

DEPARTMENT OF TRANSPORTATION

Research and Special Programs
Administration49 CFR Parts 171, 172, 173, 175, 176,
178[Docket No. HM-215B; Amdt Nos. 171-153,
172-154, 173-261, 175-86, 176-43, 178-119]

RIN 2137-AC82

Hazardous Materials: Harmonization
With the United Nations
Recommendations, International
Maritime Dangerous Goods Code, and
International Civil Aviation
Organization's Technical InstructionsAGENCY: Research and Special Programs
Administration (RSPA), DOT.

ACTION: Final rule.

SUMMARY: This final rule amends 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 revisions are necessary to facilitate the transport of hazardous materials in international commerce.

DATES: *Effective date:* The effective date of these amendments is October 1, 1997.

Compliance date: RSPA is authorizing immediate voluntary compliance. However, persons voluntarily complying with these regulations should be aware that petitions for reconsideration may be received and, as a result of RSPA's evaluation of those petitions, the amendments adopted in this final rule could be subject to further revision.

Incorporation by reference. The incorporation by reference of certain publications listed in these amendments has been approved by the Director of the Federal Register as of October 1, 1997.

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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 (UNCOE). These recommendations are amended and updated biennially by the UNCOE 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.

In a final rule published December 16, 1996, RSPA incorporated the latest editions of the ICAO Technical Instructions and the IMDG Code into the HMR to ensure that international shippers could begin complying with changes to international air and vessel standards going into effect on January 1, 1997. That final rule authorized compliance with either Amendment 27 or Amendment 28 of the IMDG Code and either the 1995-96 or 1997-98

ICAO Technical Instructions until June 1, 1997.

This final rule amends 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 became effective January 1, 1997. Other changes are based on feedback from the regulated industry and RSPA initiatives.

II. Summary of Comments

RSPA received over 40 comments in response to the Docket HM-215B Notice of Proposed Rulemaking (NPRM), which was published in the **Federal Register** on October 25, 1996 (61 FR 55364). Comments were submitted by chemical manufacturers, trade associations, packaging manufacturers, and rail and vessel carriers. Commenters were supportive of RSPA's efforts to maintain alignment with international standards. Certain issues proposed in the NPRM received little or no comment. Other issues, including a proposed definition for "aerosol," a proposed approval requirement for certain nitroglycerin mixtures, and various proposed changes for organic peroxides and explosives packagings, were the focus of most comments. Several commenters requested transitional provisions and other amendments to the HMR as part of this initiative. In this final rule, RSPA is providing a delayed compliance period for implementation of these changes; however, many other suggestions are beyond the scope of the proposed changes in this rule and first should be the subject of an NPRM to offer adequate opportunity for notice and comment.

III. Summary of Regulatory Changes by Section

Listed below is a section-by-section summary of changes and, as applicable, a discussion of comments received.

Part 171

Section 171.7

RSPA proposed to add or update various American Society for Testing and Materials (ASTM) standards, 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-4206-96), 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 4206-96 Standard Test Method for Sustained Burning of Liquid Mixtures Using the Small Scale Open-Cup Apparatus is equivalent to the test method currently provided in Part 173, Appendix H-Method of Testing for Sustained Combustibility.

In addition, RSPA proposed to incorporate the most current versions of the ICAO Technical Instructions, the IMDG Code, the UN Recommendations and the UN Manual of Tests and Criteria. Updated references for the IMDG Code and the ICAO Technical Instructions were adopted in a final rule published December 16, 1996 [61 FR 65958] with an effective date of June 1, 1997. Two references were proposed 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

In the NPRM, RSPA proposed several new definitions, including a definition for "Aerosol" which is consistent with provisions of § 173.306(a)(3). As noted in the NPRM, 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.

RSPA received two comments opposing the proposed definition of "Aerosol". Both commenters (a chemical manufacturing company and The Chemical Specialties Manufacturers Association (CSMA)) believed the definition in the HMR should be worded in the same manner as in the UN Recommendations. These commenters also claimed that the proposed definition may not cover foams, pastes, gels and other liquids which are not ejected in suspension in a gas. CSMA further noted that the proposed definition only recognizes metal aerosol containers while international standards authorize glass and plastic as materials of construction for aerosol containers.

RSPA's proposed definition for "Aerosol" corresponds to current requirements for aerosols in § 173.306(a)(3). Paragraph (a)(3) contains an authorization for the use of metal nonspecification packagings charged with a solution of materials and compressed gas or gases (*i.e.*, aerosols)

with certain restrictions applying to internal pressure, filling limits and testing of the container. The capacity of this container cannot exceed 50 cubic inches or 27.7 fluid ounces. These provisions apply only to *solutions* of materials and compressed gas or gases which are not poisonous (other than Division 6.1, Packing Group III materials). A final rule published October 28, 1991, under Docket HM-210 [56 FR 55471], was issued for clarification and to promote the safe transportation of gases shipped under limited quantity provisions. This final rule stated, in part:

RSPA is concerned about the serious potential hazards posed by shipping flammable compressed gases, under limited quantity or consumer commodity provisions, when a compressed gas is the primary product and not merely an aerosol propellant additive. RSPA and its predecessor agencies never intended that gases other than those used as a propellant could be excepted from any of the HMR when a package has more than a 4-fluid ounce capacity.

Thus, current aerosol provisions in the HMR do not correspond to the aerosol definition in international standards, which authorizes a gas to be expelled "without a liquid, paste, or powder." Nor does RSPA intend to adopt such a provision, because filling a container solely with a gas, such as butane, poses a significantly greater risk than filling the container with a liquid, paste or powder which is expelled by a butane gas due to greater quantities of gas contained in aerosols that do not contain liquid, paste or powder. Furthermore, in response to commenters' concern that the proposed definition may not cover foams, pastes, gels and other liquids which are not ejected in suspension in a gas, RSPA believes that because foams or gels would be considered liquids expelled by a gas, it is not necessary to specifically list them.

Another difference between domestic requirements for aerosols and international standards is that the HMR authorize only metal containers, while non-metallic (*e.g.*, made from glass or plastic) containers are authorized internationally. A November 13, 1995 response to a petition for reconsideration issued under Docket HM-215A [60 FR 56957] emphasized that only metal aerosol containers are authorized for use. This document noted that "RSPA is not aware of any proposed industry standards for the manufacture and use of aerosol containers other than those made of metal." Nor is RSPA aware of any subsequent ongoing action to propose industry standards for the manufacture

and use of non-metallic aerosol containers.

In addition, RSPA proposed corresponding changes in §§ 171.11, 171.12 and 171.12a to 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. These changes, as well as the definition for aerosols, are adopted as proposed in this final rule.

RSPA also proposed definitions for "SADT" (self-accelerating decomposition temperature), salvage packagings and intermediate packagings. No comments were received on these proposed definitions, and they are adopted as proposed.

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. RSPA proposed 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. Commenters uniformly supported this proposal, stating that the change was compatible with international standards and that the "Dangerous When Wet" hazard is clearly communicated through indication of Division 4.3 as part of the basic shipping description and through use of Division 4.3 labels and placards. Therefore, RSPA is removing the requirement for "Dangerous When Wet" to appear on shipping papers in association with the basic description.

RSPA also proposed that the words "Toxic Inhalation Hazard" be added as an alternative to "Poison Inhalation Hazard" or "Inhalation Hazard" and that "Toxic" or "Toxic Gas" be added as alternatives to "Poison" or "Poison Gas". A corresponding provision for shipping paper descriptions was proposed for § 172.203(m). Two comments expressing opposing viewpoints were received. One commenter, an international chemical and industrial gases manufacturer, supported this proposal, stating that this alternative will simplify compliance when shipping materials poisonous by inhalation. The other commenter, a vessel carrier, believed consistency could be achieved through use of only the "Toxic" designation. This commenter claimed that providing an option for use of either term will confuse people in the field. RSPA does not agree and is adopting the alternative "Toxic Inhalation Hazard" as proposed in the NPRM. However, RSPA is not adopting proposed modifications to

POISON and POISON GAS label and placard references. These references were recently modified by the Docket HM-206 final rule [62 FR 1227] and RSPA believes additional modifications to these references are unnecessary.

Also, as discussed above for § 171.8, RSPA is adopting a provision to allow only aerosols meeting the definition of "aerosol" in § 171.8 to be imported in accordance with the ICAO Technical Instructions, IMDG Code and TDG regulations.

Section 171.14

A new paragraph (d) is added to provide a delayed implementation date for amendments adopted in this final rule. The effective date of this final rule is October 1, 1997. However, RSPA is authorizing an immediate voluntary compliance date to allow shippers to prepare their international shipments in accordance with the new ICAO, IMDG Code and HMR provisions. RSPA is also authorizing a delayed mandatory compliance with the new requirements, until October 1, 1998. This delay is comparable to the transition provisions provided in the final rule under Docket HM-215A and offers a sufficient phase-in period to implement new provisions and deplete current stocks of shipping papers, labels, placards, and containers affected by the new requirements. In addition, paragraph (d)(2) permits intermixing of old and new hazard communication requirements until October 1, 1998.

Part 172

Section 172.101

A new paragraph (c)(14) is added to allow isomers of materials listed in the Hazardous Materials Table (HMT) which meet the same hazard class, subsidiary risk and packing group to be identified using the listed shipping description. One commenter suggested adding a provision to exclude isomers listed specifically in the HMT. RSPA agrees and is revising this paragraph to reflect the commenter's suggestion.

A new paragraph (c)(15) is adopted to allow hydrates of inorganic substances to be described using the proper shipping name for the equivalent anhydrous material. In this final rule, RSPA is clarifying the proposed regulatory text to indicate that the hydrate must meet the same hazard class or division, subsidiary risk(s) and packing group of the equivalent anhydrous material, unless the hydrate is specifically identified in the Table.

Paragraph (f) is revised to acknowledge that Division 6.2 materials

(other than regulated medical waste) do not have packing group assignments.

Changes to the HMT include:

New Packing Group I entries 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 is added to numerous entries, consistent with the ninth revised edition of the UN Recommendations. Current entries that contain an italicized "R" number are revised to include the "R" number in Roman type as part of the "Refrigerant gas" alternative proper shipping name. One commenter engaged in reselling prepackaged refrigerants expressed concern that some refrigerant manufacturers would use the newly authorized "Refrigerant gas, R ***" proper shipping name while others would continue to use the current chemical name; consequently, a shipping paper description, package markings and emergency response information may not match. This commenter recommended that differences in proper shipping names resulting from mixed use of the original and alternative proper shipping name on markings, emergency response information and shipping papers be authorized indefinitely, as long as the same UN or NA identification number appears on the shipping paper, emergency response information, and package markings. RSPA does not agree. The HMT contains numerous entries providing an alternative proper shipping name. It is RSPA's opinion that to offer various mix and match provisions for such entries is impracticable and could result in greater confusion.

Certain Class 1 entries assigned NA numbers for domestic transportation are removed. These include Explosive pest control devices and Propellant explosives (both liquid and solid). Domestic exceptions for these explosives are incorporated into the explosive packing instructions, where applicable.

RSPA proposed a new entry and special provision for a nitroglycerin mixture containing more than 2 percent but not more than 10 percent nitroglycerin. The special provision sets forth a requirement that the Associate Administrator for Hazardous Materials Safety (AAHMS) must specifically authorize the nitroglycerin mixture as a Division 4.1 material, as well as approve the assigned packing group and packaging method before the material may be transported as a Division 4.1 material. A chemical manufacturer and

several pharmaceutical manufacturers opposed this proposal. According to these commenters, a preparation consisting of 10% nitroglycerin is used in the treatment of acute angina attacks. They claimed that, unless this proposal is dropped or the domestic supplier of this material is granted an approval to ship the preparation as a Division 4.1 material, transporting this material as a Division 1.1D explosive would have a significant negative impact on the continued production and distribution of this product.

RSPA does not agree. A certain preparation containing 10% nitroglycerin was considered to be a UN 0143, 1.1D explosive by the UNCOE in December 1994, based on the fact that the preparation detonated in the bonfire test prescribed in test series 6(c) of the UN Manual of Tests and Criteria. The UNCOE recognized that not all preparations containing 10% nitroglycerin behave the same. Therefore, the UNCOE adopted UN 3319 with a provision for each competent authority to authorize, either by approval or exemption, a preparation consisting of not more than 10% nitroglycerin as a Division 4.1 material based on test results. This provision is consistent with the existing provisions of § 173.124(a)(1)(ii)(B) for desensitized explosive substances which require authorization, either by approval or exemption, by the AAHMS. RSPA believes that a 10% nitroglycerin preparation that will detonate in a fire should be considered a forbidden material according to § 173.21(h). If the preparation is or may be explosive according to § 173.54(a), it is forbidden for transport unless examined and approved under the provisions of § 173.56. Depending on test results, the same preparation may be approved under § 173.56 as a Division 4.1 material. RSPA does not believe the incorporation of UN 3319 with a lengthy transition period for shippers to obtain an approval or exemption, where appropriate, would seriously threaten the production of nitroglycerin pharmaceutical treatments in the United States.

New entries are 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" are 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." are added. One commenter supported the proposal to change

packaging authorizations for "Gas, refrigerated liquid" to reference packagings for cryogenic liquids, but believed that packaging exceptions provided in § 173.320 should be authorized for "Gas, refrigerated liquid, n.o.s." and "Gas, refrigerated liquid, oxidizing, n.o.s." The commenter claimed that this section should apply if the components of the mixture are exclusively various combinations of atmospheric gases and/or helium in cryogenic liquid form. RSPA agrees and is adding an exception in Column (8A) for these two entries.

Several entries, such as Phenyl isocyanate and Phosphorous trichloride, are 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 results 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 is revising 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.

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

The packing group designation for "Mercury, contained in manufactured articles" is revised from Packing Group I to Packing Group III for consistency with the entry for "Mercury" and the ICAO Technical Instructions.

To maintain consistency with the UN Recommendations, various proper shipping names are amended by the addition or removal of the word "compressed", "inhibited", "liquefied" or "solution". Several commenters indicated that although they generally support the international harmonization effort and overall intent to maintain consistency between the HMR, the UN Recommendations, the IMDG Code, and the ICAO Technical Instructions, they did not understand the basis for the addition or deletion of the words "compressed", "inhibited", "liquefied"

or "solution" relative to clarifying certain existing shipping names. These amendments were adopted by the UNCOE, in part, to more effectively communicate the threat posed by certain materials in their different physical states, e.g., pressurized materials that may be transported as a liquid or as a gas. The description modifications were supported by several large industry groups at the time the UNCOE was considering the amendments.

RSPA recognizes that revising proper shipping names to include or exclude these four modifiers to the key words identifying the hazardous materials poses problems that makes compliance difficult in the one-year period provided in § 172.101(l)(1)(ii). Those difficulties and the associated additional costs of compliance were highlighted in comments provided by several shippers and carriers of industrial gases. In consideration of those comments, RSPA is providing an exception in § 172.101(l)(3) that obviates the need for shippers and carriers to make special arrangements to remark bulk or non-bulk packagings used in the transportation of the affected hazardous materials within one year following the effective date of this rule. Rather, when the proper shipping name of a hazardous material is modified only by the addition or omission of the word "compressed", "inhibited", "liquefied" or "solution," its packaging may be marked with the previously prescribed proper shipping name for that material for a period of five years following the effective date of this rule. The extended compliance period is intended to allow re-marking to be accomplished in association with the periodic five-year retest required for most bulk packagings.

