (20 pounds) per tool pallet;

(iii) Each cargo vessel compartment may contain up to 90.8 kg (200 pounds) of explosive content if the segregation requirements in §176.83(b)(3) of this subchapter are met; and

(iv) When more than one vehicle or tool pallet is stowed "on deck" a minimum horizontal separation of 3 m (9.8 feet) must be provided.

(d) Class 1 (explosive) materials owned by the Department of Defense and packaged prior to January 1, 1990, in accordance with the requirements of this subchapter in effect at that time, are excepted from the requirements of part 178 of this subchapter provided the packagings have maintained their integrity and the goods are declared as government-owned goods packaged prior to January 1, 1990.

§ 173.124 [Amended]

29. In § 173.124, the following changes would be made:

a. In paragraph (a)(1) introductory text, the word "Wetted" would be revised to read "Desensitized".

b. In paragraph (a)(2)(i)(D)(2) the words "for a 50 kg package" would be added after the words "greater than 75 °C (167 °F)".

c. In paragraphs (a)(3) (ii) and (iii), the wording "paragraph 2.c.(2) of appendix E to this part" would be revised to read

"UN Manual of Tests and Criteria" each place it appears.

d. In paragraph (b)(1), the wording "paragraph 3.a.(1) or 3.a.(2), as appropriate, of appendix E to this part" would be revised to read "the UN Manual of Tests and Criteria".

e. In paragraph (b)(2), the wording "paragraph 3.b.(1) of appendix E to this part" would be revised to read "UN Manual of Tests and Criteria".

f. In paragraph (c), the wording "paragraph 4 of appendix E to this part"

would be revised to read "UN Manual of Tests and Criteria".

30. In § 173.125, paragraphs (b), (c)(2)(i), (c)(2)(ii), and (d)(1) through (d)(3) would be revised to read as follows:

§ 173.125 Class 4—Assignment of packing group.

* * * * *

(b) Packing group criteria for readily combustible materials of Division 4.1 are as follows:

(1) Powdered, granular or pasty materials must be classified in Division 4.1 when the time of burning of one or more of the test runs, in accordance with the UN Manual of Tests and Criteria is less than 45 seconds or the rate of burning is more than 2.2 mm/s. Powders of metals or metal alloys must be classified in Division 4.1 when they can be ignited and the reaction spreads over the whole length of the sample in 10 minutes or less.

(2) Packing group criteria for readily combustible materials of Division 4.1 are assigned as follows:

(i) For readily combustible solids (other than metal powders), Packing Group II if the burning time is less than 45 seconds and the flame passes the wetted zone. Packing Group II must be assigned to powders of metal or metal alloys if the zone of reaction spreads over the whole length of the sample in 5 minutes or less.

(ii) For readily combustible solids (other than metal powders), Packing Group III must be assigned if the burning rate time is less than 45 seconds and the wetted zone stops the flame propagation for at least 4 minutes. Packing Group III must be assigned to metal powders if the reaction spreads over the whole length of the sample in more than 5 minutes but not more than 10 minutes.

(c) * * *

(2) * * *

(i) Packing Group II, if the material gives a positive test result when tested with a 2.5-cm cube size sample at 140 °C; or

(ii) Packing Group III, if—

(A) A positive test result is obtained in a test using a 100 mm sample cube at 140 °C and a negative test result is obtained in a test using a 25 mm sample cube at 140 °C and the substance is transported in packagings with a volume of more than 3 cubic meters; or

(B) A positive test result is obtained in a test using a 100 mm sample cube at 120 °C and a negative result is obtained in a test using a 25 mm sample cube at 140 °C and the substance is transported in packagings with a volume of more than 450 liters; or

(C) A positive result is obtained in a test using a 100 mm sample cube at 100 °C and a negative result is obtained in a test using a 25 mm sample cube at 140 °C and the substance is transported in packagings with a volume of more than 450 liters.

(d) * * *

(1) Packing Group I, if the material reacts vigorously with water at ambient temperatures and demonstrates a tendency for the gas produced to ignite spontaneously, or which reacts readily with water at ambient temperatures such that the rate of evolution of flammable gases is equal or greater than 10 liters per kilogram of material over any one minute;

(2) Packing Group II, if the material reacts readily with water at ambient temperatures such that the maximum rate of evolution of flammable gases is equal to or greater than 20 liters per kilogram of material per hour, and which does not meet the criteria for Packing Group I; or

(3) Packing Group III, if the material reacts slowly with water at ambient temperatures such that the maximum rate of evolution of flammable gases is greater than 1 liter per kilogram of material per hour, and which does not meet the criteria for Packing Group I or II.

31. Section 173.127 would be revised to read as follows:

§ 173.127 Class 5, Division 5.1—Definition and assignment of packing groups.

(a) *Definition.* For the purpose of this subchapter, *oxidizer* (Division 5.1) means a material that may, generally by yielding oxygen, cause or enhance the combustion of other materials.

(1) A solid material is classed as a Division 5.1 material if, when tested in accordance with the UN Manual of Tests and Criteria, its mean burning time is less than or equal to the burning time of a 3:7 potassium bromate/cellulose mixture.

(2) A liquid material is classed as a Division 5.1 material if, when tested in accordance with the UN Manual of Tests and Criteria, it spontaneously ignites or its mean time for a pressure rise from 690 kPa to 2070 kPa gauge is less than the time of a 1:1 nitric acid (65 percent)/cellulose mixture.

(b) *Assignment of packing groups.* (1) The packing group of a Division 5.1 material which is a solid shall be assigned using the following criteria:

(i) Packing Group I, for any material which, in either concentration tested, exhibits a mean burning time less than the mean burning time of a 3:2 potassium bromate/cellulose mixture;

(ii) Packing Group II, for any material which, in either concentration tested, exhibits a mean burning time less than or equal to the mean burning time of a 2:3 potassium bromate/cellulose mixture and the criteria for Packing Group I are not met;

(iii) Packing Group III for any material which, in either concentration tested, exhibits a mean burning time less than or equal to the mean burning time of a 3:7 potassium bromate/cellulose mixture and the criteria for Packing Groups I and II are not met.

(2) The packing group of a Division 5.1 material which is a liquid shall be assigned using the following criteria:

(i) Packing Group I for:

(A) Any material which spontaneously ignites when mixed with cellulose in a 1:1 ratio; or

(B) Any material which exhibits a mean pressure rise time less than the pressure rise time of a 1:1 perchloric acid (50 percent)/cellulose mixture.

(ii) Packing Group II, any material which exhibits a mean pressure rise time less than or equal to the pressure rise time of a 1:1 aqueous sodium chlorate solution (40 percent)/cellulose mixture and the criteria for Packing Group I are not met.

(iii) Packing Group III, any material which exhibits a mean pressure rise time less than or equal to the pressure rise time of a 1:1 nitric acid (65 percent)/cellulose mixture and the criteria for Packing Group I and II are not met.

§ 173.128 [Amended]

32. In § 173.128, the following changes would be made:

a. In paragraph (c)(3), the wording "United Nations Recommendations on the Transport of Dangerous Goods, Tests and Criteria, part III" would be revised to read "UN Manual of Tests and Criteria".

b. In paragraph (e), the wording "Figure 11.1 (Classification and Flow Chart Scheme for Organic Peroxides) from the UN Recommendations, Tests and Criteria, part III" would be revised to read "Figure 11.2 (Classification and Flow Chart Scheme for Organic Peroxides) from the UN Manual of Tests and Criteria, Part II".

33. In § 173.132, a new paragraph (b)(3)(iii) would be added, paragraph (c) would be redesignated as paragraph (d), and a new paragraph (c) would be added, to read as follows:

§ 173.132 Class 6, Division 6.1—Definitions.

* * * * *

(b) * * *

(3) * * *

(iii) A solid substance must be tested if at least 10 percent of its total mass is likely to be dust in a respirable range, e.g., the aerodynamic diameter of that particle-fraction is 10 microns or less. A liquid substance must be tested if a mist is likely to be generated in a leakage of the transport containment. Both for solid and liquid substances more than 90% (by mass) of a specimen prepared for inhalation toxicity must be in the

respirable range as defined in this paragraph (b)(3)(iii).

(c) For purposes of classifying and assigning packing groups to mixtures possessing oral or dermal toxicity hazards according to the criteria in § 173.133(a)(1), it is necessary to determine the acute LD₅₀ of the mixture. If a mixture contains more than one active constituent, there are three possible approaches that may be used to determine the oral or dermal LD₅₀ of the mixture. The preferred method is to

$$\frac{C_A}{T_A} + \frac{C_B}{T_B} + \frac{C_Z}{T_Z} = \frac{100}{T_M}$$

obtain reliable acute oral and dermal toxicity data on the actual mixture to be transported. If reliable, accurate data is not available, then either of the following methods may be performed:

(1) Classify the formulation according to the most hazardous constituent of the mixture as if that constituent were present in the same concentration as the total concentration of all active constituents; or

(2) Apply the formula:

Where:

C=the % concentration of constituent A, B . . . Z in the mixture;

T=the oral LD₅₀ values of constituent A, B . . . Z;

T_M=the oral LD₅₀ value of the mixture.