To minimize the effects of other amendments, RSPA is incorporating an extended transition period comparable to that provided in Docket HM-215A. This will allow industry time to deplete current stocks of pre-printed shipping papers, labels and packagings affected by the new shipping names and to implement the changes within their respective companies, including providing any necessary training to employees.

Two commenters pointed out a conflict in the proposed addition of a Division 5.1 subsidiary risk label for the entry "Carbon dioxide and oxygen mixtures". RSPA has stated previously that this subsidiary risk should be recognized only when a mixture contains a concentration of oxygen greater than 23.5%, requiring a subsidiary risk label for this entry without regard to the amount of oxygen

in the mixture is inconsistent. Although the UN Recommendations prescribe a subsidiary 5.1 risk label without any distinctions, RSPA agrees with these commenters. Therefore, a new Special Provision 77 is added to limit the requirement for this subsidiary risk label to mixtures having an oxygen concentration greater than 23.5% for domestic transportation. In addition, RSPA intends to bring this inconsistency to the attention of the UN Committee of Experts.

RSPA is adjusting quantity limits for certain materials identified as poisonous by inhalation when transported by passenger or cargo aircraft or passenger railcar. Many of these changes are consistent with current quantity limits prescribed in the ICAO Technical Instructions. Certain other materials are forbidden for transportation by aircraft or passenger railcar because they have been identified as meeting the criteria for 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) combining entries for "Chlorite solution" and "Hypochlorite solutions"; (4) removing "Methyl alcohol" as an authorized proper shipping name for "Methanol" but retaining it in italics as a cross reference; (5) adding a Class 3 subsidiary risk in Column (6) for several entries; and (6) creating a new entry for "Aerosols (engine starting fluid)" to indicate that these aerosols are prohibited on both passenger and cargo only aircraft.

RSPA is not incorporating various entries suggested by commenters that were not proposed in the NPRM. As noted previously, these suggestions are beyond the scope of the proposed changes in this rule and should be subject to notice and comment.

Appendix B to § 172.101

RSPA proposed to add, remove or revise a number of entries in the HMR's List of Marine Pollutants. These changes are based on Amendment 27 (to the extent not already incorporated in HM-215A) and Amendment 28 of the IMDG Code. Currently, Appendix B contains a duplicate entry for "Maneb or Maneb preparations"; however, one entry has supplemental information in Roman type, while the supplemental information in the other entry is shown in italics. RSPA proposed to remove the entry listed in all Roman type. One

commenter indicated that the other entry should be retained for consistency with the IMDG Code. The commenter is correct; RSPA is retaining the entry "Maneb or Maneb preparations with not less than 60 per cent maneb." In addition, several commenters suggested various other revisions to the list and RSPA has amended the list accordingly.

Section 172.102

A new special provision 15 is added as proposed to prescribe quantity limits and packaging for chemical kits and first aid kits. Other special provisions are 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, and Ferrocenium.

RSPA proposed to assign Special Provision 30 to the international entry for "Sulfur" to indicate that this material is not subject to the HMR when transported in a non-bulk packaging or if formed in a specific shape. The Sulphur Institute strongly supported this change and recommended rewording Special Provision 30 by removing the phrase "when transported domestically". RSPA agrees and this special provision is revised accordingly.

One commenter suggested RSPA revise Special Provision 47 to incorporate a special provision adopted in the ICAO Technical Instructions which allows small packagings consisting of sealed packets containing less than 10 ml of a Packing Group II or III flammable liquid absorbed onto a solid material to be excepted from the HMR if no free liquid is present in the packet. The commenter believed this provision is consistent with a previous letter of opinion RSPA issued concerning alcohol wipes and should be adopted as an "A" special provision, at a minimum, for consistency with ICAO. RSPA agrees and is incorporating this exception into Special Provision 47 to apply to all modes of transport.

RSPA proposed to add a new special provision A25 to authorize polyester resin kits in certain quantities to be packaged in non-specification packagings for transportation by aircraft. One commenter suggested removing this special provision, as well as Special Provision 40 (which currently is assigned to polyester resin kits), and incorporating all packaging provisions for polyester resin kits in § 173.152. After further consideration, RSPA agrees and is adding specific packaging provisions in § 173.152 applicable to all modes of transport for polyester resin kits.

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 is assigned to this entry to permit certain non-specification bulk packagings for these products. Commenters representing the aluminum industry responded favorably to this proposal. A commenter suggested two modifications—one to add a new special provision applicable to both non-bulk and bulk packaging to include certain materials which exhibit corrosivity at PG II and III levels and the other to allow both special provisions to apply to "magnesium granules." RSPA is adding a new Special Provision 128 and revising § 172.101 Table entries for UN 3096 and UN 3131 (Packing Groups II and III) to allow aluminum smelting by-products and aluminum remelting by-products which are described by a generic proper shipping name because they meet the criteria for both Division 4.3 and Class 8, to be packaged in accordance with Special Provision B115. However, RSPA is not expanding this provision to include non-bulk packagings, nor will Magnesium granules be assigned B115. In the NPRM, RSPA proposed a special provision for aluminum by-products which would eliminate the need for DOT Exemption DOT-E-11602. RSPA does not believe it appropriate at this time to adopt, without public notice and comment, new provisions which go beyond the relief authorized in DOT-E-11602 and proposed in the NPRM.

Special Provision N50, which provides an exception from Class 9 labeling for marine pollutants that are not hazardous substances or hazardous wastes, is removed. A corresponding change is made in Column 7 of the HMT to remove Special Provision N50 for the entries "Environmentally hazardous substance, liquid (or solid) n.o.s."

Section 172.203

RSPA is removing 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. Commenters uniformly supported this proposal and stated that the change was compatible with international standards and that the "Dangerous When Wet" hazard is clearly communicated through indication of Division 4.3 as part of the basic shipping description, emergency

response information on the shipping paper, and use of Division 4.3 labels and placards.

The list of generic proper shipping names which require inclusion of a technical name in paragraph (k)(3) is amended by adding several entries for hydrocarbon gases, hydrocarbon gas mixtures, and compressed, liquefied or refrigerated gases which have a subsidiary hazard of oxidizer or flammability. In addition, RSPA is adding the entry for "Organometallic compound, water reactive, flammable, n.o.s." which was inadvertently omitted in a previous rulemaking action.

As discussed previously in §§ 171.11, 171.12 and 171.12a, RSPA is adding the word "Toxic" and the phrase "Toxic-Inhalation Hazard" in paragraph (m)(3) as an alternative to "Poison". RSPA proposed the addition of 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. One commenter believed this exception should not apply to materials poisonous by inhalation, which require additional shipping paper information to communicate the presence of a fatal inhalation hazard. The commenter believed the proposal was ill conceived and not beneficial to safety. After further consideration, RSPA believes that this proposed exception may not be appropriate for any material meeting toxicity criteria, not just a toxic by inhalation hazard material. Therefore, proposed paragraph (m)(4) is not adopted in this final rule.

Part 173

Section 173.3

Paragraph (c)(3) is amended to authorize the word "SALVAGE" as an alternative marking for salvage drums. In addition, a new paragraph (c)(7) is added to allow the use of salvage packagings which have been certified and marked to UN standards. RSPA is not adopting other marking requirements specified 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.

Two commenters addressed proposed changes to this section and both supported RSPA's decision to retain current salvage packaging provisions. For example, the Steel Shipping Container Institute maintained that it could not support complete harmonization with international salvage packaging standards until it has been clearly determined that incidents of failure in salvage packagings meeting the UN standards are less than those meeting current HMR requirements.

Section 173.21

The last sentence of paragraph (f) is amended to correctly reference the UN Manual of Tests and Criteria.

Section 173.32c

Currently an IM portable tank or its compartment having a volume greater than 5000 liters must have a minimum filling density of 80%. RSPA proposed to increase the minimum tank or compartment size to 7500 liters, consistent with international standards. One commenter claimed that RSPA's proposal did not go far enough and indicated that a filling restriction on portable tanks used solely for domestic highway transport is unjustified and precludes shippers from transporting relatively small quantities of hazardous materials in portable tanks. The commenter believed that a filling restriction of less than 80% for IM portable tanks or compartments should not apply to transport by highway. This commenter also stated that the purpose of the "80% rule" was to preclude hydraulic surge that could make adequate securing of portable tanks aboard vessels difficult and potentially dangerous, but that surge is not a safety concern in highway transport.

RSPA disagrees that surge is not a safety concern in highway transport of IM portable tanks. Portable tanks, when mounted on a vehicle chassis, may have a higher center of gravity as compared to standard cargo tank trucks. The effects of liquid movement and its destabilizing effect at high speed and during abrupt turning can contribute to roll-over. This effect is most predominant when ullage is greater than 20%. Furthermore, it is RSPA's opinion that information supplied by this commenter does not provide sufficient incentive for RSPA to expand relief beyond that proposed in the NPRM. RSPA may consider this matter further in future rulemaking action on the basis

of pertinent technical justification (e.g., data indicating forces experienced during transport of portable tanks as a result of cargo surge).

Section 173.34

Because of a printing error, in the table in paragraph (e)(18)(i), for DOT 8 or 8AL cylinders used to transport acetylene, under "Porous filler requalification," the year "2001" is corrected to read "2011".

Section 173.60

As proposed, amendments to this section are consistent with the UN Recommendations, are largely editorial and serve to streamline and consolidate general requirements for packaging explosives while eliminating redundant and unnecessary requirements. These amendments are intended to more clearly convey general packaging requirements applicable to packaging explosives for transportation and do not impose new requirements.

RSPA received one comment from a company specializing in explosives regulatory compliance. This commenter recommended adding a reference to § 173.24(e) at the end of § 173.60(b)(8) and dropping proposed (b)(8) because (b)(9) addresses compatibility. RSPA does not agree. Section 173.60(b)(8) specifically addresses loose explosive substances or the explosives substance of a uncased or partly cased article which may present a sifting hazard from the package. However, RSPA believes it may be useful to add the explanatory reference to § 173.24(e) at the end of § 173.60(b)(9).

Section 173.62

RSPA proposed new explosives packaging methods in the Explosives Table which were developed by the UNCOE, based on comments received from the Department of Defense and explosive industry representatives, and on competent authority approvals and exemptions issued to shippers of explosives. These new methods are significantly more flexible than the methods currently prescribed in the Explosives Table and incorporate a broader range of options for authorized inner, intermediate and outer packagings. In several instances, inner and intermediate packagings are no longer required. Explosives Packing Instructions are consistent with those adopted in the ICAO Technical Instructions. In addition, many explosives (particularly those shipped under not otherwise specified (n.o.s.) entries) which currently require competent authority packaging approval are now assigned to specific packing

methods eliminating the requirement for the competent authority to approve the packaging for these explosives.

A commenter asked RSPA to revise a provision for jet perforating guns in proposed Packing Instruction US1 to allow a higher total explosives content per tool pallet, based on a current exemption authorizing this higher quantity of explosives. RSPA agrees and is revising US1 to authorize up to 90.8 kg (200 pounds) total explosive contents per pallet.

Another commenter, the Sporting Arms and Ammunition Manufacturers' Institute (SAAMI), recommended several changes to the proposed revisions. First, SAAMI believed the elimination of inner packaging requirements for "Cartridges, small arms" (UN0012) is inconsistent with § 173.60 (b)(3) and (b)(5). RSPA does not agree. Only when metal outer packagings are used for UN0012, would § 173.60(b)(3) require a means of prevention from contact with the cartridges. This means could be padding or partitions and not necessarily an inner packaging. These cartridges have their explosives substances enclosed in an outer casing and do not require separation according to § 173.60(b)(3). RSPA believes the recessed primer well design of most cartridges for weapons effectively protects the article from accidental actuation. Shippers should add protection for articles that present an actuation hazard according to § 173.60(b)(5), but that protection can be offered by means other than requiring an inner packaging.

Secondly, SAAMI claimed that "Small arms ammunition, ORM-D" would require more stringent packaging under § 173.63(b)(2) than "Cartridges, small arms" classed as Division 1.4S and packaged in accordance with Packing Instruction 130. RSPA believes that more stringent packaging requirements for ORM-D materials (which are excepted from most shipping paper, marking, labeling and placarding provisions of the HMR) is appropriate. Furthermore, cartridges for weapons must be clearly identified, marked and labeled as Division 1.4S explosive articles.

SAAMI also claimed that packaging requirements for "Cases, cartridge, empty with primer" (UN0055) are more stringent than for "Cartridges, small arms" (UN0012). RSPA believes the inner packaging requirement for UN0055, primed cartridge cases, empty in Packing Instruction 136 is appropriate. These cases have an exposed explosive substance coated or deposited on the primer which could loosen and sift out of the outer

packaging without the inner packaging requirement.

RSPA does not agree with SAAMI's contention that the wording in Packing Instruction 133, regarding the authorization of trays as inner packagings for certain explosives, is confusing. RSPA believes that listing UN identification numbers for which the use of trays as inner packagings is prohibited is clearer because nearly 50 percent fewer numbers are listed.

Finally, SAAMI recommended that for "Primers, cap type" (UN0044), D9 and D11 limitations assigned to current Packing Method E-142 should be reinstated in Packing Instruction 133. RSPA does not agree. The harmonization of the HMR to international performance-oriented packaging requirements and with general packaging instructions for explosives has resulted in the successful elimination of many explosive quantity limitations per package. As a result, shipper compliance has become easier to achieve without increased risk to the public.

Section 173.120

Paragraphs (a)(3) and (b)(3) are revised to include a reference to ASTM D 4206 and a new paragraph (c)(1)(i)(C) is added to reference test method ASTM D 3828.

Section 173.124

Amendments to the test methods for flammable solids, pyrophoric materials, self heating substances and water reactive materials are adopted as proposed. The Self-Reactive Materials Table is 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 is amended for consistency with the UN Recommendations. A reference to Appendix E (which is removed in this final rule) is replaced by references to the UN Manual of Tests and Criteria.

In paragraph (b), the UN burning rate test and criteria for classification is incorporated. The classification criteria for readily combustible materials is 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 metal or metal alloys are 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 are assigned to Packing Group II if the burning time is less than 45 seconds and the flame passes the wetted zone. Packing Group II is 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 is 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 is 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 is 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 are not subject to the requirements of the HMR.

In paragraph (d), the packing group assignment criteria is revised for consistency with the UN Recommendations. These amendments do not significantly affect the packing group assignment criteria, but are purely editorial to clarify the meaning of "spontaneous ignition."

Section 173.127

RSPA is revising the definition for solid oxidizers and adding 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 (which is removed in this final rule) are replaced by a reference to the UN Manual of Tests and Criteria.

Paragraph (b)(1) is revised to include a statement indicating that the material must be tested in the concentration offered for transport. The criteria for packing group assignment is 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.

Paragraph (b)(2) incorporates packing group assignment criteria for liquid oxidizers adopted in the ninth revised

edition of the UN Recommendations. Incorporating specific criteria for liquid oxidizers provides a more precise means for shippers to classify these products and eliminates 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 is revised to reflect its correct title. Paragraph (e) is amended to update the reference to Figure 11.1 (Classification and Flowchart Scheme for Organic Peroxides).

Section 173.132

A new paragraph (b)(3)(iii) is added to clarify when solid and liquid materials are required to be tested for acute toxicity by inhalation. One commenter recommended that RSPA remove the second sentence in paragraph (b)(3) because proposed (b)(3)(iii) not only addresses this issue but is more specific. RSPA does not agree. While there is some overlap, current (b)(3) provides more details of testing and new (b)(3)(iii) is more specific as to when tests must be run.

Current paragraph (c) is redesignated as paragraph (d), and a new paragraph (c) is added to authorize three methods for use in classifying and assigning packing groups to mixtures of materials possessing oral and dermal toxicity characteristics. One commenter pointed out that the formula in paragraph (c) is missing a "+" between the second and third fractions and also is missing a note found in international standards. In this final rule, RSPA is inserting the "+" between the second and third fractions. RSPA intentionally did not propose the additional note referenced by this commenter because the note provides optional information rather than imposing a regulatory requirement. However, for consistency with international standards and convenience of the reader, RSPA is adding the note at the end of paragraph (c).

Section 173.136

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

Section 173.137

Paragraph (b) is 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 are added in paragraph (b)(4)(i) for polyester resin kits for transport by all modes.

Section 173.162

A new sentence is 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 is revised to remove all references to "seat-belt modules", consistent with changes in the UN Recommendations. Packaging provisions in paragraph (e) are 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 also specifically authorizing dedicated handling devices.

Section 173.185

This section is 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 adopting an authorization 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 also applies to lithium cells and batteries contained in equipment under specified conditions.

RSPA is also expanding the types of packagings authorized for transporting cells and batteries by aircraft to include an array of boxes, drums and jerricans. Additionally, RSPA is eliminating 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 in water).

One commenter indicated that his company's batteries would not pass all the tests specified in the UN Tests and Criteria for lithium batteries. RSPA believes the regulations as adopted provide an adequate alternative for lithium battery manufacturers. Under § 173.185 (i), manufacturers who experience difficulty in meeting the UN Tests and Criteria for lithium batteries may apply for an approval provided they can demonstrate an equivalent level of safety.

Sections 173.201–173.203 and 173.211–173.213

Aluminum jerricans, 3B1 or 3B2, are 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) is amended 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-Reactive Materials Table is amended by adding seven new entries. The Packing Method Table for Generic Types in paragraph (c)(3) is removed because the information is specifically listed in the Self-Reactive Materials Table, and paragraph (c)(4) is 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 final rule, paragraph (b)(2) is amended 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 is 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) is 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, is removed. The Packing Method Table for Generic Types in paragraph (c)(3) is removed because the information is specifically listed in the Organic Peroxides Table, and paragraph (c)(4) is redesignated paragraph (c)(3).

Paragraph (d) is 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.

RSPA is authorizing bottom outlets for organic peroxides in bulk packagings by removing the prohibition in the last sentence of paragraph (e)(2) and removing paragraph (e)(3)(i)(B). Paragraph (e)(3)(i)(C) is redesignated paragraph (e)(3)(i)(B).

Paragraph (e)(5) is revised to authorize the transport of stabilized peroxyacetic acid, type F (containing not more than 17 percent peroxyacetic acid) in type 31A IBCs. A similar proposal made by the United States has been approved by the UN Committee of Experts for incorporation into the tenth revised edition of the UN Recommendations.

Section 173.226

Paragraph (c)(1) is amended to add aluminum jerricans as an authorized packaging.

Section 173.315

When the hazard class and division assigned to "Methylamine, anhydrous" was changed from Division 2.3 (poisonous gas) to Division 2.1 (flammable gas), RSPA failed to correct the § 173.315 table entry for this material by removing Notes 22 and 24. The table entry is being corrected in this final rule.

Sections 173.316 and 173.318

RSPA proposed the addition of 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. A commenter expressed confusion as to whether this proposal would eliminate the need for DOT Exemption DOT-E-10001. RSPA is revising the proposed provisions in paragraphs (d) and (f)(4) of §§ 173.316 and 173.318, respectively, to clarify that an approval, rather than an exemption, is needed.

Appendix E and Appendix F

As proposed, the guidelines for classification and packing group assignment for Classes 4 and 5 are

removed. RSPA believes the UN Manual of Tests and Criteria is a more appropriate reference for these test methods. The NPRM stated that 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. One commenter objected to this proposal, claiming potential difficulty and expense in obtaining copies of the most current version of the UN Test Manual. RSPA does not agree. A copy of the current test manual is part of the HM-215B public record maintained by RSPA's Dockets Unit. Upon request to the RSPA Dockets Unit (202-366-5046), RSPA will reproduce and provide pertinent pages from the most current UN Test Manual.

Part 175

Section 175.10

Paragraph (a)(22) is revised 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, is revised to correspond to proposed revisions in § 176.905.

Section 176.84

A new code 17 is added to prescribe segregation for a compressed or liquefied gas which is toxic, flammable and corrosive.

Section 176.905

RSPA is revising requirements for transporting motor vehicles or mechanical equipment powered by internal combustion engines by vessel to take account of recent changes which have occurred in the IMDG Code and in response to comments received to the NPRM and 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 was removed and these materials were deregulated in Amendment 28 of the IMDG Code.

Although RSPA did not propose total relief for the transport of motor vehicles

by vessel, it proposed modifying 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 without being subject to the HMR. Additionally, revised transport provisions for vehicles fueled with compressed gas and for certain battery-powered vehicles were proposed to provide clarity.

One commenter suggested that RSPA remove this section from the HMR and provide total relief for the transport of mechanical equipment powered by internal combustion engine by vessel. RSPA believes that total relief would not be in the best interest of safety and that certain precautions which minimize the potential for hazardous materials incidents involving internal combustion-powered vehicles and equipment are warranted.

Another commenter recommended that the motor vehicle carriage requirements in this section be adopted in the IMDG Code to alleviate the safety and practical problems that could arise with the deregulation of motor vehicles in Amendment 28 of the Code. Work at the International Maritime Organization to amend the IMDG Code is beyond the scope of this rulemaking. The commenter also noted that to require the fuel tank to be no more than one-fourth full is somewhat arbitrary and can be eliminated with an inspection for leaks prior to loading. RSPA does not agree. The purpose of the quarter tank requirement is to limit the amount of flammable vapors which would collect in an enclosed space such as a freight container should a fuel leak occur. Although fuel tanks sizes vary, RSPA believes that limiting the fuel present in a vehicle's tank is a valuable safety measure necessary to alleviate the hazard of an undetected leak during long ocean voyages. Therefore, the proposed requirement will remain unchanged. Finally, this commenter noted that paragraph (f) requires a fire extinguishing system capable of alerting personnel on the bridge of a ship, which should apply instead to the smoke or fire detection system discussed in paragraph (g). RSPA agrees and is revising this provision accordingly.

Several provisions are added to incorporate transport safety measures included in recently issued motor vehicle exemptions that now allow transport of motor vehicles with batteries connected. These provisions include a requirement for an inspection of the vehicle's battery and associated equipment prior to loading and requiring the removal of a vehicle's ignition key.

Part 178

Section 178.511

This section is amended to adopt requirements for aluminum jerricans consistent with the UN Recommendations. Packaging codes 3B1 and 3B2 are added. Paragraph (b) is 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 are added. All inner receptacles must 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 must 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 is added to indicate that the outer packaging of 31HZ2 composite IBCs must enclose the inner receptacles on all sides. In paragraph (c)(3) a new requirement is added to indicate that inner receptacles of 31HZ2 composite IBCs must consist of at least three plies of film. In paragraph (c)(6), a new requirement is added to indicate 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" are added to clarify that rigid plastic IBCs and composite IBCs with plastic outer packaging must be tested for 28 days at 40°C (104°F) when the plastic outer packaging bears the stacking load. IBCs with plastic outer packaging that are designed with metal corner posts to bear the stacking load are not required to be tested for 28 days at 40°C (104°F), but must be subjected to the stacking test for 24 hours.

IV. Rulemaking Analyses and Notices

A. Executive Order 12866 and DOT Regulatory Policies and Procedures

This final 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].

The economic impact of this final rule is expected to result in only minimal costs to certain persons subject to the HMR and may result in modest cost savings to a small number of persons subject to the HMR and to the agency. Most of the revised requirements adopted in this rulemaking received industry-association support before the United Nations Committee of Experts on the Transport of Dangerous Goods. Of the comments received in this docket, few dealt with increased costs of compliance. Nevertheless, RSPA believes it adequately addressed the concerns of commenters focused on increased costs of compliance through its adoption of a five-year extended compliance period pertaining to package marking requirements. Because of the minimal economic impact of this rule, preparation of a regulatory impact analysis or a regulatory evaluation is not warranted.

B. Executive Order 12612

This final 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:

- (1) The designation, description, and classification of hazardous material;
- (2) The packing, repacking, handling, labeling, marking, and placarding of hazardous material;
- (3) The preparation, execution, and use of shipping documents related to hazardous material and requirements related to the number, contents, and placement of those documents;
- (4) The written notification, recording, and reporting of the unintentional release in transportation of hazardous material; or
- (5) 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 final rule addresses covered subjects under items (1), (2), (3), and (5) 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 [insert date 180 days after issuance of 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 final rule incorporates changes adopted in the ninth revised edition of the UN Recommendations, the 1997–98 ICAO Technical Instructions, and Amendment 28 to the IMDG Code. It applies to offerors and carriers of hazardous materials and facilitates the transportation of hazardous materials in international commerce by providing consistency with international requirements.

This final rule will affect small business entities that ship or transport hazardous materials, but any adverse economic impact should be minimal. Certain costs incurred through changes to hazard communication and classification requirements will be minimized through a lengthy optional compliance period, which will allow a sufficient phase-in period to implement new provisions and deplete current inventory affected by the new requirements. If changes already incorporated in international standards are not adopted in this final rule, U.S. companies, including numerous small entities competing in foreign markets, will be at an economic disadvantage by being forced to comply with a dual system of regulation.

Based on readily available information concerning the size and nature of entities likely affected by this final rule, I certify this rule will not have a significant economic impact on a substantial number of small entities under criteria of the Regulatory Flexibility Act.

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 amended as follows:

PART 171—GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS

1. The authority citation for part 171 continues to read as follows:

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

2. In the § 171.7(a)(3) Table, two new entries are added in numerical order under the entry for American Society for Testing and Materials and the last entry under the entry for United Nations is revised, to read as follows:

§ 171.7 Reference material.

(a) *Matter incorporated by reference.*

* * *

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

Source and name of material	49 CFR reference
* * * * *	
<i>American Society for Testing and Materials</i>	
* * * * *	
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 Using the Small Scale Open-Cup Apparatus.	173.120.
* * * * *	
<i>United Nations</i>	
* * * * *	
UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Second Revised Edition, 1995.	173.21, 173.56 173.57, 173.124 173.128, 173.166 173.185.

* * * * *

§ 171.7 [Amended]

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

a. In the entry ASTM D 93-90, the wording "D 93-90" is revised to read "D 93-94".

b. In the entry ASTM D 3278-89, the wording "D 3278-89" is revised to read "D 3278-95".

c. In the entry ASTM G 31-72, the wording "(Reapproved 1990)" is revised to read "(Reapproved 1995)".

d. Under Transport Canada, the entry "Transportation of Dangerous Goods Regulations, 1 July 1985" is 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".

e. Under United Nations, for the entry "UN Recommendations on the Transport of Dangerous Goods, Eighth Revised Edition (1993)" the wording "Eighth Revised Edition (1993)" is revised to read "Ninth Revised Edition (1995)".

4. In § 171.8, the following definitions are 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 by the 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 packaging means a special packaging 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) is revised and a new paragraph (d)(14) is 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) An aerosol must meet the definition for "Aerosol" in § 171.8.

§ 171.11 [Amended]

6. In addition, in § 171.11, in paragraph (d)(9)(i), the wording "Poison-Inhalation Hazard" is revised

to read "Toxic Inhalation Hazard" or 'Poison Inhalation Hazard'".

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

§ 171.12 Import and export shipments.

* * * * *

(b) * * *

(17) An aerosol must meet the definition for "Aerosol" in § 171.8.

* * * * *

§ 171.12 [Amended]

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

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

b. Paragraph (b)(13) is removed and reserved.

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

§ 171.12a Canadian shipments and packagings.

* * * * *

(b) * * *

(16) An aerosol must meet the definition for "Aerosol" in § 171.8.

§ 171.12a [Amended]

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

a. In paragraph (b)(5)(i), the wording "Poison-Inhalation Hazard" is revised to read "Toxic Inhalation Hazard" or 'Poison Inhalation Hazard'".

b. Paragraph (b)(12) is removed and reserved.

11. Section 171.14 is amended by adding a new paragraph (d) to read as follows:

§ 171.14 Transitional provisions for implementing requirements based on the UN Recommendations.

* * * * *

(d) A rule published in the **Federal Register** on May 6, 1997, effective October 1, 1997, resulted in revisions to this subchapter. During the transition period provided in paragraph (d)(1) of this section, a person may elect to comply with either the applicable requirements of this subchapter in effect on September 30, 1997, or the requirements of this subchapter in the May 6, 1997 final rule, in effect on October 1, 1997.

(1) *Transition date.* On October 1, 1998, all applicable regulatory requirements adopted in the May 6, 1997 final rule in effect on October 1, 1997 must be met.

(2) *Intermixing old and new requirements.* Prior to the transition date in paragraph (d)(1) of this section, it is recommended that the hazard communication requirements be consistent where practicable, *i.e.*, marking, labeling, placarding, and shipping paper descriptions should conform to either the old requirements of this subchapter in effect on September 30, 1997, or new requirements of this subchapter in the May 6, 1997 rule, in effect on October 1, 1997, without intermixing of communication elements. However, intermixing is permitted, during the applicable transition period, for packaging, hazard communication, and handling provisions, as follows:

(i) If either shipping names or identification numbers are identical, a shipping paper may display the old shipping description even if the package

is marked and labeled under the new shipping description;

(ii) If either shipping names or identification numbers are identical, a shipping paper may display the new shipping description even if the package is marked and labeled under the old shipping description; and

(iii) Either old or new placards may be used regardless of whether old or new shipping descriptions and package markings are used.

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

12. The authority citation for part 172 continues to read as follows:

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

13. In § 172.101, new paragraphs (c)(14), (c)(15), and (l)(3) are added to read as follows:

§ 172.101 Purpose and use of hazardous materials table.

* * * * *

(c) * * *

(14) A proper shipping name that describes all isomers of a material may be used to identify any isomer of that material if the isomer meets criteria for the same hazard class or division, subsidiary risk(s) and packing group, unless the isomer is specifically identified in the Table.

(15) Hydrates of inorganic substances may be identified using the proper shipping name for the equivalent anhydrous substance if the hydrate meets the same hazard class or division, subsidiary risk(s) and packing group, unless the hydrate is specifically identified in the Table.

* * * * *

(l) * * *

(3) The proper shipping name of a hazardous material changed in the May 6, 1997 final rule, in effect on October 1, 1997, only by the addition or omission of the word “compressed,” “inhibited,” “liquefied” or “solution” may continue to be used to comply with package marking requirements, until January 1, 2003.

* * * * *

§ 172.101 [Amended]

14. In addition, in § 172.101, in paragraph (f), in the second sentence, the wording “Classes 2 and 7 materials and ORM–D materials” is revised to read “Class 2, Class 7, Division 6.2 (other than regulated medical wastes), and ORM–D materials”.