* * * * *

34. In § 173.136, a new paragraph (c) would be added to read as follows:

§ 173.136 Class 8—Definitions

* * * * *

(c) Skin corrosion test data produced no later than September 30, 1995, using the procedures of Part 173, Appendix A, in effect on September 30, 1995 (see 49 CFR part 173, appendix A, revised as of October 1, 1994) for appropriate exposure times may be used for classification and assignment of packing group for Class 8 materials corrosive to skin.

§ 173.137 [Amended]

35. In § 173.137, in paragraph (b), the wording "other than those meeting Packing Group I criteria" would be added immediately following the word "Materials".

36. In § 173.152, a new paragraph (b)(3)(iii) would be added to read as follows:

§ 173.152 Exceptions for Division 5.1 (oxidizers) and Division 5.2 (organic peroxides).

* * * * *

(b) * * *

(3) * * *

(iii) For polyester resin kits transported by highway, rail, or vessel, the organic peroxide (the activator) must be of type D, E, or F and not require temperature control. The organic peroxide must be packed in inner packagings not over 125 ml (4.22 ounces) net capacity each for liquids or 500 g (17.64 ounces) net capacity each for solids. The flammable liquid (the base) must be packed in inner

packagings in accordance with § 173.150 (b)(2) or (b)(3). The components must be packed in strong outer packagings. The total gross weight of the completed package may not exceed 30 kg (66 pounds).

* * * * *

37. In § 173.162, a sentence would be added at the end of the section to read as follows:

§ 173.162 Gallium.

* * * Manufactured articles or apparatuses, each containing not more than 100 mg (0.0035 ounce) of gallium and packaged so that the quantity of gallium per package does not exceed 1 g (0.35 ounce) are not subject to the requirements of this subchapter.

38. In § 173.166, the section heading and paragraph (e) would be revised to read as follows:

§ 173.166 Air bag inflators, air bag modules and seat-belt pretensioners.

* * * * *

(e) *Packagings.* The following packagings are authorized:

- (1) 1A2, 1B2, 1G or 1H2 drums.
- (2) 3A2 or 3H2 jerricans.
- (3) 4C1, 4C2, 4D, 4F, 4G or 4H2 boxes.
- (4) Reusable high strength plastic or metal containers or dedicated handling devices are authorized for shipment of air bag inflators, air bag modules, and seat-belt pretensioners by highway or rail from a manufacturing facility to the assembly facility, subject to the following conditions:

(i) The gross weight of the container or handling device may not exceed 1000 kg (2205 pounds). The container or handling device structure must provide adequate support to allow them to be stacked at least three high with no damage to the containers or devices.

(ii) If not completely enclosed by design, the container or handling device must be covered with plastic, fiberboard, or metal. The covering must

be secured to the container by non-metallic banding or other comparable methods.

(iii) Internal dunnage must be sufficient to prevent movement of the devices within the container.

* * * * *

§ 173.166 [Amended]

39. In addition, in § 173.166, the following changes would be made:

a. The last sentence in paragraph (a) would be removed.

b. In paragraph (b) introductory text, the word "or" would be added immediately following "air bag module," and the wording "or seat-belt module" would be removed.

c. In paragraph (b)(2), the wording "Tests and Criteria, Second Edition, 1990" would be revised to read "Manual of Tests and Criteria, second revised edition, 1995".

d. In paragraph (b)(4), the wording "or seat-belt" and the wording "or seat-belt pre-tensioner" would be removed.

e. In paragraph (c), in the last sentence, the wording "or pretensioner" would be removed.

f. In paragraph (d)(1), the wording "An air bag or seat-belt module" would be revised to read "An air bag module or seat-belt pretensioner".

g. In paragraph (d)(2), the wording "or seat-belt" and the wording "or pretensioner" would be removed.

h. In paragraph (f), in the first sentence, the wording "or handling device" would be added immediately following "each package".

40. Section 173.185 would be revised to read as follows:

§ 173.185 Lithium batteries and cells.

(a) Except as otherwise provided in this subpart, a lithium cell or battery is authorized for transportation only if it conforms to the provisions of this section.

(b) *Exceptions.* Cells and batteries are not subject to the requirements of this subchapter if they meet the following requirements:

(1) Each cell with a liquid cathode may contain no more than 0.5 g of lithium or lithium alloy, and each cell with a solid cathode may contain no more than 1.0 g lithium or lithium alloy;

(2) Each battery with a liquid cathode may contain an aggregate quantity of no more than 1.0 g lithium or lithium alloy, and each battery with a solid cathode may contain an aggregate quantity of no more than 2.0 g of lithium or lithium alloy;

(3) Each cell or battery containing a liquid cathode must be hermetically sealed;

(4) Cells and batteries must be separated so as to prevent short circuits and must be packed in strong packagings, except when installed in equipment; and

(5) If a liquid cathode battery contains more than 0.5 g of lithium or lithium alloy or a solid cathode battery contains more than 1.0 g 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.

(c) Cells and batteries also are not subject to this subchapter if they meet the following requirements:

(1) Each cell contains not more than 5 g of lithium or lithium alloy;

(2) Each battery contains not more than 25 g of lithium or lithium alloy;

(3) Each cell or battery is of the type proven to be non-dangerous by testing in accordance with tests in the UN Manual of Tests and Criteria, such testing must be carried out on each type prior to the initial transport of that type; and

(4) Cells and batteries are designed or packed in such a way as to prevent short circuits under conditions normally encountered in transportation.

(d) Cells and batteries and equipment containing cells and batteries which were first transported prior to January 1, 1995, and were assigned to Class 9 on the basis of the requirements of this subchapter in effect on October 1, 1993, may continue to be transported in accordance with the applicable requirements in effect on October 1, 1993.

(e) Cells and batteries may be transported as items of Class 9 if they meet the requirements in paragraphs (e)(1) through (e)(9) of this section:

(1) Cells must not contain more than 12 g of lithium or lithium alloy.

(2) Batteries must not contain more than 500 g of lithium or lithium alloy.

(3) Each cell and battery must be equipped with an effective means of preventing external short circuits.

(4) Each cell and battery must incorporate a safety venting device or be designed in a manner that will preclude a violent rupture under conditions normally incident to transportation.

(5) Batteries containing cells or series of cells connected in parallel must be equipped with diodes to prevent reverse current flow.

(6) Cells and batteries must be packed in strong inner packagings containing not more than 500 g of lithium or lithium alloy per inner packaging.

(7) Cells and batteries must be packed in inner packagings in such a manner as to effectively prevent short circuits and to prevent movement which could lead to short circuits.

(8) 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: Inner packagings must be packed within metal boxes (4A or 4B), wooden boxes (4C1, 4C2, 4D, or 4F), fiberboard boxes (4G), solid plastic boxes (4H2), fiber drums (1G), metal drums (1A2 or 1B2), plywood drums (1D), plastic jerricans (3H2), or metal jerricans (3A2 or 3B2).

(9) Each cell or battery must be of the type proven to meet the criteria of Class 9 by testing in accordance with tests in the UN Manual of Tests and Criteria.

(10) Except as provided in paragraph (h) 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 2/3 of the voltage of the fully charged cell, whichever is less.

(f) Equipment containing or packed with cells and batteries meeting the requirements of paragraph (b) or (c) of this section is excepted from all other requirements of this subchapter.

(g) Equipment containing or packed with cells and batteries may be transported as items of Class 9 if the batteries and cells meet all the requirements of paragraph (e) of this section and are packaged as follows:

(1) Equipment containing cells and batteries must be packed in a strong outer packaging that is waterproof or is made waterproof through the use of a liner unless the equipment is made waterproof by nature of its construction. The equipment must be secured within the outer packaging and be packed as to effectively prevent movement, short circuits, and accidental operation during transport; and

(2) Cells and batteries packed with equipment must be packed in inner packagings conforming to paragraph (e)(8) of this section in such a manner as to effectively prevent movement and short circuits. The quantity of lithium contained in any piece of equipment must not exceed 12 g per cell and 500 g per battery. Not more than 5 kg of cells and batteries may be packed with each item of equipment.

(h) Cells and batteries, for disposal, may be offered for transportation or transported to a permitted storage facility and disposal site by motor vehicle when they meet the following requirements:

(1) Cells, when new, may not contain more than 12 g and batteries may not contain more than 500 g of lithium or lithium alloy;

(2) Be equipped with an effective means of preventing external short circuits; and

(3) Be packed in a strong outer packaging conforming to the requirements of §§ 173.24 and 173.24a. The packaging need not conform to performance requirements of part 178 of this subchapter.

(i) Cells and batteries and equipment containing or packed with cells and batteries which do not comply with the provisions of this section may be transported only if they are approved by the Associate Administrator for Hazardous Materials Safety.

(j) For testing purposes, when not contained in equipment, cells containing not more than 12 g of lithium or lithium alloy and batteries containing not more than 500 g of lithium or lithium alloy may be offered for transportation or transported by highway only as items of Class 9. Packaging must conform with paragraphs (e)(8)(i) and (iii) of this section with not more than 100 cells per package.

41. In § 173.220, paragraph (c)(1) would be revised to read as follows:

§ 173.220 Internal combustion engines, self-propelled vehicles, and mechanical equipment containing internal combustion engines or wet batteries.

* * * * *

(c) * * *

(1) For transportation by vessel, the provisions of this subchapter do not apply to a motor vehicle or mechanical equipment which is electrically powered by a wet electric storage battery.

* * * * *

42. In § 173.224, the Self-Reactive Materials Table at the end of paragraph (b) would be revised to read as follows:

§ 173.224 Packaging and control and emergency temperatures for self-reactive materials.