15. In § 172.101, the Hazardous Materials Table is 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

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or division	Identification numbers	PG	Label codes	Special provisions	(8) Packaging (§ 173.24(a))			(9) Quantity limitations		(10) Vessel stowage	
							Exceptions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo aircraft only	Location	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	[REMOVE]												
I	Aluminum processing by-products (both entities).	*	*		*	*	*		*	*			
	Ammonia, anhydrous, liquefied or Ammonia solutions, relative density less than 0.880 at 15 degrees C in water, with more than 50 percent ammonia.	*	*		*	*	*		*	*			
	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													
D	n-Amylene Boosters with detonator	*	*		*	*	*		*	*			
	2-Bromo-2-nitropropane-1,3-diol.												
	Butoxyl	*	*		*	*	*		*	*			
	n-Butyl bromide	*	*		*	*	*		*	*			
	Butylpropionate	*	*		*	*	*		*	*			
	Carbon dioxide and oxygen mixtures.	*	*		*	*	*		*	*			

[illegible]

§ 172.101—HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or division	Identification numbers	PG	Label codes	Special provisions	(8) Packaging (§ 173.23(a))			(9) Quantity limitations		(10) Vessel stowage	
							Exceptions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo aircraft only	Location	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Halogenated irritating liquids, n.o.s. (all three entries).	*	*		*	*	*		*	*			
	Hexaethyl tetraphosphate, liquid (PG I and III).	*	*		*	*	*		*	*			
	Hexaethyl tetraphosphate, solid (PG I and III).	*	*		*	*	*		*	*			
	Hypochlorite solutions with more than 5 percent but less than 16 percent available chlorine.	*	*		*	*	*		*	*			
	Hypochlorite solutions with 16 percent or more available chlorine.												
	Mannitol hexanitrate, wetted or Nitromannite, wetted with not less than 40 percent water, by mass or mixture of alcohol and water.	*	*		*	*	*		*	*			
	Methyl benzoate	*	*		*	*	*		*	*			
	Methyl vinyl ketone	*	*		*	*	*		*	*			
	Nitrosoguanidine	*	*		*	*	*		*	*			
	tert-Octyl mercaptan	*	*		*	*	*		*	*			
	Pentan-2,4-dione	*	*		*	*	*		*	*			
	Percarbonates, inorganic, n.o.s.	*	*		*	*	*		*	*			

Plastic molding material in dough, sheet or extruded rope form.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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§ 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 (§ 173.33*)			(9) Quantity limitations			(10) Vessel stowage	
							Exceptions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo aircraft only	Location		
							(8A)	(8B)	(8C)	(9A)	(9B)	(10A)		(10B)
	Aluminum smelting by-products or Aluminum remelting by-products.	4.3	UN3170	II	4.3	* B106, B115.	* None	212	242	* 15 kg	50 kg	B	85, 103	
				III	4.3	B106, B115.	None	213	241	25 kg	100 kg	B	85, 103	
	2-Amino-4,6-Dinitrophenol, wetted with not less than 20 percent water by mass.	4.1	UN3317	I	4.1	* 23A8, A19, A20, N41.	* None	211	None	* 1 kg	15 kg	E	28, 36	
I	Ammonia, anhydrous	2.3	UN1005		2.3, 8	* 4	* None	304	314, 315	* Forbidden	25 kg	D	40, 57	
D	Ammonia, anhydrous	2.2	UN1005		2.2	13	None	304	314, 315	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		2.2	13	None	304	314, 315	Forbidden	25 kg	D	40, 57	
I	Ammonia solution, relative density less than 0.880 at 15 degrees C in water, with more than 50 percent ammonia.	2.3	UN3318		2.3, 8	4	None	304	314, 315	Forbidden	25 kg	D	40, 57	
	2-Bromo-2-nitropropane-1,3-diol.	4.1	UN3241	III	4.1	* 46	* 151	213	None	* 25 kg	50 kg	C	12, 25, 40	
	1-Bromobutane	3	UN1126	II	3	* T1	* 150	202	242	* 5L	60L	B	40	
	Butyl propionates	3	UN1914	III	3	* B1,T1	* 150	203	242	* 60 L	220 L	A		
	Calcium chlorate aqueous solution.	5.1	UN2429											
	[ADD]			III	5.1	A2, N41, T8.	152	203	241	2.5L	30 L	B	56, 68, 106	

*Dn-Butyl
bromide,
see 1-
Bromobut-
ane*

Carbon dioxide and oxygen mixtures, compressed.	2.2	.....	*	UN1014	...	.....	*	2.2, 5.1	.....	*	77	.....	*	306	.....	*	304	.....	*	314, 315	..	*	75 kg	.....	*	150 kg	.....	A
Chemical kits or First aid kits (containing hazardous materials).	9	.....	*	UN3316	...	.....	*	9	.....	*	15	.....	*	None	.....	*	None	.....	*	None	.....	*	10 kg	.....	*	10 kg	.....	A
Chlorite solution	8	*	UN1908	...	II	*	8	*	A3,A6, A7, B2, N34, T8.	*	154	*	202	*	242	*	1 L	*	30 L	B	
					III		8			A3,A6, A7, B2, N34, T8.		154		203		241		5 L		60 L	B	
Coating solution (includes surface treatments or coatings used for industrial or other purposes such as vehicle undercoating, drum or barrel lining).	3	*	UN1139	...	I	*	3	*	T42	*	150	*	201	*	243	*	1 L	*	30 L	E	
					II		3			T7,T30		150		202		242		5 L		60 L	B	
					III		3			B1,T7,T30		150		203		242		60 L		220 L	A	
Compressed gas, toxic, corrosive, n.o.s. Inhalation Hazard Zone A.	2.3	*	UN3304	*	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	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	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	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	.....	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	.....	.....	.....	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	.....	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	.....	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	.....	1	.....	.....	.....	None	.....	.....	192	.....	.....	244	.....	.....	Forbidden	.....	.....	Forbidden	D	.....	.....	40, 89, 90.

§ 172.101—HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or division	Identification numbers	PG	Label codes	Special provisions	(8) Packaging (§ 173.****)			(9) Quantity limitations		(10) Vessel stowage	
							Exceptions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo aircraft only	Location	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
I	Compressed gas, toxic, oxidizing, corrosive, n.o.s. <i>Inhalation Hazard Zone B.</i>	2.3	UN3306	2.3, 5.1, 8	2	None	302, 305	314, 315	Forbidden	Forbidden	D	40, 89, 90.	
I	Compressed gas, toxic, oxidizing, corrosive, n.o.s. <i>Inhalation Hazard Zone C.</i>	2.3	UN3306	2.3, 5.1, 8	3	None	302, 305	314, 315	Forbidden	Forbidden	D	40, 89, 90.	
I	Compressed gas, toxic, oxidizing, corrosive, n.o.s. <i>Inhalation Hazard Zone D.</i>	2.3	UN3306	2.3, 5.1, 8	4	None	302, 305	314, 315	Forbidden	Forbidden	D	40, 89, 90.	
	Compressed gas, toxic, oxidizing, n.o.s. <i>Inhalation Hazard Zone A.</i>	2.3	UN3303	2.3, 5.1	1	None	192	245	Forbidden	Forbidden	D	40.	
	Compressed gas, toxic, oxidizing, n.o.s. <i>Inhalation Hazard Zone B.</i>	2.3	UN3303	2.3, 5.1	2	None	302, 305	314, 315	Forbidden	Forbidden	D	40.	
	Compressed gas, toxic, oxidizing, n.o.s. <i>Inhalation Hazard Zone C.</i>	2.3	UN3303	2.3, 5.1	3	None	302, 305	314, 315	Forbidden	Forbidden	D	40.	
	Compressed gas, toxic, oxidizing, n.o.s. <i>Inhalation Hazard Zone D.</i>	2.3	UN3303	2.3, 5.1	4	None	302, 305	314, 315	Forbidden	Forbidden	D	40.	
	Detonator assemblies, non-electric for blasting.	1.4S	UN0500	II	1.4S	104	63(f), 63(g)	62	None	25 kg	100 kg	A	
	1,2-Dichloropropane	3	UN1279	II	3	N36, T1	150	202	242	5 L	60 L	B	
	2-Diethylaminoethanol	8	UN2686	II	8.3	B2, T15, T26	None	202	243	1 L	30 L	A	
	2-Dimethylaminoethyl acrylate.	6.1	UN3302	II	6.1	T8	None	202	243	5 L	60 L	D	25
	Disinfectant, liquid, corrosive, n.o.s.	8	UN1903	I	8	A7, B10, T42	None	201	243	0.5 L	2.5 L	B	
	Dyes, liquid, corrosive, n.o.s. or Dye intermediates, liquid, corrosive, n.o.s.	8	UN2801	I	8	11, B10	None	201	243	0.5 L	2.5 L	A	
	Firelighters, solid with flammable liquid.	4.1	UN2623	III	4.1	A1, A19	None	213	None	25 kg	100 kg	A	
	Furaldehydes	6.1	UN1199	II	6.1, 3	T15	None	202	243	5 L	60 L	A	
	Gas cartridges, (flammable) without a release device, non-refillable.	2.1	UN2037		2.1		306	304	None	1 kg	15 kg	B	40.

Gas, refrigerated liquid, flammable, n.o.s. (<i>cryogenic liquid</i>).	2.1	*	UN3312	*	2.1	*	None	316	*	318	*	Forbidden	Forbidden	D	40
Gas, refrigerated liquid, n.o.s. (<i>cryogenic liquid</i>).	2.2		UN3158		2.2		320	316		318		50 kg	500 kg	D	
Gas, refrigerated liquid, oxidizing, n.o.s. (<i>cryogenic liquid</i>).	2.2		UN3311		2.2, 5.1		320	316		318		Forbidden	Forbidden	D	
Hypochlorite solutions	8	*	UN1791	II	8	*	154	202	A7, B2, B15, N34, T7.	242	*	1 L	30 L	B	26
				III	8		154	203	B104, N34, T7.	241		5 L	60 L	B	26
Liquefied gas, toxic, corrosive, n.o.s. <i>Inhalation Hazard Zone A</i> .	2.3	*	UN3308	*	2.3, 8	*	None	192	*	245	*	Forbidden	Forbidden	D	40
Liquefied gas, toxic, corrosive, n.o.s. <i>Inhalation Hazard Zone B</i> .	2.3		UN3308		2.3, 8		None	304		314, 315		Forbidden	Forbidden	D	40
Liquefied gas, toxic, corrosive, n.o.s. <i>Inhalation Hazard Zone C</i> .	2.3		UN3308		2.3, 8		None	304		314, 315		Forbidden	Forbidden	D	40
Liquefied gas, toxic, corrosive, n.o.s. <i>Inhalation Hazard Zone D</i> .	2.3		UN3308		2.3, 8		None	304		314, 315		Forbidden	Forbidden	D	40
Liquefied gas, toxic, flammable, corrosive, n.o.s. <i>Inhalation Hazard Zone A</i> .	2.3		UN3309		2.3, 2.1, 8		None	192		245		Forbidden	Forbidden	D	17, 40
Liquefied gas, toxic, flammable, corrosive, n.o.s. <i>Inhalation Hazard Zone B</i> .	2.3		UN3309		2.3, 2.1, 8		None	304		314, 315		Forbidden	Forbidden	D	17, 40
Liquefied gas, toxic, flammable, corrosive, n.o.s. <i>Inhalation Hazard Zone C</i> .	2.3		UN3309		2.3, 2.1, 8		None	304		314, 315		Forbidden	Forbidden	D	17, 40
Liquefied gas, toxic, flammable, corrosive, n.o.s. <i>Inhalation Hazard Zone D</i> .	2.3		UN3309		2.3, 2.1, 8		None	304		314, 315		Forbidden	Forbidden	D	17, 40
Liquefied gas, toxic, oxidizing, corrosive, n.o.s. <i>Inhalation Hazard Zone A</i> .	2.3	*	UN3310	*	2.3, 5.1, 8	*	None	192	*	245	*	Forbidden	Forbidden	D	40, 89, 90
Liquefied gas, toxic, oxidizing, corrosive, n.o.s. <i>Inhalation Hazard Zone B</i> .	2.3		UN3310		2.3, 2.1, 8		None	304		314, 315		Forbidden	Forbidden	D	40, 89, 90
Liquefied gas, toxic, oxidizing, corrosive, n.o.s. <i>Inhalation Hazard Zone C</i> .	2.3		UN3310		2.3, 2.1, 8		None	304		314, 315		Forbidden	Forbidden	D	40, 89, 90
Liquefied gas, toxic, oxidizing, corrosive, n.o.s. <i>Inhalation Hazard Zone D</i> .	2.3		UN3310		2.3, 2.1, 8		None	304		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 (§ 173.33)		(9) Quantity limitations		(10) Vessel stowage	
							Exceptions	Non-bulk	Passenger aircraft/rail	Cargo aircraft only	Location	Other
							(8A)	(8B)	(9A)	(9B)	(10A)	(10B)
	Liquefied gas, toxic, oxidizing, n.o.s. Inhalation Hazard Zone A.	2.3	UN3307		2.3, 5.1	1	None	192	Forbidden	Forbidden	D	40
	Liquefied gas, toxic, oxidizing, n.o.s. Inhalation Hazard Zone B.	2.3	UN3307		2.3, 5.1	2	None	304	Forbidden	Forbidden	D	40
	Liquefied gas, toxic, oxidizing, n.o.s. Inhalation Hazard Zone C.	2.3	UN3307		2.3, 5.1	3	None	304	Forbidden	Forbidden	D	40
	Liquefied gas, toxic, oxidizing, n.o.s. Inhalation Hazard Zone D.	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	1E, 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
	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	0.5 kg	E	
	Organic pigments, self-heating.	4.2	UN3313	II	4.2	None	None	212	15 kg	50 kg	C	
			III		4.2	B101	None	213	25 kg	100 kg	C	
	Oxidizing liquid, n.o.s.	5.1	UN3139	I	5.1	127, A2	None	201	Forbidden	2.5 L	D	56, 58, 69, 106

UN number	Proper shipping name	hazard class or division	Packaging group	Label(s)	Quantity limitations and/or marking requirements	Special provisions	Additional information
UN1263	Paint including paint, lacquer, enamel, stain, shellac solutions, varnish, polish, liquid filler, and liquid lacquer base.	3	I	3	T8, T31	150	201 243 243 30 L E
UN1263	Paint related material including paint thinning, drying, re-moving, or reducing compound.	3	I	3	T8, T31	150	201 243 243 30 L E
UN2310	Pentane-2,4-dione	3	III	3, 6.1	B1, T1	150	203 242 242 220 L A
UN1108	1-Pentene (n-amy/ene)	3	I	3	T14	150	201 243 243 30 L E
UN3211	Perchlorates, inorganic, aqueous solution, n.o.s. [ADD]	5.1	III	5.1	T8	152	203 241 241 30 L B
UN3314	Plastic molding compound in dough, sheet or extruded rope form evolving flammable vapor.	9	III	9	32	155	213 None 100 kg 200 kg A 85, 87
UN2427	Potassium chlorate, aqueous solution. [ADD]	5.1	III	5.1	A2, T8	152	203 241 241 30 L B
UN1866	Resin solution, flammable.	3	I	3	B52, T8, T31.	150	201 243 243 30 L E
UN3320	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	II	8	B2, N34, T8.	154	202 242 242 30 L A 26
UN2428	Sodium chlorate, aqueous solution. [ADD]	5.1	III	5.1	A2, T8	152	203 241 241 30 L B

§ 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
							(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Tributylamine	6.1	UN2542	II	6.1	B110, T14	None	202	243	5 L	60 L	A	
	Trifluorochloroethylene, inhibited.	2.3	UN1082		2.3, 2.1	3.B14	None	304	314, 315	Forbidden	Forbidden	D	40
	[REVERSE:]												
	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	2.B9, B14, B32, B74, B77, T38, T43, T45.	None	227	244	Forbidden	Forbidden	D	20, 40, 95
	Methyl chloroacetate	6.1	UN2295	I	6.1, 3	T42	None	201	243	1 L	30 L	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

Phosphorus trichloride	6.1	*	UN1809	...	I	.....	6.1, 8	*	.....	*	2, B9, B14, B15, B32, B74, B77, N34, T38, T43, T45.	None	.....	*	227	.....	*	244	.....	Forbidden	.....	*	Forbidden	.....	C	.....	40
Vinylpyridines, inhibited	6.1	*	UN3073	...	II	.....	6.1, 3, 8	*	.....	*	B100, T8 ..	None	.....	*	202	.....	*	243	.....	1 L	.....	*	30 L	.....	B	.....	40

§ 172.101 [Amended]

16. In addition, in the § 172.101 Hazardous Materials Table, the following changes are made:

16–1. In Column (2), the following hazardous materials descriptions and proper shipping names are 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, <i>see</i> Life saving appliances <i>etc.</i>	<i>Aircraft evacuation slides, see Life saving appliances etc.</i>
Aircraft survival kits, <i>see</i> Life saving appliances <i>etc.</i>	<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. <i>including arsenates n.o.s.; arsenites, n.o.s.; arsenic sulfides, n.o.s.; and organic compounds of arsenic, n.o.s.</i>	Arsenic compounds, liquid, n.o.s. <i>inorganic, including arsenates, n.o.s.; arsenites, n.o.s.; arsenic sulfides, n.o.s.; and organic compounds of arsenic, n.o.s.</i>
Arsenic compounds, solid, n.o.s. <i>including arsenates, n.o.s.; arsenites, n.o.s.; arsenic sulfides, n.o.s.; and organic compounds of arsenic, n.o.s..</i>	Arsenic compounds, solid, n.o.s. <i>inorganic, including arsenates, n.o.s.; arsenites, n.o.s.; arsenic sulfides, n.o.s.; and organic compounds of arsenic, n.o.s.</i>
Barium selenate, <i>see</i> Selenates or Selenites	<i>Barium selenate, see Selenates or Selenites.</i>
Barium selenite, <i>see</i> 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, R 13B1.
Butane or Butane mixtures <i>see also</i> Petroleum gases, liquefied	Butane <i>see also</i> Petroleum gases, liquefied.
n-Butyl methacrylate	n-Butyl methacrylate, inhibited.
Butylacrylate	Butyl acrylates, inhibited.
Calcium selenate, <i>see</i> Selenates or Selenites	<i>Calcium selenate, see Selenates or Selenites.</i>
Carbon monoxide	Carbon monoxide, compressed.
Carbon monoxide and hydrogen mixture	Carbon monoxide and hydrogen mixture, compressed.
Carbonyl fluoride	Carbonyl fluoride, compressed.
Cartridges, safety, blank, <i>see</i> Cartridges for weapons, blank (UN 0014)	<i>Cartridges, safety, blank, see Cartridges for weapons, blank (UN 0014).</i>
Cartridges, safety, <i>see</i> Cartridges for weapons, <i>other than blank or</i> 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 R 124.
1-Chloro-2,2,2-trifluoroethane, R133a	1-Chloro-2,2,2-trifluoroethane or Refrigerant gas R 133a.
Chlorodifluorobromomethane, R12B1	Chlorodifluorobromomethane or Refrigerant gas R 12B1.
Chlorodifluoromethane and chloropentafluoroethane mixture with fixed boiling point, with approximately 49 percent chlorodifluoromethane, R502.	Chlorodifluoromethane and chloropentafluoroethane mixture or Refrigerant gas R 502 with fixed boiling point, with approximately 49 percent chlorodifluoromethane.
Chlorodifluoromethane, R22	Chlorodifluoromethane or Refrigerant gas R 22.
Chloropentafluoroethane, R115	Chloropentafluoroethane or Refrigerant gas R 115.
Chlorotrifluoromethane and trifluoromethane azeotropic mixture with approximately 60 percent chlorotrifluoromethane, R503.	Chlorotrifluoromethane and trifluoromethane azeotropic mixture or Refrigerant gas R 503 with approximately 60 percent chlorotrifluoromethane.
Chlorotrifluoromethane, R13	Chlorotrifluoromethane or Refrigerant gas R13.
Coal gas	Coal gas, compressed.
Copper selenate, <i>see</i> Selenates or Selenites	<i>Copper selenate, see Selenates or Selenites.</i>
Copper selenite, <i>see</i> 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 R 500 with approximately 74 percent dichlorodifluoromethane.
Dichlorodifluoromethane, R12	Dichlorodifluoromethane or Refrigerant gas R 12.
Dichloroethylene	1,2-Dichloroethylene.
Dichlorofluoromethane, R21	Dichlorofluoromethane or Refrigerant gas R 21.
Dichlorotetrafluoroethane, R114	1,2-Dichloro-1,1,2,2-Tetrafluoroethane or Refrigerant gas R 114.
1,1-Difluoroethane, R152a	1,1-Difluoroethane or Refrigerant gas R 152a.
1,1-Difluoroethylene, R1132a	1,1-Difluoroethylene or Refrigerant gas R 1132a.
Difluoromethane	Difluoromethane or Refrigerant gas R 32.
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 R 161.
Ethylene, acetylene and propylene in mixtures, refrigerated liquid with at least 71.5 percent ethylene with not more than 22.5 percent acetylene and not more than 6 percent propylene.	Ethylene, acetylene and propylene mixture, refrigerated liquid with at least 71.5 percent ethylene with not more than 22.5 percent acetylene and not more than 6 percent propylene.

Current column (2) entry	Revise to read:
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 (<i>instantaneous or quickmatch</i>).
Heptafluoropropane	Heptafluoropropane or Refrigerant gas R 227.
Hexafluoroethane, R1116	Hexafluoroethane, compressed or Refrigerant gas R 116.
Hexafluoropropylene, R1216	Hexafluoropropylene, compressed or Refrigerant gas R 1216.
Hydriotic acid, solution	Hydriotic acid.
Hydrobromic acid solution, with more than 49 percent hydrobromic acid (PG II and III).	Hydrobromic acid, with more than 49 percent hydrobromic acid (PG II and III).
Hydrobromic acid solution, with not more than 49 percent hydrobromic acid (PG II and III).	Hydrobromic acid, with not more than 49 percent hydrobromic acid (PG II and III).
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, with more than 60 percent strength	Hydrofluoric acid, with more than 60 percent strength.
Hydrofluoric acid solution, with not more than 60 percent strength	Hydrofluoric acid, with not more than 60 percent strength.
Hydrogen sulfide, liquefied	Hydrogen sulfide.
Isobutane or Isobutane mixtures see also Petroleum gases, liquefied ...	Isobutane see also Petroleum gases, liquefied.
Isobutyl acrylate	Isobutyl acrylate, inhibited.
Isobutyl methacrylate	Isobutyl methacrylate, inhibited.
Isopentane, see Pentane	<i>Isopentane, see Pentane.</i>
Jet thrust unit (Jato), see Rocket motors	<i>Jet thrust unit (Jato), see Rocket motors.</i>
Magnesium bisulfite solution, see Bisulfites, aqueous solutions, n.o.s. ...	<i>Magnesium bisulfite solution, see Bisulfites, aqueous solutions, n.o.s.</i>
Mercury iodide	Mercury iodide, solid.
Methacrylaldehyde	Methacrylaldehyde, inhibited.
Methanol or Methyl alcohol (both entries)	Methanol (both entries).
Methyl alcohol, see Methanol	<i>Methyl alcohol see Methanol.</i>
Methyl chloride	Methyl chloride or Refrigerant gas R 40.
Methyl fluoride	Methyl fluoride or Refrigerant gas R 41.
Methylmorpholine	4-Methylmorpholine or n-methylmorpholine.
Nitric oxide	Nitric oxide, compressed.
Nitrogen dioxide, liquefied see Dinitrogen tetroxide, liquefied	Nitrogen dioxide see Dinitrogen tetroxide.
Nitrogen trifluoride (both entries)	Nitrogen trifluoride, compressed.
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 R 1318.
Octafluorocyclobutane, RC318	Octafluorocyclobutane or Refrigerant gas R C318.
Octafluoropropane, R218	Octafluoropropane or Refrigerant gas R 218.
Oil gas	Oil gas, compressed.
Oxygen difluoride	Oxygen difluoride, compressed.
Pentafluoroethane	Pentafluoroethane or Refrigerant gas R 125.
Perfluoroethyl vinyl ether	Perfluoro(ethyl vinyl ether).
Perfluoromethyl vinyl ether	Perfluoro(methyl vinyl ether).
Phosphorus pentafluoride	Phosphorus pentafluoride, compressed.
Polyalkylamines, n.o.s., see Amines, etc	<i>Polyalkylamines, n.o.s., see Amines, etc.</i>
Potassium bisulfite solution, see Bisulfites, inorganic, aqueous solutions, n.o.s.	<i>Potassium bisulfite solution, see Bisulfites, inorganic, aqueous solutions, n.o.s.</i>
Potassium selenate, see Selenates or Selenites	<i>Potassium selenate, see Selenates or Selenites.</i>
Potassium selenite, see Selenates or Selenites	<i>Potassium selenite, see Selenates or Selenites.</i>
Propane or Propane mixtures see also Petroleum gases, liquefied	Propane see also Petroleum gases, liquefied.
Rare gases and nitrogen mixtures	Rare gases and nitrogen mixtures, compressed.
Rare gases and oxygen mixtures	Rare gases and oxygen mixtures, compressed.
Rare gases, mixtures	Rare gases mixtures, compressed.
Receptacles, small, containing gas flammable, without release device, not refillable and not exceeding 1 L capacity.	Receptacles, small, containing gas (gas cartridges) flammable, without release device, not refillable and not exceeding 1 L capacity.
Receptacles, small, containing gas non-flammable, without release device, not refillable and not exceeding 1 L capacity.	Receptacles, small, containing gas (gas cartridges) nonflammable, without release device, not refillable and not exceeding 1 L capacity.
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, see Ferrous metal borings, etc	<i>Steel swarf, see Ferrous metal borings, 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 R 134a.
Tetrafluoromethane, R14	Tetrafluoromethane, compressed or Refrigerant gas R 14.
Toluene sulfonic acid, see Alkyl, or Aryl sulfonic acid etc	<i>Toluene sulfonic acid, see Alkyl, or Aryl sulfonic acid etc.</i>
Trifluoroethane, compressed, R143	1,1,1-Trifluoroethane, compressed or Refrigerant gas R 143a.
Trifluoromethane	Trifluoromethane or Refrigerant gas R 23.
Vinyl toluene, inhibited, mixed isomers	Vinyltoluenes, inhibited.
Vinyltrichlorosilane	Vinyltrichlorosilane, inhibited.

Current column (2) entry	Revise to read:
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.

16-2. For the entry "Mercury contained in manufactured articles", in Column (5), the PG designation "I" is revised to read "III".

16-3. For the following entries, Column (6) is revised as follows:

Column (2) entry	Column (6) entry	Revise to read:
Allyl isothiocyanate, stabilized	6.1	6.1, 3
Bromoacetone	6.1	6.1, 3
n-Butyl chloroformate	6.1, 8	6.1, 8, 3
Cyclobutyl chloroformate	6.1, 8	6.1, 8, 3
Epibromohydrin	6.1	6.1, 3
Epichlorohydrin	6.1	6.1, 3
Ethyl bromoacetate	6.1	6.1, 3
Ethyl chloroacetate	6.1	6.1, 3
Isocyanatobenzotrifluorides	6.1	6.1, 3
Propylene chlorohydrin	6.1	6.1, 3
Trifluoroacetyl chloride	2.3	2.3, 8

16-4. For the following entries, Column (7) is revised as follows:

Column (2) entry	Column (7) entry	Revise to read:
Alkali metal alcoholates, self-heating, corrosive, n.o.s. (PG II and III) .....	.....	64
Alkaline earth metal alcoholates, n.o.s. (PG II and III) .....	.....	65
Benzaldehyde .....	.....	T1
Corrosive liquids, toxic, n.o.s. (PG I)	A7, B10	A7, B10, T18, T27
Corrosive liquids, toxic, n.o.s. (PG II)	B3	B3, T18, T26
Corrosive liquids, toxic, n.o.s. (PG III) .....	.....	T8
Corrosive solids, n.o.s. (PG II and III) .....	.....	128
Corrosive solids, water-reactive, n.o.s. (PG II)	B105	128, B105
Environmentally hazardous substances, liquid, n.o.s.	8, N50, T1	8, T1
Environmentally hazardous substances, solid, n.o.s.	8, N50, B54	8, B54
Explosive, blasting, type C .....	.....	123
Ferrocenium	A19	59, A19
Isosorbide-5-mononitrate .....	.....	66
Maneb or Maneb preparations with not less than 60 percent maneb	A1, A19, B105	57, A1, A19, B105
Methacrylic acid, inhibited	T8	T8, T47
Nitrates, inorganic, aqueous solution, n.o.s. (PG II and III)	T8	58, T8
Nitroglycerin, desensitized with not less than 40 percent non-volatile water insoluble phlegmatizer, by mass.	.....	125
Organophosphorus pesticides, liquid, flammable, toxic, flash point less than 23 degrees C (PG I).	.....	T42
Organophosphorus pesticides, liquid, flammable, toxic, flash point less than 23 degrees C (PG II).	.....	T18
Oxidizing liquid, n.o.s. (PG II and III)	A2	127, A2
Pentaerythrite tetranitrate or Pentaerythritol tetranitrate, or PETN, with not less than 7 percent wax by mass.	.....	120
Pentaerythrite tetranitrate, wetted or Pentaerythritol tetranitrate, wetted or PETN, wetted with not less than 25 percent water, by mass, or Pentaerythrite tetranitrate, or Pentaerythritol tetranitrate or PETN, desensitized with not less than 15 percent phlegmatizer by mass.	.....	121
Polyester resin kit	40	None
Sulfur (UN1350)	A1, N20, T1	30, A1, N20, T1
Urea nitrate dry or wetted with less than 20 percent water, by mass .....	.....	119
Water-reactive solid, corrosive, n.o.s. (PG II)	B101, B106	128, B101, B106
Water-reactive solid, corrosive, n.o.s. (PG III)	B105, B106	128, B105, B106

16-5. For the following entries, Columns (8A), (8B), or (8C) are revised as follows:

Column (2) entry	Column (8A) entry	Revise to read:
Polyester resin kit	None	152
Sulfur (UN1350)	151	None
Sulfur (UN1350)	Column (8B) entry	Revise to read:
.....	213	None
Metal catalyst, dry (PG II)	Column (8C) entry	Revise to read:
.....	None	242

Column (2) entry	Column (8A) entry	Revise to read:
Metal catalyst, dry (PG III)	None	241

16–6. For the following entries, Column (9A) is revised as follows:

Column (2) entry	Column (9A) entry	Revise to read:
Cyclohexyl isocyanate	5 L	Forbidden.
Divinyl ether, inhibited	5 L	1 L.
Potassium	1 kg	Forbidden.
Potassium, metal alloys	1 kg	Forbidden.
Sodium	1 kg	Forbidden.