(b) * * *

* * * * *

SELF-REACTIVE MATERIALS TABLE

Self-reactive substance (1)	Identifica- tion number (2)	Concentra- tion—(%) (3)	Packing method (4)	Control tempera- ture—(°C) (5)	Emer- gency tem- perature (6)	Notes (7)
Azodicarbonamide formulation type B, temperature controlled	3232	<100	OP5			1
Azodicarbonamide formulation type C	3224	<100	OP6			1
Azodicarbonamide formulation type C, temperature controlled	3234	<100	OP6			1
Azodicarbonamide formulation type D	3226	<100	OP7			1
Azodicarbonamide formulation type D, temperature controlled	3236	<100	OP7			1
2,2'-Azodi(2,4-dimethyl-4-methoxyvaleronitrile)	3236	100	OP7	-5	+5	
2,2'-Azodi(2,4-dimethylvaleronitrile)	3236	100	OP7	+10	+15	
2,2'-Azodi(ethyl 2-methylpropionate)	3235	100	OP7	+20	+25	
1,1-Azodi(hexahydrobenzotriazole)	3226	100	OP7			
2,2-Azodi(isobutyronitrile)	3234	100	OP6	+40	+45	
2,2-Azodi(2-methylbutyronitrile)	3236	100	OP7	+35	+40	
Benzene-1,3-disulphohydrazide, as a paste	3226	52	OP7			
Benzene sulphohydrazide	3226	100	OP7			
4-(Benzyl(ethyl)amino)-3-ethoxybenzenediazonium zinc chloride.	3226	100	OP7			
4-(Benzyl(methyl)amino)-3-ethoxybenzenediazonium zinc chloride.	3236	100	OP7	+40	+45	
3-Chloro-4-diethylaminobenzenediazonium zinc chloride	3226	100	OP7			
2-Diazo-1-Naphthol-4-sulphochloride	3222	100	OP5			
2-Diazo-1-Naphthol-5-sulphochloride	3222	100	OP5			
2,5-Diethoxy-4-morpholinobenzenediazonium zinc chloride	3236	67-100	OP7	+35	+40	
2,5-Diethoxy-4-morpholinobenzenediazonium zinc chloride	3236	66	OP7	+40	+45	
2,5-Diethoxy-4-morpholinobenzenediazonium tetrafluoroborate.	3236	100	OP7	+30	+35	
2,5-Diethoxy-4-(phenylsulphonyl)benzenediazonium zinc chloride.	3236	67	OP7	+40	+45	
Diethylene glycol bis(allyl carbonate) + Diisopropylperoxydicarbonate.	3237	≥88+≤12	OP8	-10	0	
2,5-Dimethoxy-4-(4-methylphenylsulphonyl)benzenediazonium zinc chloride.	3236	79	OP7	+40	+45	
4-Dimethylamino-6-(2-dimethylaminoethoxy)toluene-2-diazonium zinc chloride.	3236	100	OP7	+40	+45	
N,N'-Dinitroso-N,N'-dimethyl-terephthalamide, as a paste	3224	72	OP6			
N,N'-Dinitrosopentamethylenetetramine	3224	82	OP6			2
Diphenyloxide-4,4'-disulphohydrazide	3226	100	OP7			
4-Dipropylaminobenzenediazonium zinc chloride	3226	100	OP7			
2-(N,N-Ethoxycarbonylphenylamino)-3-methoxy-4-(N-methyl-N-cyclohexylamino)benzenediazonium zinc chloride.	3236	63-92	OP7	+40	+45	
2-(N,N-Ethoxycarbonylphenylamino)-3-methoxy-4-(N-methyl-N-cyclohexylamino)benzenediazonium zinc chloride.	3236	62	OP7	+35	+40	
N-Formyl-2-(nitromethylene)-1,3-perhydrothiazine	3236	100	OP7	+45	+50	
2-(2-Hydroxyethoxy)-1-(pyrrolidin-1-yl)benzene-4-diazonium zinc chloride.	3236	100	OP7	+45	+50	
3-(2-Hydroxyethoxy)-4-(pyrrolidin-1-yl)benzenediazonium zinc chloride.	3236	100	OP7	+40	+45	
2-(N,N-Methylaminoethylcarbonyl)-4-(3,4-dimethyl-phenylsulphonyl)benzene diazonium zinc chloride.	3236	96	OP7	+45	+50	
4-Methylbenzenesulphonylhydrazide	3226	100	OP7			
3-Methyl-4-(pyrrolidin-1-yl)benzenediazonium tetrafluoroborate.	3234	95	OP6	+45	+50	
4-Nitrosophenol	3236	100	OP7	+35	+40	
Self-reactive liquid, sample	3223		OP2			3
Self-reactive liquid, sample, temperature control	3233		OP2			3
Self-reactive solid, sample	3224		OP2			3
Self-reactive solid, sample, temperature control	3234		OP2			3
Sodium 2-diazo-1-naphthol-4-sulphonate	3226	100	OP7			
Sodium 2-diazo-1-naphthol-5-sulphonate	3226	100	OP7			
Tetramine palladium (II) nitrate	3234	100	OP6	+30	+35	

NOTES:

- The emergency and control temperatures must be determined in accordance with § 173.21(f).
- With a compatible diluent having a boiling point of not less than 150°C.

3. Samples may only be offered for transportation when all available data indicate that the sample is no more dangerous than a self-reactive substance type B, and the sample is packaged using packaging method OP2, in quantities less than 10 kg per shipment, employing any necessary temperature controls.

* * * * *

§ 173.224 [Amended]

43. In addition, in § 173.224, the following changes would be made:
 a. Paragraph (c)(3) would be removed.
 b. Paragraph (c)(4) would be redesignated as paragraph (c)(3).
 c. In the first sentence in paragraph (c)(1), the reference "(c)(4)" would be revised to read "(c)(3)".
 d. In newly designated paragraph (c)(3)(ii), the wording "OP2A or OP2B, for a liquid or a solid, respectively" would be revised to read "OP2".
 44. In § 173.225, paragraph (b)(2) would be amended by adding a second sentence, and paragraph (b)(4)(ii), paragraph (b)(6), the Organic Peroxides Table at the end of paragraph (b), paragraph (d) and paragraph (e)(5) would be revised, to read as follows:

§ 173.225 Packaging requirements and other provisions for organic peroxides.

* * * * *

(b) * * *
 (2) *ID number.* * * * The word "EXEMPT" appearing in the column denotes that the material is not regulated as an organic peroxide.
 * * * * *
 (4) * * *
 (ii) The required mass percent of "Diluent type B" is specified in Column 4b. A diluent type B is an organic liquid which is compatible with the organic peroxide and which has a boiling point, at atmospheric pressure, of less than 150 °C (302 °F) but at least 60 °C (140 °F), and a flash point greater than 5 °C (41 °F). Type B diluents may be used for desensitizing all organic peroxides provided that the boiling point is at least 60 °C (140 °F) above the SADT of

the peroxide in a 50 kg (110 lbs) package. A type A diluent may be used to replace a type B diluent in equal concentration.

* * * * *

(6) *Packing method.* Column 6 specifies the highest packing method (largest packaging capacity) authorized for the organic peroxide. Lower numbered packing methods (smaller packaging capacities) are also authorized. For example, if OP3 is specified, then OP2 and OP1 are also authorized. When an IBC or bulk packaging is authorized and meets the requirements of paragraph (e) of this section, lower control temperatures than those specified for non-bulk packagings are required. The Table of Packing Methods in paragraph (d) of this section defines the non-bulk packing methods.