16–7. For the following entries, Column (9B) is revised as follows:

Column (2) entry	Column (9B) entry	Revise to read:
Cyclohexyl isocyanate	60 L	Forbidden.
Ethyl isocyanate	30 L	Forbidden.
Ethylene oxide and carbon dioxide mixture <i>with more than 87 percent ethylene oxide</i>	75 kg	25 kg.
Hexafluoroacetone	25 kg	Forbidden.
Isobutyl isocyanate	60 L	Forbidden.
Isopropyl isocyanate	30 L	Forbidden.
Methoxymethyl isocyanate	30 L	Forbidden.
Oil gas	150 kg	25 kg.
Silicon tetrafluoride	25 kg	Forbidden.
Sulfur tetrafluoride	25 kg	Forbidden.
Toxic liquids, oxidizing, n.o.s. <i>Inhalation hazard, Packing Group I, Zone A</i>	2.5 L	Forbidden.

16–8. In Column (10A), for the entry “Battery-powered vehicle *or* Battery-powered equipment *wet battery*”, the “A” is removed.

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

Appendix B to § 172.101—List of Marine Pollutants

* * * * *

S.M.P (1)	Marine pollutant (2)
--------------	-------------------------

[ADD:]

* * * * *	Acetaldehyde.
	Alkyl (C10–C21) sulphonic acid ester of phenol.
	Anisole.
	Azinphos-methyl.
	Benzaldehyde.
	<i>N,N</i> -Bis (2-hydroxyethyl) oleamide (LOA).
	Bromobenzene.
	Butanedione.
	Butyl mercaptans.
	<i>N</i> -tert-butyl- <i>N</i> -cyclopropyl-6-methylthio-1,3,5-triazine-2,4-diamine.
	Butyraldehyde.
	Camphor oil.
	Coconitrile.
PP	Cymenes (o;m;p-).
	<i>normal</i> -Decaldehyde.
	<i>normal</i> -Decanol.
	1,3-Dibromobenzene.
	<i>Di-normal</i> -butyl ketone.

S.M.P (1)	Marine pollutant (2)
	Dimethyl disulphide.
	Dimethylhydrazine, symmetrical.
	Dimethylhydrazine, unsymmetrical.
	Dipentene.
	2,4-Di-tert-butylphenol.
	2,6-Di-tert-butylphenol.
	Diphenyl ether/biphenyl phenyl ether mixtures.
	Diphenyl/diphenyl ether (mixtures).
	EPTC (ISO).
	2-Ethylhexaldehyde
	2-Ethylbutyraldehyde
	Furathiocarb (ISO).
PP	<i>normal</i> -Heptyl aldehyde.
	2,4-Hexadiene aldehyde.
	<i>normal</i> -Hexaldehyde.
	Hydrogen cyanide solution in alcohol, <i>with not more than 45% hydrogen cyanide</i> .
	Hydrogen cyanide, stabilized <i>with less than 3% water</i> .
	Hydrogen cyanide, stabilized <i>with less than 3% water and absorbed in a porous inert material</i> .
	Iron sponge, spent.
	Isocetanol.
	Isodecaldehyde.
	Isodecanol.
	Isononanol.
	Isotetramethylbenzene.
	Isovaleraldehyde.
	Mancozeb (ISO).
	2-Methylbutyraldehyde.
	Nitrobenzene.
	1-Nonanal.
	1-Nonanol.

S.M.P (1)	Marine pollutant (2)
	<i>normal</i> -Octaldehyde.
	1-Octanol.
	Phenylcyclohexane.
	Propionaldehyde.
	Tallow nitrile.
	Tetrabromoethane.
	Tetrachloroethylene.
	4-Thiapentanal.
	Triphenylphosphate.
	1-Undecanol.
	<i>normal</i> -Valeraldehyde.
* * * * *	

§ 172.101, Appendix B [Amended]

18. In addition, in Appendix B to § 172.101, the List of Marine Pollutants is amended as follows:

- The entry “Azenphos-methyl” is removed.
- For the entry “Chlorinated paraffins (C10–C13)”, the designation “PP” is added in Column (1).
- The entry “Mononitrobenzene (nitro benzene)” is removed.
- The entry “1,1,2,2-Tetrabromoethane” is removed.
- The entry “1,1,2,2-Tetrachloroethylene” is removed.
- The designation “PP” is added in column (1) for the following materials:
Copper chloride solution
Cupric sulfate
Esfenvalerate
Fenbutatin oxide
1,3-Hexachlorobutadiene

Quizalofop
 Quizalofop-p-ethyl
 Tetrachlorovinfos
 Tetraethyl lead, liquid
 Tricresyl phosphate *with more than 3 per cent ortho isomer*
 g. The following entries are 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-Dibromomethane
 1,2-Dibromoethane
 o-Dichlorobenzene
 p-Dichlorobenzene
 Dichloroether
 Dichloroethyl oxide
 Dimethylarsinic acid
 Ethylene chloride
 Ethylene dichloride
 Ethylidene dichloride
 Hydrogen cyanide, anhydrous, stabilized
 Hydrogen cyanide, anhydrous, stabilized *absorbed in a porous inert material*
 Isopropyltoluene
 Maneb or Maneb preparations with not less than 60% maneb
 Mercuric sulphide
 Mercury iodide, solution
 Metaarsenic acid
 3-Methylpyridine
 Methylchloroform
 Methylene bromide
 Methylene dibromide
 Naptha, 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

19. In § 172.102, in paragraph (c)(1), Special Provisions 40 and 45 are removed, Special Provisions 15, 30 and 32 are revised, the last sentence of Special Provision 38 is revised, a sentence is added at the end of Special Provisions 23, 43 and 47, a sentence is

added at the beginning of Special Provision 102, Special Provisions 57, 58, 59, 64, 65, 66, 74, 77, 118, 119, 120, 121, 123, 125, 127 and 128 are added; in paragraph (c)(3), the first sentence of Special Provision B5 is revised and Special Provision B115 is added; in paragraph (c)(5) Special Provision N50 is removed; and in paragraph (c)(7)(ii), Special Provision T47 is 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 transport 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.

* * * * *

30. Sulfur is not subject to the requirements of this subchapter if transported in a non-bulk packaging or if formed to a specific shape (e.g., prills, granules, pellets, pastilles, or flakes).

* * * * *

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

* * * * *

38. * * * If the SADT of the technically pure substance is higher than 75 °C, the technically pure substance and formulations derived from it are not self-reactive materials and, if not meeting any other hazard class,

are not subject to the requirements of this subchapter.

* * * * *

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

* * * * *

47. * * * Small inner packagings consisting of sealed packets containing less than 10 mL of a Class 3 liquid in Packing Group II or III absorbed onto a solid material are not subject to this subchapter provided there is no free liquid in the packet.

* * * * *

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 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, 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. Ferrocenium, 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.

* * * * *

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.

77. For domestic transportation, a Division 5.1 subsidiary risk label is required only if a carbon dioxide and oxygen mixture contains more than 23.5% oxygen.

* * * * *

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 authorized 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 dry 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.

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

125. Lactose or glucose or similar materials may be used as a phlegmatizer provided that the substance contains not less than 90%, by mass, of phlegmatizer. These mixtures may be classified in Division 4.1 when tested in accordance with test series 6(c) of the UN Manual of Tests and Criteria and approved by the Associate Administrator for Hazardous Materials Safety. Testing must be conducted on at least three packages as prepared for transport. Mixtures containing at least 90%, by mass, of phlegmatizer are not subject to the requirements of this subchapter. Packages containing mixtures with not less than 98% by mass, of phlegmatizer need not bear a POISON subsidiary risk label.

127. Mixtures containing oxidizing and organic materials transported under this entry may not meet the definition and criteria of a Class 1 material. (See § 173.50 of this subchapter.)

128. Notwithstanding the provisions of § 172.101(c)(12), an aluminum smelting by-product or aluminum remelting by-product described under this entry, in Packing Group II or III, may be packaged in accordance with Special Provision B115 of this section.

* * * * *

B5. Only ammonium nitrate solutions with 35 percent or less water that will remain completely in solution under all conditions of transport at a maximum lading temperature of 116°C (240°F) are authorized for transport in the following bulk packagings: MC 307, MC 312, DOT 407 and DOT 412 cargo tanks with at least 172 kPa (25 psig) design pressure. * * *

* * * * *

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) * * *

* * * * *

§ 172.102 [Amended]

20. 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"

is revised to read "OP6" each place it appears.

21. In § 172.203, paragraph (j) is removed and reserved and paragraph (k)(3) is amended by adding 14 new entries in appropriate alphabetical order to the list of proper shipping names, to read as follows:

§ 172.203 Additional description requirements.

* * * * *

(k) * * *

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, liquefied, n.o.s.
Hydrogen gases mixtures, compressed, 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.
* * * * *

Organometallic compound, water reactive, flammable, n.o.s.
* * * * *

§ 172.203 [Amended]

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

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

23. The authority citation for part 173 continues to read as follows:

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

24. In § 173.3, paragraph (c)(3) is revised and a new paragraph (c)(7) is 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]

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

26. In § 173.21, the last sentence in paragraph (f) introductory text is 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]

27. In § 173.32c, in paragraph (j), the wording "5,000 liters (1,900 gallons)" is revised to read "7,500 L".

§ 173.34 [Amended] 27a.

In § 173.34, in the table in paragraph (e)(18)(i), under the column heading "Porous filler requalification", under "Initial", the year "2001" is revised to read "2011".

28. Section 173.60 is 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 (see § 173.24(e)(2)).

(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.

29. Section 173.62 is 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 Instruction prefixed by the letters "US" is particular to the United States and not found in applicable international regulations.

EXPLOSIVES TABLE

ID#	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(a) or 114(b)
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
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)

EXPLOSIVES TABLE—Continued		EXPLOSIVES TABLE—Continued		EXPLOSIVES TABLE—Continued	
ID#	PI	ID#	PI	ID#	PI
UN0135	110(a) or 110(b)	UN0266	112	UN0350	101
UN0136	130	UN0267	131	UN0351	101
UN0137	130	UN0268	133	UN0352	101
UN0138	130	UN0271	143	UN0353	101
UN0143	115	UN0272	143	UN0354	101
UN0144	115	UN0275	134	UN0355	101
UN0146	112	UN0276	134	UN0356	101
UN0147	112(b)	UN0277	134	UN0357	101
UN0150	112(a) or 112(b)	UN0278	134	UN0358	101
UN0151	112	UN0279	130	UN0359	101
UN0153	112(b) or 112(c)	UN0280	130	UN0360	131
UN0154	112	UN0281	130	UN0361	131
UN0155	112(b) or 112(c)	UN0282	112	UN0362	130
UN0159	111	UN0283	132	UN0363	130
UN0160	114(b)	UN0284	141	UN0364	133
UN0161	114(b)	UN0285	141	UN0365	133
UN0167	130	UN0286	130	UN0366	133
UN0168	130	UN0287	130	UN0367	141
UN0169	130	UN0288	138	UN0368	141
UN0171	130	UN0289	139	UN0369	130
UN0173	134	UN0290	139	UN0370	130
UN0174	134	UN0291	130	UN0371	130
UN0180	130	UN0292	141	UN0372	141
UN0181	130	UN0293	141	UN0373	135
UN0182	130	UN0294	130	UN0374	134
UN0183	130	UN0295	130	UN0375	134
UN0186	130	UN0296	134	UN0376	133
UN0190	101	UN0297	130	UN0377	133
UN0191	135	UN0299	130	UN0378	133
UN0192	135	UN0300	130	UN0379	136
UN0193	135	UN0301	130	UN0380	101
UN0194	135	UN0303	130	UN0381	134
UN0195	135	UN0305	113	UN0382	101
UN0196	135	UN0306	133	UN0383	101
UN0197	135	UN0312	135	UN0384	101
UN0204	134	UN0313	135	UN0385	112(b) or 112(c)
UN0207	112(b) or 112(c)	UN0314	142	UN0386	112(b) or 112(c)
UN0208	112(b) or 112(c)	UN0315	142	UN0387	112(b) or 112(c)
UN0209	112	UN0316	141	UN0388	112(b) or 112(c)
UN0212	133	UN0317	141	UN0389	112(b) or 112(c)
UN0213	112(b) or 112(c)	UN0318	141	UN0390	112(b) or 112(c)
UN0214	112	UN0319	132	UN0391	112(a)
UN0215	112	UN0320	133	UN0392	112(b) or 112(c)
UN0216	112(b) or 112(c)	UN0321	130	UN0393	112(b)
UN0217	112(b) or 112(c)	UN0322	101	UN0394	112(a)
UN0218	112(b) or 112(c)	UN0323	134	UN0395	101
UN0219	112	UN0324	130	UN0396	101
UN0220	112	UN0325	142	UN0397	101
UN0221	130	UN0326	130	UN0398	101
UN0222	112(b) or 112(c)	UN0327	130	UN0399	101
UN0224	110(a) or 110(b)	UN0328	130	UN0400	101
UN0225	133	UN0329	130	UN0401	112
UN0226	112(a)	UN0330	130	UN0402	112(b) or 112(c)
UN0234	114(a) or 114(b)	UN0331	116 or 117	UN0403	135
UN0235	114(a) or 114(b)	UN0332	116 or 117	UN0404	135
UN0236	114(a) or 114(b)	UN0333	135	UN0405	135
UN0237	138	UN0334	135	UN0406	114(b)
UN0238	130	UN0335	135	UN0407	114(b)
UN0240	130	UN0336	135	UN0408	141
UN0241	116 or 117	UN0337	135	UN0409	141
UN0242	130	UN0338	130	UN0410	141
UN0243	130	UN0339	130	UN0411	112(b) or 112(c)
UN0244	130	UN0340	112(a) or 112(b)	UN0412	130
UN0245	130	UN0341	112(b)	UN0413	130
UN0246	130	UN0342	114(a)	UN0414	130
UN0247	101	UN0343	111	UN0415	143
UN0248	144	UN0344	130	UN0417	130
UN0249	144	UN0345	130	UN0418	135
UN0250	101	UN0346	130	UN0419	135
UN0254	130	UN0347	130	UN0420	135
UN0255	131	UN0348	130	UN0421	135
UN0257	141	UN0349	101	UN0424	130

EXPLOSIVES TABLE—Continued

ID#	PI
UN0425	130
UN0426	130
UN0427	130
UN0428	135
UN0429	135
UN0430	135
UN0431	135
UN0432	135
UN0433	111
UN0434	130
UN0435	130
UN0436	130
UN0437	130
UN0438	130
UN0439	137
UN0440	137
UN0441	137
UN0442	137
UN0443	137
UN0444	137
UN0445	137
UN0446	136
UN0447	136
UN0448	114(b)
UN0449	101
UN0450	101
UN0451	130
UN0452	141
UN0453	130
UN0454	142
UN0455	131
UN0456	131
UN0457	130
UN0458	130
UN0459	130
UN0460	130
UN0461	101
UN0462	101
UN0463	101
UN0464	101
UN0465	101

EXPLOSIVES TABLE—Continued

ID#	PI
UN0466	101
UN0467	101
UN0468	101
UN0469	101
UN0470	101
UN0471	101
UN0472	101
UN0473	101
UN0474	101
UN0475	101
UN0476	101
UN0477	101
UN0478	101
UN0479	101
UN0480	101
UN0481	101
UN0482	101
UN0483	112(b) or 112(c)
UN0484	112(b) or 112(c)
UN0486	101
UN0487	135
UN0488	130
UN0489	112(b) or 112(c)
UN0490	112(b) or 112(c)
UN0491	143
UN0492	135
UN0493	135
UN0494	US1
UN0495	115
UN0496	112(b) or 112(c)
UN0497	115
UN0498	114(b)
UN0499	114(b)
UN0500	131
NA0124	US1
NA0276	134
NA0323	134
NA0337	135
NA0349	133
NA0494	US1

(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 for Hazardous Materials Safety.