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ORGANIC PEROXIDE TABLE

Technical name (1)	ID No. (2)	Concentration (Mass %) (3)	Diluent (Mass %)			Water (Mass %) (5)	Packing method (6)	Temperature (°C)		Notes (8)
			A (4a)	B (4b)	I (4c)			Control (7a)	Emergency (7b)	
Acetyl acetone peroxide	UN3105	≤42	≤48	.....	.....	≥8	OP7	.....	.....	2
Acetyl acetone peroxide [as a paste]	UN3106	≤32	.....	.....	.....	.....	OP7	.....	.....	21
Acetyl benzoyl peroxide	UN3105	≤45	≥55	.....	.....	.....	OP7	.....	.....	.....
Acetyl cyclohexanesulfonyl peroxide	UN3112	≤82	.....	.....	.....	≥12	OP4	-10	0	.....
Acetyl cyclohexanesulfonyl peroxide	UN3115	≤32	.....	≥68	.....	.....	OP7	-10	0	.....
tert-Amyl hydroperoxide	UN3107	≤88	≥6	.....	.....	≥6	OP8	.....	.....	.....
tert-Amyl peroxyacetate	UN3107	≤62	≥38	.....	.....	.....	OP8	.....	.....	.....
tert-Amyl peroxybenzoate	UN3105	≤96	≥4	.....	.....	.....	OP7	.....	.....	.....
tert-Amyl peroxy-2-ethylhexanoate	UN3115	≤100	.....	.....	.....	.....	OP7	+20	+25	.....
tert-Amyl peroxy-2-ethylhexyl carbonate	UN3105	≤100	.....	.....	.....	.....	OP7	.....	.....	.....
tert-Amyl peroxyneodecanoate	UN3115	≤77	.....	≥23	.....	.....	OP7	0	+10	.....
tert-Amyl peroxyvalerate	UN3113	≤77	.....	≥23	.....	.....	OP5	+10	+15	.....
tert-Amylperoxy-3,5,5-trimethylhexanoate	UN3101	≤100	.....	.....	.....	.....	OP5	.....	.....	.....
tert-Butyl cumyl peroxide	UN3105	>42 - 100	.....	.....	.....	.....	OP7	.....	.....	1, 9
tert-Butyl cumyl peroxide	UN3106	≤42	.....	.....	≥58	.....	OP7	.....	.....	1, 9
n-Butyl-4,4-di-(tert-butylperoxy)valerate	UN3103	>52 - 100	.....	.....	.....	.....	OP5	.....	.....	.....
n-Butyl-4,4-di-(tert-butylperoxy)valerate	UN3106	≤52	.....	.....	≥48	.....	OP7	.....	.....	.....
n-Butyl-4,4-di-(tert-butylperoxy)valerate	UN3108	≤42	.....	.....	≥58	.....	OP8	.....	.....	.....
tert-Butyl hydroperoxide	UN3103	>79 - 90	.....	.....	.....	≥10	OP5	.....	.....	13
tert-Butyl hydroperoxide	UN3105	≤80	≥20	.....	.....	.....	OP7	.....	.....	4, 13
tert-Butyl hydroperoxide	UN3107	≤79	.....	.....	.....	>14	OP8	.....	.....	13, 16
tert-Butyl hydroperoxide	UN3109	≤72	.....	.....	.....	≥28	OP8	.....	.....	7, 13
tert-Butyl hydroperoxide [and] Di-tert-butylperoxide.	UN3103	<82+>9	.....	.....	.....	≥7	OP5	.....	.....	13
tert-Butyl monoperoxymaleate	UN3102	>52 - 100	.....	.....	.....	.....	OP5	.....	.....	.....
tert-Butyl monoperoxymaleate	UN3103	≤52	≥48	.....	.....	.....	OP6	.....	.....	.....
tert-Butyl monoperoxymaleate	UN3108	≤52	.....	.....	≥48	.....	OP8	.....	.....	.....
tert-Butyl monoperoxymaleate [as a paste]	UN3108	≤52	.....	.....	.....	.....	OP8	.....	.....	.....
tert-Butyl monoperoxymaleate [as a paste]	UN3110	≤42	.....	.....	.....	.....	OP8	.....	.....	7
tert-Butyl monoperoxyphthalate	UN3102	≤100	.....	.....	.....	.....	OP5	.....	.....	.....
tert-Butyl peroxyacetate	UN3101	>52-77	≥23	.....	.....	.....	OP5	.....	.....	.....
tert-Butyl peroxyacetate	UN3103	>32-52	≥48	.....	.....	.....	OP6	.....	.....	.....
tert-Butyl peroxyacetate	UN3109	≤32	.....	.....	≥68	.....	OP8	.....	.....	10
tert-Butyl peroxyacetate	UN3119	≤32	.....	≥68	.....	.....	Bulk	+30	+35	7
tert-Butyl peroxyacetate	UN3109	≤22	.....	≥78	.....	.....	OP8	.....	.....	14
tert-Butyl peroxybenzoate	UN3103	>77-100	≤23	.....	.....	.....	OP5	.....	.....	.....
tert-Butyl peroxybenzoate	UN3105	>52-77	≥23	.....	.....	.....	OP7	.....	.....	1
tert-Butyl peroxybenzoate	UN3106	≤52	.....	.....	≥48	.....	OP7	.....	.....	.....
tert-Butyl peroxybutyl fumarate	UN3105	≤52	.....	.....	≥48	.....	OP7	.....	.....	.....
tert-Butyl peroxycrotonate	UN3105	≤77	≥23	.....	.....	.....	OP7	.....	.....	.....
tert-Butyl peroxydiethylacetate	UN3113	≤100	.....	.....	.....	.....	OP5	+20	+25	.....
tert-Butyl peroxydiethylacetate [and] tert-Butyl peroxybenzoate.	UN3105	≤33 + ≤33	≥33	.....	.....	.....	OP7	.....	.....	.....

ORGANIC PEROXIDE TABLE—Continued

Technical name (1)	ID No. (2)	Concentration (Mass %) (3)	Diluent (Mass %)			Water (Mass %) (5)	Packing method (6)	Temperature (°C)		Notes (8)
			A (4a)	B (4b)	I (4c)			Control (7a)	Emer- gency (7b)	
tert-Butyl peroxy-2-ethylhexanoate	UN3113	>52–100	.....	.....	.....	.....	OP6	+20	+25	
tert-Butyl peroxy-2-ethylhexanoate	UN3117	≤52	.....	≥48	.....	.....	OP8	+30	+35	
tert-Butyl peroxy-2-ethylhexanoate	UN3118	≤52	.....	.....	≥48	.....	OP8	+20	+25	
tert-Butyl peroxy-2-ethylhexanoate	UN3119	≤32	.....	≥68	.....	.....	OP8	+40	+45	
tert-Butyl peroxy-2-ethylhexanoate	UN3119	≤32	.....	≥68	.....	.....	IBC	+30	+35	10
tert-Butyl peroxy-2-ethylhexanoate	UN3119	≤32	.....	≥68	.....	.....	Bulk	+10	+15	14
tert-Butyl peroxy-2-ethylhexanoate [and] 2,2-di-(tert-Butylperoxy)butane.	UN3115	≤31+≤36	.....	≥33	.....	.....	OP7	+35	+40	
tert-Butyl peroxy-2-ethylhexanoate [and] 2,2-di-(tert-Butylperoxy)butane.	UN3106	≤12 + ≤14	≥14	.....	≥60	.....	OP7	.....	.....
tert-Butyl peroxy-2-ethylhexylcarbonate	UN3105	≤100	.....	.....	.....	.....	OP7	.....	.....
tert-Butyl peroxyisobutyrate	UN3111	>52–77	.....	≥23	.....	.....	OP5	+15	+20	
tert-Butyl peroxyisobutyrate	UN3115	≤52	.....	≥48	.....	.....	OP7	+15	+20	
tert-Butylperoxyisopropylcarbonate	UN3103	≤77	.....	≥23	.....	.....	OP5	.....	.....
1-(2-tert-Butylperoxy isopropyl)-3-isopropylbenzene.	UN3105	≤77	.....	≥23	.....	.....	OP7	.....	.....
1-(2-tert-Butylperoxy isopropyl)-3-isopropylbenzene.	UN3108	≤42	.....	.....	≥58	.....	OP8	.....	.....
tert-Butyl peroxy-2-methylbenzoate	UN3103	≤100	.....	.....	.....	.....	OP5	.....	.....
tert-Butyl peroxyneodecanoate	UN3115	>77–100	.....	.....	.....	.....	OP7	–5	+5	
tert-Butyl peroxyneodecanoate	UN3115	≤77	.....	≥23	.....	.....	OP7	0	+10	
tert-Butyl peroxyneodecanoate [as a stable dispersion in water].	UN3117	≤42	.....	.....	.....	.....	OP8	0	+10	
tert-Butyl peroxyneodecanoate [as a stable dispersion in water (frozen)].	UN3118	≤42	.....	.....	.....	.....	OP8	0	+10	
tert-Butyl peroxyneohexanoate	UN3115	≤77	≥23	.....	.....	.....	OP7	+10	+15	
3-tert-Butylperoxy-3-phenylphthalide	UN3106	≤100	.....	.....	.....	.....	OP7	.....	.....
tert-Butyl peroxy-pivalate	UN3113	>67–77	.....	≥23	.....	.....	OP5	0	+10	
tert-Butyl peroxy-pivalate	UN3115	≤67	.....	≥33	.....	.....	OP7	0	+10	
tert-Butyl peroxy-pivalate	UN3119	≤27	.....	≥73	.....	.....	OP8	+30	+35	
tert-Butyl peroxy-pivalate	UN3119	≤27	.....	≥73	.....	.....	IBC	+10	+15	10
tert-Butyl peroxy-pivalate	UN3119	≤27	.....	≥73	.....	.....	Bulk	–5	+5	14
tert-Butylperoxy stearylcarbonate	UN3106	≤100	.....	.....	.....	.....	OP7	.....	.....
tert-Butyl peroxy-3,5,5-trimethylhexanoate	UN3105	>32–100	.....	.....	.....	.....	OP7	.....	.....
tert-Butyl peroxy-3,5,5-trimethylhexanoate	UN3109	≤32	.....	≥68	.....	.....	OP8	.....	.....	10
tert-Butyl peroxy-3,5,5-trimethylhexanoate	UN3119	≤32	.....	≥68	.....	.....	Bulk	+35	+40	14
3-Chloroperoxybenzoic acid	UN3102	>57–86	.....	.....	≥14	.....	OP1	.....	.....
3-Chloroperoxybenzoic acid	UN3106	≤77	.....	.....	≥6	≥17	OP7	.....	.....
3-Chloroperoxybenzoic acid	UN3106	≤57	.....	.....	≥3	≥40	OP7	.....	.....
Cumyl hydroperoxide	UN3107	>90–98	≤10	.....	.....	.....	OP8	.....	.....	13
Cumyl hydroperoxide	UN3109	≤90	≥10	.....	.....	.....	OP8	.....	.....	7, 13, 15
Cumyl peroxyneodecanoate	UN3115	≤77	.....	≥23	.....	.....	OP7	–10	0	
Cumyl hydroperoxide [as a stable dispersion in water].	UN3119	≤52	.....	.....	.....	.....	OP8	–10	0	
Cumyl peroxyneohexanoate	UN3115	≤77	≥23	.....	.....	.....	OP7	0	+10	
Cumyl peroxy-pivalate	UN3115	≤77	.....	≥23	.....	.....	OP7	–5	+5	
Cyclohexanone peroxide(s)	UN3104	≤91	.....	.....	.....	≥9	OP6	.....	.....	13
Cyclohexanone peroxide(s)	UN3105	≤72	.....	≥28	.....	.....	OP7	.....	.....	5
Cyclohexanone peroxide(s) [as a paste]	UN3106	≤72	.....	.....	.....	.....	OP7	.....	.....	5, 21
Cyclohexanone peroxide(s)	Exempt	≤32	.....	.....	≥68	.....	Exempt	.....	.....
Diacetone alcohol peroxides	UN3115	≤57	.....	≥26	.....	≥8	OP7	+40	+45	5
Diacetyl peroxide	UN3115	≤27	.....	≥73	.....	.....	OP7	+20	+25	8.13
Di-tert-amyl peroxide	UN3107	≤100	.....	.....	.....	.....	OP8	.....	.....
1,1-Di-(tert-amylperoxy)cyclohexane	UN3103	≤82	.....	≥18	.....	.....	OP6	.....	.....
Dibenzoyl peroxide	UN3102	>51–100	.....	.....	≤48	.....	OP2	.....	.....	3
Dibenzoyl peroxide	UN3102	≤77–94	.....	.....	.....	≥6	OP4	.....	.....	3
Dibenzoyl peroxide	UN3104	≤77	.....	.....	.....	≥23	OP6	.....	.....
Dibenzoyl peroxide	UN3106	≤62	.....	.....	≥28	≥10	OP7	.....	.....
Dibenzoyl peroxide [as a paste]	UN3106	>52–62	.....	.....	.....	.....	OP7	.....	.....	21
Dibenzoyl peroxide [as a paste]	UN3108	≤56.5	.....	.....	.....	≥15	OP8	.....	.....
Dibenzoyl peroxide	UN3106	>35–52	.....	.....	≥48	.....	OP7	.....	.....
Dibenzoyl peroxide [as a paste]	UN3108	≤52	.....	.....	.....	.....	OP8	.....	.....	21
Dibenzoyl peroxide [as a paste]	Exempt	≤50	.....	.....	.....	≥18	Exempt	.....	.....
Dibenzoyl peroxide	UN3107	>36–42	>18	.....	.....	≤40	OP8	.....	.....
Dibenzoyl peroxide	UN3107	>36–42	≥58	.....	.....	.....	OP8	.....	.....
Dibenzoyl peroxide [as a stable dispersion in water].	UN3109	≤42	.....	.....	.....	.....	OP8	.....	.....	10
Dibenzoyl peroxide	Exempt	≤35	.....	.....	≥65	.....	Exempt	.....	.....
Dibenzoyl peroxydicarbonate	UN3112	≤87	.....	.....	.....	≥13	OP5	+25	+30	
Di-(4-tert-butylcyclohexyl)peroxydicarbonate	UN3114	≤100	.....	.....	.....	.....	OP6	+30	+35	
Di-(4-tert-butylcyclohexyl)peroxydicarbonate [as a stable dispersion in water].	UN3119	≤42	.....	.....	.....	.....	OP8	+30	+35	10
Di-tert-butyl peroxide	UN3107	>32–100	.....	.....	.....	.....	OP8	.....	.....
Di-tert-butyl peroxide	UN3109	≤52	.....	≥48	.....	.....	OP8	.....	.....	7, 24
Di-tert-butyl peroxyazolate	UN3105	≤52	.....	≥48	.....	.....	OP7	.....	.....
2,2-Di-(tert-butylperoxy)butane	UN3103	≤52	.....	≥48	.....	.....	OP6	.....	.....
1,1-Di-(tert-butylperoxy)cyclohexane	UN3101	>80–100	.....	.....	.....	.....	OP5	.....	.....

ORGANIC PEROXIDE TABLE—Continued

Technical name (1)	ID No. (2)	Concentration (Mass %) (3)	Diluent (Mass %)			Water (Mass %) (5)	Packing method (6)	Temperature (°C)		Notes (8)
			A (4a)	B (4b)	I (4c)			Control (7a)	Emer- gency (7b)	
1,1-Di-(tert-butylperoxy)cyclohexane	UN3103	>52–80	≥20	.....	.....	.....	OP5	.....	.....
1,1-Di-(tert-butylperoxy)cyclohexane	UN3105	≤52	≥48	.....	.....	.....	OP7	.....	.....
1,1-Di-(tert-butylperoxy)cyclohexane	UN3106	≤42	≥13	.....	≥45	.....	OP7	.....	.....
1,1-Di-(tert-butylperoxy)cyclohexane	UN3109	≤42	≥58	.....	.....	.....	OP8	.....	.....	10
1,1-Di-(tert-butylperoxy)cyclohexane	UN3107	≤27	≥36	.....	.....	.....	OP8	.....	.....	22
1,1-Di-(tert-butylperoxy)cyclohexane	UN3109	≤25	≥25	≥50	.....	.....	OP8	.....	.....	7
1,1-Di-(tert-butylperoxy)cyclohexane	UN3109	≤13	≥13	≥74	.....	.....	OP8	.....	.....	7
Di-n-butyl peroxydicarbonate	UN3115	>27–52	.....	≥48	.....	.....	OP7	–15	–5	
Di-n-butyl peroxydicarbonate [as a stable dispersion in water (frozen)].	UN3118	≤42	.....	.....	.....	.....	OP8	–15	–5	
Di-n-butyl peroxydicarbonate	UN3117	≤27	.....	≥73	.....	.....	OP8	–10	0	
Di-sec-butyl peroxydicarbonate	UN3113	>52–100	.....	.....	.....	.....	OP4	–20	–10	6
Di-sec-butyl peroxydicarbonate	UN3115	≤52	.....	≥48	.....	.....	OP7	–15	–5	
Di-(2-tert-butylperoxyisopropyl)benzene(s)	UN3106	>42–100	.....	.....	≤57	.....	OP7	.....	.....	1,9
Di-(2-tert-butylperoxyisopropyl)benzene(s)	Exempt	≤42	.....	.....	≥58	.....	Exempt	.....	.....
Di-(tert-butylperoxy)phthalate	UN3105	>42–52	≥48	.....	.....	.....	OP7	.....	.....
Di-(tert-butylperoxy)phthalate [as a paste]	UN3106	≤52	.....	.....	.....	.....	OP7	.....	.....	21
Di-(tert-butylperoxy)phthalate	UN3107	≤42	≥58	.....	.....	.....	OP8	.....	.....
2,2-Di-(tert-butylperoxy)propane	UN3105	≤52	≥48	.....	.....	.....	OP7	.....	.....
2,2-Di-(tert-butylperoxy)propane	UN3106	≤42	≥13	.....	≥45	.....	OP7	.....	.....
1,1-Di-(tert-butylperoxy)-3,5,5-trimethylcyclohexane.	UN3101	>90–100	.....	.....	.....	.....	OP5	.....	.....
1,1-Di-(tert-butylperoxy)-3,5,5-trimethylcyclohexane.	UN3103	>57–90	≥10	.....	.....	.....	OP5	.....	.....
1,1-Di-(tert-butylperoxy)-3,5,5-trimethylcyclohexane.	UN3106	≤57	.....	.....	≥43	.....	OP7	.....	.....
1,1-Di-(tert-butylperoxy)-3,5,5-trimethylcyclohexane.	UN3107	≤57	≥43	.....	.....	.....	OP8	.....	.....
1,1-Di-(tert-butylperoxy)-3,5,5-trimethylcyclohexane.	UN3107	≤32	≥26	≥42	.....	.....	OP8	.....	.....
Dicetyl peroxydicarbonate	UN3116	≤100	.....	.....	.....	.....	OP7	+30	+35	
Dicetyl peroxydicarbonate [as a stable dispersion in water].	UN3119	≤42	.....	.....	.....	.....	OP8	+30	+35	10
Di-4-chlorobenzoyl peroxide	UN3102	≤77	.....	.....	.....	≥23	OP5	.....	.....
Di-4-chlorobenzoyl peroxide [as a paste]	UN3106	≤52	.....	.....	.....	.....	OP7	.....	.....	21
Di-4-chlorobenzoyl peroxide	Exempt	≤32	.....	.....	≥68	.....	Exempt	.....	.....
Dicumyl peroxide	UN3109	>52–100	.....	≤48	.....	.....	OP8	.....	.....	7, 9, 11
Dicumyl peroxide	UN3110	>52–100	.....	.....	≤48	.....	OP8	.....	.....	7, 9, 11
Dicumyl peroxide	Exempt	≤52	≥48	.....	.....	.....	Exempt	.....	.....
Dicumyl peroxide	Exempt	≤42	.....	.....	≥58	.....	Exempt	.....	.....
Dicyclohexyl peroxydicarbonate	UN3112	>91–100	.....	.....	.....	.....	OP3	+5	+10	
Dicyclohexyl peroxydicarbonate	UN3114	≤91	.....	.....	.....	≥9	OP5	+5	+10	
Didecanoyl peroxide	UN3114	≤100	.....	.....	.....	.....	OP6	+30	+35	
2,2-Di-(4,4-di(tert-butylperoxy) cyclohexyl) propane.	UN3106	≤42	.....	.....	≥58	.....	OP7	.....	.....
2,2-Di-(4,4-di(tert-butylperoxy) cyclohexyl) propane.	UN3107	≤25	.....	≥75	.....	.....	OP8	.....	.....
Di-2,4-dichlorobenzoyl peroxide	UN3102	≤77	.....	.....	.....	≥23	OP5	.....	.....
Di-2,4-dichlorobenzoyl peroxide [as a paste with silicone oil].	UN3106	≤52	.....	.....	.....	.....	OP7	.....	.....
Di-(2-ethylhexyl) peroxydicarbonate	UN3113	>77–100	.....	.....	.....	.....	OP5	–20	–10	
Di-(2-ethylhexyl) peroxydicarbonate	UN3115	≤77	.....	.....	.....	.....	OP7	–15	–5	
Di-(2-ethylhexyl) peroxydicarbonate [as a stable dispersion in water].	UN3119	≤52	.....	.....	.....	.....	OP8	–15	–5	
Di-(2-ethylhexyl) peroxydicarbonate [as a stable dispersion in water (frozen)].	UN3118	≤42	.....	.....	.....	.....	OP8	–15	–5	
Diethyl peroxydicarbonate	UN3115	≤27	.....	≥73	.....	.....	OP7	–10	0	
2,2-Dihydroperoxypropane	UN3102	≤27	.....	.....	≥73	.....	OP5	.....	.....
Di-(1-hydroxycyclohexyl)peroxide	UN3106	≤100	.....	.....	.....	.....	OP7	.....	.....
Diisobutyl peroxide	UN3111	>32–52	.....	≥48	.....	.....	OP5	–20	–10	
Diisobutyl peroxide	UN3115	≤32	.....	≥68	.....	.....	OP7	–20	–10	
Diisopropylbenzene dihydroperoxide	UN3106	≤82	≥5	.....	.....	≥5	OP7	.....	.....	17
Diisopropyl peroxydicarbonate	UN3112	>52–100	.....	.....	.....	.....	OP2	–15	–5	
Diisopropyl peroxydicarbonate	UN3115	≤52	.....	≥48	.....	.....	OP7	–10	0	
Diisotridecyl peroxydicarbonate	UN3115	≤100	.....	.....	.....	.....	OP7	–10	0	
Dilauroyl peroxide	UN3106	≤100	.....	.....	.....	.....	OP7	.....	.....
Dilauroyl peroxide [as a stable dispersion in water].	UN3109	≤42	.....	.....	.....	.....	OP8	.....	.....	10
Di-(2-methylbenzoyl)peroxide	UN3112	≤87	.....	.....	.....	≥13	OP5	+30	+35	
Di-(4-methylbenzoyl)peroxide [as a paste with silicone oil].	UN3106	≤52	.....	.....	.....	.....	OP7	.....	.....
2,5-Dimethyl-2,5-di-(benzoylperoxy)hexane	UN3102	>82–100	.....	.....	.....	.....	OP5	.....	.....
2,5-Dimethyl-2,5-di-(benzoylperoxy)hexane	UN3104	≤82	.....	.....	.....	≥18	OP5	.....	.....
2,5-Dimethyl-2,5-di-(benzoylperoxy)hexane	UN3106	≤82	.....	.....	≥18	.....	OP7	.....	.....
2,5-Dimethyl-2,5-di-(tert-butylperoxy)hexane	UN3105	>52–100	.....	.....	.....	.....	OP7	.....	.....
2,5-Dimethyl-2,5-di-(tert-butylperoxy)hexyne-3	UN3103	>52–86	.....	.....	.....	.....	OP5	.....	.....
2,5-Dimethyl-2,5-di-(tert-butylperoxy)hexane	UN3106	≤52	.....	.....	≥48	.....	OP7	.....	.....