TABLE OF PACKING METHODS

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
101	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)".		
PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 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			
110(a)	Bags	Bags	Drums.

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
<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>plastics textile, plastic coated or lined rubber textile, rubberized textile</p>	<p>plastics textile, plastic coated or lined rubber textile, rubberized Receptacles plastics metal</p>	<p>steel, removable head (1A2). plastics, removable head (1H2)</p>
<p>110(b) PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS 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>Bags rubber, conductive plastics, conductive Receptacles metal wood rubber, conductive plastics, conductive</p>	<p>Dividing partitions metal wood plastics fibreboard</p>	<p>Boxes. natural wood, sift-proof wall (4C2). plywood (4D). reconstituted wood (4F).</p>
<p>111 PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 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 paper, waterproofed plastics textile, rubberized Sheets plastics textile, rubberized</p>	<p>Not necessary 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). Drums steel, removable head (1A2). aluminum, removable head (1B2). plywood (1D). fibreboard (1G). plastics, removable head (1H2).</p>	<p>Boxes.</p>
<p>112(a) This packing instruction applies to wetted solids. PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <p>1. For UN Nos. 0004, 0076, 0078, 0154, 0219 and 0394, packagings must be lead free</p> <p>2. Intermediate packagings are not required if leakproof drums are used as the outer packaging</p> <p>3. For UN 0072 and UN 0226, intermediate packagings are not required</p>	<p>Bags paper, multiwall, water resistant plastics textile textile, rubberized woven plastics Receptacles metal plastics</p>	<p>Bags plastics textile, plastic coated or lined. Receptacles metal plastics</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). Drums steel, removable head (1A2). aluminium, removable head (1B2). fibre (1G). plastics, removable head (1H2).</p>
<p>112(b) This packing instruction applies to dry solids other than powders.</p>	<p>Bags</p>	<p>Bags (for UN 0150 only)</p>	<p>Bags.</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 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>paper, Kraft paper, multiwall, water resistant. plastics textile textile, rubberized plastics. woven plastics</p>	<p>plastics textile, plastic coated or lined.</p>	<p>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). 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>112(c) 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>Bags paper, multiwall, water resistant. plastics woven plastics Receptacles fibreboard metal plastics wood</p>	<p>Bags paper, multiwall, water resistant with inner lining. plastics Receptacles metal plastics</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>113 PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <ol style="list-style-type: none"> For UN 0094 and UN 0305, no more than 50 g of substance must be packed in an inner packaging For UN 0027, inner packagings are not necessary when drums are used as the outer packaging At least one of the packagings must be sift-proof Sheets must only be used for UN 0028 	<p>Bags paper plastics textile, rubberized Receptacles fibreboard metal plastics wood Sheets paper, kraft paper, waxed</p>	<p>Not necessary</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>
<p>114(a) This packing instruction applies to wetted solids.</p>	<p>Bags</p>	<p>Bags</p>	<p>Boxes.</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>plastics. textile woven plastics</p> <p>Receptacles metal plastics</p>	<p>plastics. textile, plastic coated or lined</p> <p>Receptacles metal plastics</p>	<p>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). plywood (1D). fibre (1G). plastics, removable head (1H2).</p> <p>Boxes.</p>
<p>114(b) This packing instruction applies to dry solids</p> <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 increased 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>Bags paper, kraft. plastics textile, sift-proof woven plastics, sift-proof</p> <p>Receptacles fibreboard metal paper plastics woven plastics, sift-proof</p>	<p>Not necessary natural wood, ordinary (4C1). natural wood, sift proof walls (4C2). plywood (4D). reconstituted wood (4F). fibreboard (4G).</p> <p>Drums. steel, removable head (1A2). aluminium, removable head (1B2). plywood (1D). fibre (1G). plastics, removable head (1H2).</p>	<p>Boxes.</p>
<p>115 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. Receptacles 	<p>Receptacles metal plastics</p>	<p>Bags plastics in metal receptacles</p> <p>Drums metal</p>	<p>Boxes. natural wood, ordinary (4C1). natural wood, sift proof walls (4C2). plywood (4D). reconstituted wood (4F). fibreboard (4G).</p> <p>Drums. steel, removable head (1A2). aluminium, removable head (1B2). plywood (1D). fibre (1G).</p> <p>Specification MC-200 containers may be used for transport by motor vehicle.</p>
116	Bags	Not necessary	Bags.

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 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>paper, water and oil resistant plastics textile, plastic coated or lined woven plastics, sift-proof</p> <p>Receptacles fibreboard, water resistant. ant. metal plastics wood, sift-proof</p> <p>Sheets paper, water resistant paper, waxed plastics</p>		<p>woven plastics (5H1/2/3). paper, multilwall, water resistant (5M2). plastics, film (5H4). textile, sift-proof (5L2). textile, water resistant (5L3).</p> <p>Boxes. steel (4A). aluminium (4B). wood, natural, 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). plastics, removable head (1H2).</p> <p>Jerricans. steel, removable head (3A2). plastics, removable head (3H2).</p>
<p>117 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. metal (11A), (11B), (11N), (21A), (21B), (21N), (31A), (31B), (31N). flexible (13H2), (13H3), (13H4), (13L2), (13L3), (13L4), (13M2). rigid plastics (11H1), (11H2), (21H1), (21H2), (31H1), (31H2). composite (11HZ1), (11HZ2), (21HZ1), (21HZ2), (31HZ1), (31HZ2).</p>
130	Not necessary	No necessary	Boxes.

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
<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>			<p>steel (4A). aluminium (4B). wood natural, ordinary (4C1). natural wood, sift proof walls (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>131 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 paper plastics Receptacles fibreboard metal plastics wood Reels</p>	Not necessary	<p>Boxes. steel (4A). aluminium (4B). wood, natural, ordinary (4C1). natural wood, sift proof walls (4C2). plywood (4D). reconstituted wood (4F). fibreboard (4G).</p> <p>Drums. steel, removable head (1A2). aluminium, removable head (1B2). fibre (1G). plastics, removable head (1H2).</p>
132(a)	Not necessary	Not necessary	<p>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).</p>
132(b)	<p>Receptacles fibreboard metal plastics Sheets paper plastics</p>	Not necessary	<p>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).</p>
133	Receptables	Receptables	Boxes.

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 1. For UN 0043, 0212, 0225, 0268 and 0306 trays are not authorized as inner packagings 2. Intermediate packagings are only required when trays are used as inner packagings	fibreboard metal plastics wood Trays, fitted with dividing ... partitions fibreboard plastics wood	fibreboard metal plastics wood	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).
137	Bags	Not necessary	Boxes.

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
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	plastics Boxes fibreboard Tubes fibreboard metal plastics Dividing partitions in the outer packagings.		steel (4A). aluminium (4B). wood, natural, ordinary (4C1). wood, natural, sift proof walls (4C2). plywood (4D). reconstituted wood (4F). fibreboard (4G).
138 PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: If the ends of the articles are sealed, inner packagings are not necessary	Bags 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).
139 PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 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	Bags plastics Receptacles fibreboard metal plastics wood Reels 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). Drums. steel, removable head (1A2). aluminium, removable head (1B2). plywood (1D). fibre (1G). plastics, removable head (1H2).
140 PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 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	Bags plastics Reels Sheets paper, kraft 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).

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
141	Receptacles fibreboard metal plastics wood Trays, fitted with dividing partitions. 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).
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 EX- CEPTIONS: 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	Bag paper, kraft plastics textile textile, rubberized Receptacles fibreboard metal plastics Trays, fitted with dividing partitions. plastics wood	Not necessary	Boxes. steel (4A). aluminum (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). aluminum, removable head (1B2). plywood (1D). fibre (1G). plastics, removable head (1H2).
144 PARTICULAR PACKING REQUIREMENTS OR EX- CEPTIONS: 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). aluminum (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:

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
<p>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.</p> <p>b. Each shaped charge affixed to the gun may not contain more than 112 g (4 ounces) of explosives.</p> <p>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.</p> <p>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.</p> <p>(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</p> <p>(ii) The assembled gun packed on the vehicle may not extend beyond the body of the motor vehicle.</p> <p>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:</p> <p>(i) All the conditions specified in paragraphs (a), (b), and (c) of this packing method are met;</p> <p>(ii) The total explosive contents do not exceed 90.8 kg (200 pounds) per tool pallet;</p> <p>(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</p> <p>(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.</p>			

(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 explosive material is declared as government-owned goods packaged prior to January 1, 1990.

30. In § 173.120, paragraph (a)(3) is revised, the last sentence in paragraph (b)(3) is revised, the word "or" is removed at the end of paragraph (c)(1)(i)(A), the period at the end of paragraph (c)(1)(i)(B) is removed and "; or" is added in its place, and a new paragraph (c)(1)(i)(C) is added, to read as follows:

§ 173.120 Class 3—Definitions.

(a) * * *

(3) Any liquid with a flash point greater than 35°C (95°F) which does not sustain combustion according to ASTM 4206 or the procedure in Appendix H of this part.

* * * * *

(b) * * *

(3) * * * Either the test method specified in ASTM 4206 or the procedure in Appendix H of this part may be used to determine if a material sustains combustion when heated under test conditions and exposed to an external source of flame.

(c) * * *

(1) * * *

(i) * * *

(C) Standard Test Methods for Flash Point by Small Scale Closed Tester, (ASTM D 3828).

* * * * *

§ 173.124 [Amended]

31. In § 173.124, the following changes are made:

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

b. In paragraph (a)(2)(i)(D)(2) the words "for a 50 kg package" is 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" is 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" is 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" is revised to read "UN Manual of Tests and Criteria".

f. In paragraph (c), the wording "paragraph 4 of appendix E to this part" is revised to read "UN Manual of Tests and Criteria".

32. In § 173.125, paragraphs (b), (c)(2)(i), (c)(2)(ii), and (d)(1) through (d)(3) are 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 25 mm 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 less 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.

33. Section 173.127 is 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 Group 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]

34. In § 173.128, the following changes are 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 20.1(a) (Classification and Flow Chart Scheme for Organic Peroxides) from the UN Manual of Tests and Criteria”.

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

§ 173.132 Class 6, Division 6.1—Definitions.

* * * * *

(b) * * *

(3) * * *

(iii) A solid substance should 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 should be tested if a mist is likely to be generated in a leakage of the transport containment. In carrying out the test both for solid and liquid substances, more than 90% (by mass) of a specimen prepared for inhalation toxicity testing 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, one of the following methods may be used to determine the oral or dermal LD₅₀ of the mixture:

(1) Obtain reliable acute oral and dermal toxicity data on the actual mixture to be transported;

(2) If reliable, accurate data is not available, 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

(3) If reliable, accurate data is not available, apply the formula:

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

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.

Note to formula in paragraph (c)(3): This formula also may be used for dermal toxicities provided that this information is available on the same species for all constituents. The use of this formula does not take into account any potentiation or protective phenomena.

* * * * *

36. In § 173.136, a new paragraph (c) is 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]

37. In § 173.137, the following changes are made:

a. In paragraph (b), the wording "other than those meeting Packing Group I criteria" is added immediately following the word "Materials".

b. In paragraph (c)(2), at the end of the paragraph, the wording "(Reapproved 1990)" is revised to read "(Reapproved 1995)".

38. In § 173.152, a new paragraph (b)(4) is added to read as follows:

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

* * * * *

(b) * * *

(4) For polyester resin kits consisting of a base material component (Class 3, Packing Group II or III) and an activator component (Type C, D, E, or F organic peroxide which does not require temperature control)—

(i) the organic peroxide component 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;

(ii) The flammable liquid component must be packed in inner packagings not over 1.0 L (0.3 gallons) net capacity each for Packing Group II liquids or 5.0 L (1.3 gallons) net capacity each for Packing Group III liquids; and

(iii) The flammable liquid component and the organic peroxide component may be packed in the same strong outer packaging provided they will not interact dangerously in the event of leakage.

* * * * *

39. In § 173.162, a sentence is 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.

40. In § 173.166, the section heading and paragraph (e) are 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 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 banding or other comparable methods.

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

* * * * *

§ 173.166 [Amended]

41. In addition, in § 173.166, the following changes are made:

a. The last sentence in paragraph (a) is removed.

b. In paragraph (b) introductory text, the wording "air bag inflator, air bag module, seat-belt pre-tensioner or seat-belt module" is revised to read "air bag inflator, air bag module, or seat-belt pretensioner".

c. In paragraph (b)(2), the wording "Tests and Criteria, Second Edition, 1990" is 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" are removed.

e. In paragraph (c), in the last sentence, the wording "or pre-tensioner" is removed.

f. In paragraph (d)(1), the wording "An air bag or seat-belt module" is 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 pre-tensioner" are removed.

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

42. Section 173.185 is 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 packed in such a way 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 $\frac{2}{3}$ 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 paragraph (e)(8) of this section with not more than 100 cells per package.

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

42a. In addition to the amendments set forth above, part 173 is 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)

43. In § 173.220, paragraph (c)(1) is 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.

* * * * *

44. In § 173.224, the table at the end of paragraph (b) is revised to read as follows:

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

* * * * *

(b) * * *

* * * * *

SELF-REACTIVE SUBSTANCES

Self-reactive substance (1)	Identification No. (2)	Concentration—(%) (3)	Packing method (4)	Control temperature—(°C) (5)	Emergency temperature (6)	Notes (7)
Azodicarbonamide formulation type B, temperature controlled	3232	<100	OP5	.....	.....	1
Azodicarbonamide formulation type C	3224	<100	OP6	.....	.....	.....
Azodicarbonamide formulation type C, temperature controlled ...	3234	<100	OP6	.....	.....	1
Azodicarbonamide formulation type D	3226	<100	OP7	.....	.....	.....
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(hexahydrobenzonitrile)	3226	100	OP7	.....	.....	.....

SELF-REACTIVE SUBSTANCES—Continued

Self-reactive substance	Identification No.	Concentration—(%)	Packing method	Control temperature—(°C)	Emergency temperature	Notes
(1)	(2)	(3)	(4)	(5)	(6)	(7)
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-dimethylphenylsulphonyl)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:

1. The emergency and control temperatures must be determined in accordance with § 173.21(f).
2. With a compatible diluent having a boiling point of not less than 150 °C.
3. Samples may only be offered for transportation under the provisions of paragraph(c)(4) of this section.

* * * * *

§ 173.224 [Amended]

45. In addition, in § 173.224, the following changes are made:

- a. Paragraph (c)(3) is removed.
- b. Paragraph (c)(4) is redesignated as paragraph (c)(3).
- c. In the first sentence in paragraph (c)(1), the reference “(c)(4)” is 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” is revised to read “OP2”.

46. In § 173.225, paragraph (b)(2) is amended by adding a second sentence, and paragraph (b)(4)(ii), paragraph (b)(6), the Organic Peroxides Table at the end of paragraph (b), paragraphs (d) and (e)(5) are 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.