ORGANIC PEROXIDE TABLE—Continued

Technical name (1)	ID No. (2)	Concentration (Mass %) (3)	Diluent (Mass %)			Water (Mass %) (5)	Packing method (6)	Temperature (°C)		Notes (8)
			A (4a)	B (4b)	I (4c)			Control (7a)	Emer- gency (7b)	
2,5-Dimethyl-2,5-di-(tertbutylperoxy)hexane ...	UN3109	≤52	≥48	.....	.....	.....	OP8	.....	.....	7
2,5-Dimethyl-2,5-di-(tertbutylperoxy)hexane-3	UN3106	≤52	.....	.....	≥48	.....	OP7	.....	.....
2,5-Dimethyl-2,5-di-(tertbutylperoxy)hexane	UN3108	≤47	.....	.....	.....	.....	OP8	.....	.....
[as a paste].										
2,5-Dimethyl-2,5-di-(2-ethylhexanoylperoxy)hexane.	UN3115	≤100	.....	.....	.....	.....	OP7	+20	+25	
2,5-Dimethyl-2,5-dihydroperoxyhexane	UN3104	≤82	.....	.....	.....	≥18	OP6	.....	.....
2,5-Dimethyl-2,5-di-(3,5,5-trimethylhexanoylperoxy)hexane.	UN3105	≤77	≥23	.....	.....	.....	OP7	.....	.....
1,1-Dimethyl-3-hydroxybutylperoxyneohexanoate.	UN3117	≤52	.....	≥48	.....	.....	OP8	+0	+10	
Dimyristyl peroxydicarbonate	UN3116	≤100	.....	.....	.....	.....	OP7	+20	+25	
Dimyristyl peroxydicarbonate [as a stable dispersion in water].	UN3119	≤42	.....	.....	.....	.....	OP8	+20	+25	
Dimyristyl peroxydicarbonate [as a stable dispersion in water].	UN3119	≤42	.....	.....	.....	.....	IBC	+15	+25	10
Di-(2-neodecanoylperoxyisopropyl)benzene ...	UN3115	≤52	≥48	.....	.....	.....	OP7	-10	0	
Di-n-nonanoyl peroxide	UN3116	≤100	.....	.....	.....	.....	OP7	0	+10	
Di-n-octanoyl peroxide	UN3114	≤100	.....	.....	.....	.....	OP5	+10	+15	
Diperoxy azelaic acid	UN3116	≤27	.....	.....	≥73	.....	OP7	+35	+40	
Diperoxy dodecane diacid	UN3116	>13-42	.....	.....	≥58	.....	OP7	+40	+45	
Diperoxy dodecane diacid	Exempt	≤13	.....	.....	≥87	.....	Exempt	.....	.....
Di-(2-phenoxyethyl)peroxydicarbonate	UN3102	>85-100	.....	.....	.....	.....	OP5	.....	.....
Di-(2-phenoxyethyl)peroxydicarbonate	UN3106	≤85	.....	.....	.....	≥15	OP7	.....	.....
Dipropionyl peroxide	UN3117	≤27	.....	≥73	.....	.....	OP8	+15	+20	
Di-n-propyl peroxydicarbonate	UN3113	≤100	.....	.....	.....	.....	OP4	-25	-15	
Distearyl peroxydicarbonate	UN3106	≤87	.....	.....	≥13	.....	OP7	.....	.....
Disuccinic acid peroxide	UN3102	>72-100	.....	.....	.....	.....	OP4	.....	.....	18
Disuccinic acid peroxide	UN3116	≤72	.....	.....	.....	≥28	OP7	+10	+15	
Di-(3,5,5-trimethyl-1,2-dioxolanyl-3)peroxide [as a paste].	UN3116	≤52	.....	.....	.....	.....	OP7	+30	+35	21
Di-(3,5,5-trimethylhexanoyl)peroxide	UN3115	>38-82	≥18	.....	.....	.....	OP7	0	+10	
Di-(3,5,5-trimethylhexanoyl)peroxide [as a stable dispersion in water].	UN3117	≤52	.....	.....	.....	.....	OP8	+10	+15	
Di-(3,5,5-trimethylhexanoyl)peroxide	UN3119	≤38	≥62	.....	.....	.....	OP8	+20	+25	
Di-(3,5,5-trimethylhexanoyl)peroxide	UN3119	≤38	≥62	.....	.....	.....	IBC	+10	+15	10
Di-(3,5,5-trimethylhexanoyl)peroxide	UN3119	≤38	≥62	.....	.....	.....	Bulk	-10	0	14
Ethyl 3,3-di-(tert-amyloxy)butyrate	UN3105	≤67	≥33	.....	.....	.....	OP7	.....	.....
Ethyl 3,3-di-(tert-butylperoxy)butyrate	UN3103	>77-100	.....	.....	.....	.....	OP5	.....	.....
Ethyl 3,3-di-(tert-butylperoxy)butyrate	UN3105	≤77	≥23	.....	.....	.....	OP7	.....	.....
Ethyl 3,3-di-(tert-butylperoxy)butyrate	UN3106	≤52	.....	.....	≥48	.....	OP7	.....	.....
3,3,6,6,9,9-Hexamethyl-1,2,4,5-tetraoxacyclononane.	UN3102	>52-100	.....	.....	.....	.....	OP4	.....	.....
3,3,6,6,9,9-Hexamethyl-1,2,4,5-tetraoxacyclononane.	UN3105	≤52	≥48	.....	.....	.....	OP7	.....	.....
3,3,6,6,9,9-Hexamethyl-1,2,4,5-tetraoxacyclononane.	UN3106	≤52	.....	.....	≥48	.....	OP7	.....	.....
Isopropyl sec-butyl peroxydicarbonate + di-sec-butyl peroxydicarbonate + di-isopropyl peroxydicarbonate.	3111	≤52 + ≤28 + ≤22	.....	.....	.....	.....	OP5	-20	-10	
Isopropylcumyl hydroperoxide	UN3109	≤72	≥28	.....	.....	.....	OP8	.....	.....	7, 13
p-Menthyl hydroperoxide	UN3105	>72-100	.....	.....	.....	.....	OP7	.....	.....	13
p-Menthyl hydroperoxide	UN3109	<72	>44	.....	.....	.....	OP8	.....	.....	7, 25
Methylcyclohexanone peroxide(s)	UN3115	≤67	.....	≥33	.....	.....	OP7	+35	+40	
Methyl ethyl ketone peroxide(s)	UN3101	≤52	≥48	.....	.....	.....	OP5	.....	.....	5, 13
Methyl ethyl ketone peroxide(s)	UN3105	≤45	≥55	.....	.....	.....	OP7	.....	.....	5
Methyl ethyl ketone peroxide(s)	UN3107	≤40	≥60	.....	.....	.....	OP8	.....	.....	5
Methyl isobutyl ketone peroxide(s)	UN3105	≤62	≥19	.....	.....	.....	OP7	.....	.....	5, 23
Organic peroxide, liquid, sample	UN3103	.....	.....	.....	.....	.....	OP2	.....	.....	12
Organic peroxide, liquid, sample, temperature controlled.	UN3113	.....	.....	.....	.....	.....	OP2	.....	.....	12
Organic peroxide, solid, sample	UN3104	.....	.....	.....	.....	.....	OP2	.....	.....	12
Organic peroxide, solid, sample, temperature controlled.	UN3114	.....	.....	.....	.....	.....	OP2	.....	.....	12
Peracetic acid with not more than 20% hydrogen peroxide.	Exempt	≤6	.....	.....	.....	≥60	Exempt	.....	.....
Peracetic acid with not more than 26% hydrogen peroxide.	UN3109	≤17	.....	.....	.....	.....	OP8	.....	.....	10, 13
Peracetic acid with 7% hydrogen peroxide	UN3107	≤36	.....	.....	.....	≥15	OP8	.....	.....	13
Peroxyacetic acid, type D, stabilized	UN3105	≤43	.....	.....	.....	.....	OP7	.....	.....	13, 20
Peroxyacetic acid, type E, stabilized	UN3107	≤43	.....	.....	.....	.....	OP8	.....	.....	13, 20
Peroxyacetic acid, type F, stabilized	UN3109	≤43	.....	.....	.....	.....	OP8	.....	.....	13, 20
Pinanyl hydroperoxide	UN3105	≥56-100	.....	.....	.....	.....	OP7	.....	.....	13
Pinanyl hydroperoxide	UN3109	≤56	>44	.....	.....	.....	OP8	.....	.....	7
Tetrahydronaphthyl hydroperoxide	UN3106	≤100	.....	.....	.....	.....	OP7	.....	.....
1,1,3,3-Tetramethylbutyl hydroperoxide	UN3105	≤100	.....	.....	.....	.....	OP7	.....	.....

ORGANIC PEROXIDE TABLE—Continued

Technical name (1)	ID No. (2)	Concentration (Mass %) (3)	Diluent (Mass %)			Water (Mass %) (5)	Packing method (6)	Temperature (°C)		Notes (8)
			A (4a)	B (4b)	I (4c)			Control (7a)	Emer- gency (7b)	
1,1,3,3-Tetramethylbutylperoxy-2-ethylhexanoate.	UN3115	≤100	.....	.....	.....	.....	OP7	+20	+25	
2,4,4-Trimethylpentyl-2-peroxyneodecanoate	UN3115	≤72	.....	≥28	.....	.....	OP7	-5	+5	
2,4,4-Trimethylpentyl-2-peroxyneodecanoate [as a stable dispersion in water].	UN3119	≤52	.....	.....	.....	.....	OP8	-5	+5	
2,4,4-Trimethylpentyl-2-peroxyphenoxyacetate.	UN3115	≤37	.....	≥63	.....	.....	OP7	-10	0	

Notes:

1. For domestic shipments, OP8 is authorized.
2. Available oxygen must be <4.7 percent.
3. For concentrations <80 percent OP5 is allowed. For concentrations of at least 80 percent but <85 percent, OP4 is allowed. For concentrations of at least 85 percent, maximum package size is OP2.
4. The diluent may be replaced by di-tert-butyl peroxide.
5. Available oxygen must be ≤9 percent.
6. For domestic shipments, OP5 is authorized.
7. This material may be transported in intermediate bulk containers and bulk packagings under the provisions of paragraph (e) of this section.
8. Only non-metallic packagings are authorized.
9. For domestic shipments, this material may be transported in bulk packagings under the provisions of paragraph (e)(3)(ii) of this section.
10. This material may be transported in intermediate bulk containers under the provisions of paragraph (e) of this section.
11. Up to 2000 kg per container authorized.
12. Samples may only be offered for transportation when all available data indicate that the sample is no more dangerous than an Organic Peroxide type B, and the sample is packaged using packaging method OP2 in quantities less than 10 kg per shipment, employing any necessary temperature controls.
13. "Corrosive" subsidiary risk label is required.
14. This material may be transported in bulk packagings under the provisions of paragraph (e) of this section.
15. No "Corrosive" subsidiary risk label is required for concentrations below 80%.
16. With <6% di-tert-butyl peroxide.
17. With ≥8% 1-isopropylhydroperoxy-4-isopropylhydroxybenzene.
18. Addition of water to this organic peroxide will decrease its thermal stability.
19. [Reserved]
20. Mixtures with hydrogen peroxide, water and acid(s).
21. With diluent type A, with or without water.
22. With >36 percent, by mass, ethylbenzene.
23. With >19 percent, by mass, methyl isobutyl ketone.
24. Diluent type b with boiling point >100 C.
25. No "Corrosive" subsidiary risk label is required for concentrations below 56%.

* * * * *

(d) Packagings for organic peroxides and self-reactive substances are listed in the Maximum Quantity per Packing Method Table. The packing methods are designated OP1 to OP8. The quantities specified for each packing method represent the maximum that is authorized.

(1) The following types of packagings are authorized:

- (i) Drums: 1A1, 1A2, 1B1, 1B2, 1D, 1G, 1H1, 1H2;
- (ii) Jerricans: 3A1, 3A2, 3B1, 3B2, 3H1, 3H2;
- (iii) Boxes: 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2, 4A, 4B; or
- (iv) Composite packagings with a plastic inner receptacle: 6HA1, 6HA2, 6HB1, 6HB2, 6HC, 6HD1, 6HD2, 6HG1, 6HG2, 6HH1, 6HH2.
- (2) Metal packaging (including inner packagings of combination packagings

and outer packagings of combination or composite packagings) are used only for packing methods OP7 and OP8.

(3) In combination packagings, glass receptacles are used only as inner packagings with a maximum content of 0.5 kg or 0.5 liter.

(4) The maximum quantity per packaging or package for Packing Methods OP1–OP8 must be as follows:

MAXIMUM QUANTITY PER PACKAGING/PACKAGE FOR PACKING METHODS OP1 TO OP8

Maximum quantity	Packing method							
	OP1	OP2 ¹	OP3	OP4 ¹	OP5	OP6	OP7	OP8
Solids and combination packagings (liquid and solid) (kg)	0.5	0.5/10	5	5/25	25	50	50	² 200
Liquids (L)	0.5	.....	5	.....	30	60	60	³ 225

¹ If two values are given, the first applies to the maximum net mass per inner packaging and the second to the maximum net mass of the complete package.

² 60 kg for jerricans and 100 kg for boxes.

³ 60 L for jerricans.

(e) * * *

(5) *Intermediate bulk containers.* Intermediate bulk containers that are tested at the Packing Group II performance level in accordance with subpart O of part 178 of this subchapter are authorized as follows:

- (i) Composite: 31HA1, 31H1; and

(ii) Metal: 31A.

§ 173.225 [Amended]

45. In addition, in § 173.225, the following changes would be made:

- a. Paragraphs (c)(2) and (c)(3) would be removed.

b. Paragraphs (c)(4) and (c)(5) would be redesignated as paragraphs (c)(2) and (c)(3).

c. In the first sentence in paragraph (c)(1), the reference "(c)(4)" would be revised to read "(c)(2)".

d. In newly designated paragraph (c)(2)(ii), the wording "OP2A or OP2B,

for a liquid or a solid, respectively” would be revised to read “OP2”.

§ 173.226 [Amended]

46. In § 173.226, in paragraph (c)(1), the entry “Aluminum jerrican: 3B2” would be added immediately following “Plastic jerrican: 3H2”.

47. In § 173.316, a new paragraph (d) would be added to read as follows:

§ 173.316 Cryogenic liquids in cylinders.

* * * * *

(d) *Mixtures of cryogenic liquid.*

Where charging requirements are not specifically prescribed in paragraph (c) of this section, the cryogenic liquid must be shipped in packagings approved by the Associate Administrator for Hazardous Materials Safety.