* * * * *

ORGANIC PEROXIDE TABLE

Technical name (1)	ID number (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 .....	.....	.....	.....	.....	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 peroxy-pivalate	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]	UN 3108	≤52 .....	.....	.....	.....	.....	OP8 .....	.....	.....
tert-Butyl monoperoxymaleate [as a paste]	UN 3110	≥42 .....	.....	.....	.....	.....	OP8 .....	.....	.....	7
tert-Butyl monoperoxyphthalate	UN 3102	≤100 .....	.....	.....	.....	.....	OP5 .....	.....	.....
tert-Butyl peroxyacetate	UN 3101	>52-77	≥23	.....	.....	.....	OP5 .....	.....	.....
tert-Butyl peroxyacetate	UN 3103	>32-52	≥48	.....	.....	.....	OP6 .....	.....	.....
tert-Butyl peroxyacetate	UN 3109	≥32	≥68	.....	.....	.....	OP8 .....	.....	.....	10
tert-Butyl peroxyacetate	UN 3119	≥32 .....	.....	≥68	.....	.....	Bulk	+30	+35	7
tert-Butyl peroxyacetate	UN 3109	≥22 .....	.....	≥78	.....	.....	OP8 .....	.....	.....	14
tert-Butyl peroxybenzoate	UN 3103	>77-100	≥23	.....	.....	.....	OP5 .....	.....	.....
tert-Butyl peroxybenzoate	UN 3105	>52-77	≥23	.....	.....	.....	OP7 .....	.....	.....	1
tert-Butyl peroxybenzoate	UN 3106	≥52 .....	.....	.....	≥48 .....	.....	OP7 .....	.....	.....
tert-Butyl peroxybutyl fumarate	UN 3105	≥52	≥48	.....	.....	.....	OP7 .....	.....	.....
tert-Butyl peroxycrotonate	UN 3105	≥77	≥23	.....	.....	.....	OP7 .....	.....	.....
tert-Butyl peroxydiethylacetate	UN 3113	≤100 .....	.....	.....	.....	.....	OP5	+20	+25	
tert-Butyl peroxydiethylacetate [and] tert-Butyl peroxybenzoate	UN 3105	≥33+≥33	≥33	.....	.....	.....	OP7 .....	.....	.....
tert-Butyl peroxy-2-ethylhexanoate	UN 3113	>52-100 .....	.....	.....	.....	.....	OP6	+20	+25	
tert-Butyl peroxy-2-ethylhexanoate	UN 3117	≥52 .....	.....	≥48	.....	.....	OP8	+30	+35	
tert-Butyl peroxy-2-ethylhexanoate	UN 3118	≥52 .....	.....	.....	≥48 .....	.....	OP8	+20	+25	
tert-Butyl peroxy-2-ethylhexanoate	UN 3119	≥32 .....	.....	≥68	.....	.....	OP8	+40	+45	
tert-Butyl peroxy-2-ethylhexanoate	UN 3119	≥32 .....	.....	≥68	.....	.....	1BC	+30	+35 ..	10
tert-Butyl peroxy-2-ethylhexanoate	UN 3119	≤32 .....	.....	≥68	.....	.....	Bulk	+10	+15 ..	14
tert-Butyl peroxy-2-ethylhexanoate [and] 2,2-di-(tert-butylperoxy)butane	UN 3115	≥31+≥36 .....	.....	≥33	.....	.....	OP7	+35	+40	
tert-Butyl peroxy-2-ethylhexanoate [and] 2,2-di-(tert-butylperoxy)butane	UN 3106	≥12+≥14	≥14	.....	≥60 .....	.....	OP7 .....	.....	.....
tert-Butyl peroxy-2-ethylhexylcarbonate	UN 3105	≥100 .....	.....	.....	.....	.....	OP7 .....	.....	.....
tert-Butyl peroxyisobutyrate	UN 3111	>52-77 .....	.....	≥23	.....	.....	OP5	+15	+20	

ORGANIC PEROXIDE TABLE—Continued

Technical name (1)	ID number (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)	
tert-Butyl peroxyisobutyrate	UN 3115	≥52 .....	.....	≥48 .....	.....	.....	OP7	+15	+20	
tert-Butylperoxy isopropylcarbonate	UN 3103	≥77	≥23 .....	.....	.....	.....	OP5 .....	.....	.....
1-(2-tert-Butylperoxy isopropyl)-3-isopropenylbenzene.	UN 3105	≥77	≥23 .....	.....	.....	.....	OP7 .....	.....	.....
1-(2-tert-Butylperoxy isopropyl)-3-isopropenylbenzene.	UN 3108	≥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 peroxyneodecanoate [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	≥14 .....	.....	.....	≥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

ORGANIC PEROXIDE TABLE—Continued

Technical name (1)	ID number (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)	
Di-tert-butyl peroxyazelaate	UN3105	≤52	≥48	OP7	10 22 7
2,2-Di-(tert-butylperoxy)butane	UN3103	≤52	≥48	.....	.....	.....	OP6	.....	.....
1,1-Di-(tert-butylperoxy)cyclohexane	UN3101	>80–100 .....	.....	.....	.....	.....	OP5	.....	.....
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	.....	.....
1,1-Di-(tert-butylperoxy)cyclohexane	UN3107	≤27	≥36	.....	.....	.....	OP8	.....	.....
1,1-Di-(tert-butylperoxy)cyclohexane	UN3109	≤25	≥25	≥50	.....	.....	OP8	.....	.....
1,1-Di-(tert-butylperoxy)cyclohexane	UN3109	≤13	≥13	≥74	OP8	.....	.....	7.	.....
Di-n-butyl peroxydicarbonate	UN3115	>27–52	≥48	OP7	– 15	5.	6 1, 9 21
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
Di-sec-butyl peroxydicarbonate	UN3115	≤52 .....	.....	≥48	.....	.....	OP7	– 15	– 5 ..
Di-(2-tert-butylperoxyisopropyl)benzene(s)	UN3106	>42–100 .....	.....	.....	≤57	.....	OP7	.....	.....
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	.....	.....
Di-(tert-butylperoxy)phthalate	UN3107	≤42	≥58	.....	.....	.....	OP8	.....	.....
2,2-Di-(tert-butylperoxy)propane	UN3105	≤52	≥48	OP7	10 7, 9, 11 7, 9, 11
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 ..
Di-4-chlorobenzoyl peroxide	UN3102	≤77	≥23	OP5	21 7, 9, 11 7, 9, 11
Di-4-chlorobenzoyl peroxide [as a paste]	UN3106	≤52 .....	.....	.....	.....	.....	OP7	.....	.....
Di-4-chlorobenzoyl peroxide	Exempt ..	≤32 .....	.....	.....	≥68	.....	Exempt	.....	.....
Dicumyl peroxide	UN3109	>52–100 .....	.....	≤48	.....	.....	OP8	.....	.....
Dicumyl peroxide	UN3110	>52–100 .....	.....	.....	≤48	.....	OP8	.....	.....
Dicumyl peroxide	Exempt ..	≤52	≥48	.....	.....	.....	Exempt	.....	.....
Dicumyl peroxide	Exempt ..	≤52 .....	.....	.....	≥48	.....	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	17
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	17
Diisobutyl peroxide	UN3111	>32–52 ..	.....	≥48	.....	.....	OP5	– 20	– 10
Diisobutyl peroxide	UN3115	≤32 .....	.....	≥68	.....	.....	OP7	– 20	– 10.
Diisopropylbenzene dihydroperoxide	UN3106	≤82	≥5 ..	.....	.....	≥5	OP7	.....	.....
Diisopropyl peroxydicarbonate	UN3112	>52–100 .....	.....	.....	.....	.....	OP2	– 15	– 5

ORGANIC PEROXIDE TABLE—Continued

Technical name (1)	ID number (2)	Con- centration (mass %) (3)	Diluent (mass %)			Water (mass %) (5)	Packing method (6)	Tempera- ture(°C)		Notes (8)
			A	B	I			Con- trol	Emer- gency	
			(4a)	(4b)	(4c)			(7a)	(7b)	
Diisopropyl peroxydicarbonate	UN3115	≤52	≥48	OP7	− 10	0	10
Diisotridecyl peroxydicarbonate	UN3115	≤100 .....	.....	.....	.....	.....	OP7	− 10	0
Dilauroyl peroxide	UN3106	≤100 .....	.....	.....	.....	.....	OP7 .....	.....	.....
Dilauroyl peroxide [as a stable dispersion in water].	UN3109	≤42 .....	.....	.....	.....	.....	OP8 .....	.....	.....
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.	UN3101	>87–100	OP5	7
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 .....	.....	.....
2,5-Dimethyl-2,5-di-(tert- butylperoxy)hexane.	UN3109	≤52	≥48	.....	.....	.....	OP8 .....	.....	.....
2,5-Dimethyl-2,5-di-(tert- butylperoxy)hexyne-3.	UN3106	≤52 .....	.....	.....	≥48	.....	OP7 .....	.....	.....
2,5-Dimethyl-2,5-di-(tert- butylperoxy)hexane [as a paste].	UN3108	≤47 .....	.....	.....	.....	.....	OP8 .....	.....	.....
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 ..	10
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 ..
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	18
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 .....	.....	.....
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 ..
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	14
Di-(3,5,5-trimethylhexanoyl)peroxide	UN3119	≤38	≥62	.....	.....	.....	IBC	+10	+15 ..
Di-(3,5,5-trimethylhexanoyl)peroxide	UN3119	≤38	≥62	.....	.....	.....	Bulk	− 10	0
Ethyl 3,3-di-(tert- amylperoxy)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 .....	.....	.....

ORGANIC PEROXIDE TABLE—Continued

Technical name (1)	ID number (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)	
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.	UN3111	≤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	≥28 .....	.....	.....	.....	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 .....	.....	.....	.....	≥27	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 .....	.....	.....
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:

- For domestic shipments, OP8 is authorized.
- Available oxygen must be <4.7 percent.
- 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.
- The diluent may be replaced by di-tert-butyl peroxide.
- Available oxygen must be ≤9 percent.
- For domestic shipments, OP5 is authorized.
- This material may be transported in intermediate bulk containers and bulk packagings under the provisions of paragraph (e) of this section.
- Only non-metallic packagings are authorized.
- For domestic shipments, this material may be transported in bulk packagings under the provisions of paragraph (e)(3)(ii) of this section.
- This material may be transported in intermediate bulk containers under the provisions of paragraph (e) of this section.
- Up to 2000 kg per container authorized.
- Samples may only be offered for transportation under the provisions of paragraph (c)(4) of this section.
- "Corrosive" subsidiary risk label is required.
- This material may be transported in bulk packagings under the provisions of paragraph (e) of this section.
- No "Corrosive" subsidiary risk label is required for concentrations below 80%.
- With <6% di-tert-butyl peroxide.
- With ≥8% 1-isopropylhydroperoxy-4-isopropylhydroxybenzene.
- Addition of water to this organic peroxide will decrease its thermal stability.
- [Reserved]
- Mixtures with hydrogen peroxide, water and acid(s).
- With diluent type A, with or without water.
- 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) *Packing Method Table*. 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;
- (ii) Rigid plastic: 31H1; and
- (iii) Metal: 31A.

§ 173.225 [Amended]

47. In addition, in § 173.225, the following changes are made:

- a. Paragraphs (c)(2) and (c)(3) are removed.
- b. Paragraphs (c)(4) and (c)(5) are redesignated as paragraphs (c)(2) and (c)(3).
- c. In the first sentence in paragraph (c)(1), the reference "(c)(4)" is 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" is revised to read "OP2".
- e. In paragraph (e)(2), the last sentence is removed.
- f. Paragraph (e)(3)(i)(B) is removed and paragraph (e)(3)(i)(C) is redesignated as paragraph (e)(3)(i)(B).

§ 173.226 [Amended]

48. In § 173.226, in paragraph (c)(1), the entry "Aluminum jerrican: 3B2" is added immediately following "Plastic jerrican: 3H2".

§ 173.315 [Amended]

49. In § 173.315, in the paragraph (a) table, for the entry "Methylamine, anhydrous", the following changes are made:

- a. In Column 4, the punctuation and wording "; See Note 24." is removed and a period is added in its place.
- b. In Column 5, the wording "See Note 22." is removed.

50. In § 173.316, a new paragraph (d) is 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 and under conditions approved by the Associate Administrator for Hazardous Materials Safety.

51. In § 173.318, a new paragraph (f)(4) is 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 and under conditions approved by the Associate Administrator for Hazardous Materials Safety.

* * * * *

Appendix E—[Removed and Reserved]

52. Appendix E to Part 173 is removed and reserved.

Appendix F—[Removed and Reserved]

53–54. Appendix F to Part 173 is removed and reserved.

PART 175—CARRIAGE BY AIRCRAFT

55. The authority citation for part 175 continues to read as follows:

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

§ 175.10 [Amended]

56. In § 175.10, in paragraph (a)(22), the wording "or thermometer" is added immediately following "barometer" each place it appears.

PART 176—CARRIAGE BY VESSEL

57. The authority citation for part 176 continues to read as follows:

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

58. In § 176.78, paragraph (k) is 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*. Trucks stowed on board a vessel must meet vessel stowage requirements in § 176.905.

* * * * *

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

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

	*	*	*	*	*
(b)	*	*	*		
<hr/>					
Code	Provisions				
<hr/>					
	*	*	*	*	*
17	Segregation same as for flammable gases but "away from" dangerous when wet.				
	*	*	*	*	*
<hr/>					
*	*	*	*	*	

60. Section 176.905 is 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 and identifiable faults in the electrical system that could result in short circuit or other unintended electrical source of ignition. A motor vehicle or mechanical equipment showing any signs of leakage or electrical fault may not be transported.

(2) The fuel tank of a motor 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) When a motor vehicle or mechanical equipment with fuel in its tanks is stowed in a closed freight container, a warning, displayed on a contrasting background and readily legible from a distance of 8 meters (26 feet), must be affixed to the access doors to read as follows:

WARNING—MAY CONTAIN
EXPLOSIVE MIXTURES WITH AIR—
KEEP IGNITION SOURCES AWAY
WHEN OPENING

(6) A motor vehicle or mechanical equipment's ignition key may not be in the ignition while the vehicle or

mechanical equipment is stowed aboard a vessel.

(b) All equipment used for handling vehicles or mechanical equipment must be designed so that the fuel tank and fuel system of the vehicle or mechanical equipment 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.

(g) Each hold or compartment must be equipped with a smoke or fire detection system capable of alerting personnel on the bridge.

(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 removed.

(i) *Exceptions.* A motor vehicle or mechanical equipment is excepted from the requirements of this subchapter if 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), the fuel tank is empty, and the engine is run until it stalls for lack of fuel;

(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, the fuel tank contains 418 liters (110 gallons) of fuel or less, and there are no fuel leaks in any portion of the fuel system;

(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; or

(5) The motor vehicle or mechanical equipment is equipped with liquefied petroleum gas or other compressed gas fuel tanks, the tanks are completely emptied of liquid and the positive pressure in the tank does not exceed 2 bar (29 psi), the line from the fuel tank to the regulator and the regulator itself is drained of all trace of (liquid) gas, and the fuel shut-off valve is closed.

(j) Except as provided in § 173.220(f) of this subchapter, 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

61. The authority citation for part 178 continues to read as follows:

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

62. In § 178.511, the section heading, paragraph (a), paragraph (b) introductory text, and paragraph (b)(1) are revised, paragraphs (b)(2) through (b)(6) are redesignated as paragraphs (b)(3) through (b)(7) and a new paragraph (b)(2) is 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.

* * * * *

63. In § 178.703, a new paragraph (b)(6) is 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 and address 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.

64. In § 178.707, in paragraphs (c)(2) and (c)(3) introductory text, a new sentence is added at the end of each paragraph, and a new paragraph (c)(6) is 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 1,250 liters.

§ 178.815 [Amended]

65. In § 178.815, in paragraph (c)(3), the wording “which bear the stacking load” is added immediately following “and 31HH2”).

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Kelley S. Coyner,

Deputy Administrator.

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