48. In § 173.318, a new paragraph (f)(4) would be added to read as follows:

§ 173.318 Cryogenic liquids in cargo tanks.

* * * * *

(f) * * *

(4) *Mixtures of cryogenic liquid.*

Where charging requirements are not specifically prescribed in this paragraph (f), the cryogenic liquid must be shipped in packagings approved by the Associate Administrator for Hazardous Materials Safety.

* * * * *

Appendix E—[Removed]

49. Appendix E to Part 173 would be removed and reserved.

Appendix F—[Removed]

50. Appendix F to Part 173 would be removed and reserved.

§§ 173.201, 173.202, 173.203, 173.211, 173.212, 173.213 [Amended]

51. In addition to the amendments set forth above, part 173 would be amended by adding the wording “Aluminum jerrican: 3B1 or 3B2” immediately following “Plastic jerrican: 3H1 or 3H2” each place it appears in the following sections:

- a. Section 173.201 (b) and (c)
- b. Section 173.202 (b) and (c)
- c. Section 173.203 (b) and (c)
- d. Section 173.211 (b) and (c)
- e. Section 173.212 (b) and (c)
- f. Section 173.213 (b) and (c)

PART 175—CARRIAGE BY AIRCRAFT

52. The authority citation for part 175 would continue to read as follows:

Authority: 49 App. U.S.C. 1803, 1804, 1807, 1808; 49 CFR part 1.

§ 175.10 [Amended]

53. In § 175.10, in paragraph (a)(22), the wording “or thermometer” would be

added immediately following “barometer” each place it appears.

PART 176—CARRIAGE BY VESSEL

54. The authority citation for part 176 would continue to read as follows:

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

55. In § 176.78, paragraph (k) would be revised to read as follows:

§ 176.78 Use of power-operated industrial trucks on board vessels.

* * * * *

(k) *Stowage of power-operated industrial trucks on board a vessel.*

1. Trucks stowed on board a vessel must meet vessel stowage requirements in § 176.905.

* * * * *

56. In § 176.84, in the paragraph (b) table, a new entry for code 17, currently reserved, would be added in numerical order to read as follows:

§ 176.84 Other requirements for stowage and segregation for cargo vessels and passenger vessels.

* * * * *

(b) * * *

Code	Provisions
* * * * *	
17	..... Segregation same as for flammable gases but “away from” dangerous when wet.
* * * * *	

* * * * *

57. Section 176.905 would be revised to read as follows:

§ 176.905 Motor vehicles or mechanical equipment powered by internal combustion engines.

(a) A motor vehicle or any mechanized equipment powered by an internal combustion engine is subject to the following requirements when carried as cargo on a vessel:

(1) Before being loaded on a vessel, each motor vehicle or mechanical equipment must be inspected for fuel leaks. A motor vehicle or mechanical equipment showing any signs of leakage may not be transported.

(2) The fuel tank of the vehicle or mechanical equipment powered by liquid fuel may not be more than one-fourth full.

(3) Whenever possible, each vehicle or mechanical equipment must be stowed to allow for its inspection during transit.

(4) Motor vehicles or mechanical equipment may be refueled when necessary in the hold of a vessel in accordance with § 176.78.

(5)(i) When a motor vehicle or mechanical equipment with fuel in its tanks is stowed in a closed freight container, the following warning must be affixed to the access doors: WARNING—MAY CONTAIN EXPLOSIVE MIXTURES WITH AIR—KEEP IGNITION SOURCES AWAY WHEN OPENING.

(ii) The warning must be on a contrasting background and must be readily legible from a distance of 8 meters (26 feet).

(b) All equipment used for handling vehicles or mechanical equipment must be designed so that the fuel tank and fuel system are protected from stress that might cause rupture or other damage incident to handling.

(c) Two hand-held, portable, dry chemical fire extinguishers of at least 4.5 kg (10 pounds) capacity each must be separately located in an accessible location in each hold or compartment in which any motor vehicle or mechanical equipment is stowed.

(d) “NO SMOKING” signs must be conspicuously posted at each access opening to the hold or compartment.

(e) Each portable electrical light, including a flashlight, used in the stowage area must be an approved, explosion-proof type. All electrical connections for any portable light must be made to outlets outside the space in which any vehicle or mechanical equipment is stowed.

(f) Each hold or compartment must be ventilated and fitted with an overhead water sprinkler system or fixed fire extinguishing system capable of alerting personnel on the bridge.

(g) Each hold or compartment must be equipped with a smoke or fire detection system.

(h) All electrical equipment in the hold or compartment other than fixed explosion-proof lighting must be disconnected from its power source at a location outside the hold or compartment during the handling and transportation of any vehicle or mechanical equipment. Where the disconnecting means is a switch or circuit breaker, it must be locked in the open position until all vehicles have been discharged.

(i) *Exceptions.* A motor vehicle or mechanical equipment is excepted from the requirements of this subchapter if any one of the following requirements are met:

(1) The motor vehicle or mechanical equipment has an internal combustion

engine using liquid fuel that has a flashpoint less than 38 °C (100 °F) and—

- (i) The fuel tank is empty;
- (ii) The engine is run until it stalls for lack of fuel; and
- (iii) No hazardous material is stowed in the vehicle or equipment.

(2) The motor vehicle or mechanical equipment has an internal combustion engine using liquid fuel that has a flashpoint of 38 °C (100 °F) or higher and—

- (i) The fuel tank contains 418 liters (110 gallons) of fuel or less;
- (ii) There are no fuel leaks in any portion of the fuel system; and
- (iii) No hazardous material is stowed in the vehicle or equipment.

(3) The motor vehicle or mechanical equipment is stowed in a hold or compartment designated by the administration of the country in which the vessel is registered to be specially suited for vehicles. See 46 CFR 70.10–44 and 90.10–38 for U.S. vessels.

(4) The motor vehicle or mechanical equipment is electrically powered by wet electric storage batteries.

(5) The motor vehicle or mechanical equipment is equipped with liquefied petroleum gas or other compressed gas fuel tanks and—

- (i) The tanks are completely emptied of (liquid) gas;
- (ii) The line from the fuel tank to the regulator and the regulator itself is drained of all trace of (liquid) gas; and
- (iii) The fuel shut-off valve is closed.

(j) The provisions of this subchapter do not apply to items of equipment such as fire extinguishers, compressed gas accumulators, airbag inflators and the like which are installed in the motor vehicle or mechanical equipment if they are necessary for the operation of the vehicle or equipment, or for the safety of its operator or passengers.

PART 178—SPECIFICATIONS FOR PACKAGINGS

58. The authority citation for part 178 would continue to read as follows:

Authority: 49 U.S.C. 5101–5127; 49 CFR 1.53.

59. In § 178.511, paragraph (a), paragraph (b) introductory text, and paragraph (b)(1) would be revised, paragraphs (b)(2) through (b)(6) would be redesignated as paragraphs (b)(3) through (b)(7) and a new paragraph (b)(2) would be added, to read as follows:

§ 178.511 Standards for aluminum and steel jerricans.

(a) The following are identification codes for aluminum and steel jerricans:

- (1) 3A1 for a non-removable head steel jerrican;
- (2) 3A2 for a removable head steel jerrican;
- (3) 3B1 for a non-removable head aluminum jerrican; and
- (4) 3B2 for a removable head aluminum jerrican.

(b) Construction requirements for aluminum and steel jerricans are as follows:

(1) For steel jerricans the body and heads must be constructed of steel sheet of suitable type and adequate thickness in relation to the capacity of the jerrican and its intended use. Minimum thickness and marking requirements in §§ 173.28(b)(4) and 178.503(a)(9) of this subchapter apply to jerricans intended for reuse.

(2) For aluminum jerricans the body and heads must be constructed of aluminum at least 99% pure or of an aluminum base alloy. Material must be of a type and of adequate thickness in relation to the capacity of the jerrican and to its intended use.

* * * * *

60. In § 178.703, a new paragraph (b)(6) would be added to read as follows:

§ 178.703 Marking of intermediate bulk containers.

* * * * *

(b) * * *

(6) For each composite intermediate bulk container, the inner receptacle must be marked with at least the following information:

(i) The code number designating the intermediate bulk container design type, the name or symbol of the manufacturer, the date of manufacture and the country authorizing the allocation of the mark as specified in paragraph (a) of this section;

(ii) Where the outer casing of a composite intermediate bulk container can be dismantled, each of the detachable parts must be marked with the month and year of manufacture and the name or symbol of the manufacturer.

61. In § 178.707, in paragraphs (c)(2) and (c)(3) introductory text, a new sentence would be added at the end of each paragraph, and a new paragraph (c)(6) would be added, to read as follows:

§ 178.707 Standards for composite intermediate bulk containers.

* * * * *

(c) * * *

(2) * * * The outer packaging of 31HZ2 composite intermediate bulk containers must enclose the inner receptacles on all sides.

(3) * * * The inner receptacle of 31HZ2 composite intermediate bulk containers must consist of at least three plies of film.

* * * * *

(6) Intermediate IBCs of type 31HZ2 must be limited to a capacity of not more than 1250 liters.

§ 178.815 [Amended]

62. In § 178.815, in paragraph (c)(3), the wording “which bear the stacking load” would be added immediately following “with plastic outer packagings”.

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Alan I. Roberts,

Associate Administrator for Hazardous Materials Safety.

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