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DEPARTMENT OF TRANSPORTATION

Pipeline and Hazardous Materials Safety Administration

49 CFR Parts 171, 172, 173, 175, 176, 178, and 180

[Docket Nos. PHMSA-2013-0260 (HM-215M)]

RIN 2137-AF05

Hazardous Materials: Harmonization with International Standards (RRR)

AGENCY: Pipeline and Hazardous Materials Safety Administration (PHMSA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: PHMSA proposes to amend the Hazardous Materials Regulations to maintain alignment with international standards by incorporating various amendments, including changes to proper shipping names, hazard classes, packing groups, special provisions, packaging authorizations, air transport quantity limitations, and vessel stowage requirements. These revisions are necessary to harmonize the Hazardous Materials Regulations with recent changes made to the International Maritime Dangerous Goods Code, the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air, the United Nations Recommendations on the Transport of Dangerous Goods—Model Regulations and subsequently address three petitions for rulemaking.

DATES: Comments must be received by [INSERT DATE 60 DAYS FROM DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may submit comments by any of the following methods:

Federal Rulemaking Portal: http://www.regulations.gov. Follow the on-line instructions for submitting comments.

Fax: 1-202-493-2251.

Mail: Docket Management System; U.S. Department of Transportation, Dockets Operations, M-30, Ground Floor, Room W12-140, 1200 New Jersey Avenue, S.E., Washington, DC 20590-0001.

Hand Delivery: To U.S. Department of Transportation, Dockets Operations, M-30, Ground Floor, Room W12-140, 1200 New Jersey Avenue, S.E., Washington, DC 20590-0001 between 9 a.m. and 5 p.m. Monday through Friday, except Federal holidays.

Instructions: Include the agency name and docket number PHMSA-2014-2013-0260 (HM-215M) or RIN 2137-AF05 for this rulemaking at the beginning of your comment. Note that all comments received will be posted without change to http://www.regulations.gov including any personal information provided. If sent by mail, comments must be submitted in duplicate. Persons wishing to receive confirmation of receipt of their comments must include a self-addressed stamped postcard.

Privacy Act: Anyone is able to search the electronic form of any written communications and comments received into any of our dockets by the name of the individual submitting the document (or signing the document, if submitted on behalf of an association, business, labor union, etc.). You may review DOT's complete Privacy Act Statement in the Federal Register published on April 11, 2000 (65 FR 19477), or you may visit http://www.regulations.gov .

Docket: You may view the public docket through the Internet at http://www.regulations.gov or in person at the Docket Operations office at the above address (See ADDRESSES).

FOR FURTHER INFORMATION CONTACT: Steven Webb, Office of Hazardous Materials Standards or Vincent Babich, International Standards, telephone (202) 366-8553, Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, 1200 New Jersey Avenue, S.E., 2nd Floor, Washington, D.C., 20590-0001.

SUPPLEMENTARY INFORMATION:

I. Executive Summary

PHMSA proposes to amend the HMR to maintain alignment with international regulations and standards by incorporating various amendments, including changes to proper shipping names, hazard classes, packing groups, special provisions, packaging authorizations, air transport quantity limitations, and vessel stowage requirements. This rulemaking project is part of our ongoing biennial process to harmonize the Hazardous Materials Regulations (HMR; 49 CFR Parts 171 to 180) with international regulations and standards.

Federal law and policy strongly favor the harmonization of domestic and international standards for hazardous materials transportation. The Federal hazardous materials transportation law (Federal hazmat law; 49 U.S.C. 5101 et seq.) permits PHMSA to depart from international standards to promote safety or other overriding public interest, but otherwise requires PHMSA to align the HMR with international transport standards and requirements to the extent practicable (see 49 U.S.C. 5120).

Harmonization facilitates international trade by minimizing the costs and other burdens of complying with multiple or inconsistent safety requirements for transportation of hazardous materials to and from the United States and becomes increasingly important as the volume of hazardous materials transported in international commerce grows. By facilitating compliance, harmonization also tends to enhance safety for international

movements, but only if the international standards provide an appropriate level of safety. PHMSA actively participates in the development of international standards for the transportation of hazardous materials, frequently advocating the adoption in international standards of particular HMR requirements.

When considering the adoption of international standards under the HMR, we review and consider each amendment on its own merit, on the basis of its overall impact on transportation safety, and the economic implications associated with its adoption into the HMR. Our goal is to harmonize without diminishing the level of safety currently provided by the HMR and without imposing undue burdens on the regulated community.

This NPRM proposes to amend the HMR to maintain alignment with various international standards. The following are some of the more noteworthy proposals in this NPRM:

- Incorporate Revised Standards: PHMSA proposes to incorporate by reference the newest versions of various international hazardous materials standards including the 2015–2016 International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO TI), Amendment 37–14 to the International Maritime Dangerous Goods Code (IMDG Code), the International Atomic Energy Agency (IAEA) Safety Standards for Protecting People and the Environment; Regulations for the Safe Transport of Radioactive Material, No. SSR-6, (IAEA Regulations), 2012 Edition, and the 18th Revised Edition of the United Nations Recommendations on the Transport of Dangerous Goods (UN Model Regulations). Additionally, we are proposing to update our incorporation by reference of the Canadian Transportation of Dangerous Goods Regulations to

include Amendment 8 (SOR/2011-239) published November 9, 2011; Amendment 9 (SOR/2011-60) published March 16, 2011; Amendment 10 (SOR/2011-210) published October 12, 2011; and Amendment 11 (SOR/2012-245) published November 9, 2012. Finally, in this NPRM, PHMSA is proposing the adoption of updated International Standards Organization (ISO) standards.

- Revise HMT Entries: In this NPRM, PHMSA proposes amendments to the § 172.101 Hazardous Materials Table (HMT) to add, revise, or remove certain proper shipping names, hazard classes, packing groups, special provisions, packaging authorizations, bulk packaging requirements, passenger and cargo aircraft maximum quantity limits. The proposed changes to the HMT mirror recent changes in the Dangerous Goods list of the 18th Revised Edition of the UN Model Regulations, the IMDG Code, and the ICAO TI.
- Provide Exceptions for Marine Pollutants: PHMSA is proposing an exception from the HMR for marine pollutants up to 5 l (1.3 gal) for liquids or 5 kg (11 lbs.) for solids when these materials are packaged in accordance with the general packaging requirements of §§ 173.24 and 173.24a. The proposed amendment would exempt small packages of hazardous material from the HMR that are regulated only because of the presence of one or more marine pollutants. Materials in these quantities pose a low risk in transport and this proposal simplifies the current exceptions for marine pollutants and reduces impediments to multi-modal transport of these goods. The proposed changes to the HMT mirror recent changes in the Dangerous Goods list of the 18th Revised Edition of the UN Model Regulations, the IMDG Code, and the ICAO TI.

- Modification of the Marine Pollutant List: PHMSA is proposing to modify the list of marine pollutants in Appendix B to 172.101. The HMR maintain a list as the basis for regulating substances toxic to the aquatic environment and allow use of the criteria in the IMDG Code if a listed material does not meet the criteria for a marine pollutant. PHMSA periodically updates its list based on changes to the IMDG Code and evaluation of listed materials.
- Clarify Hazard Communication Size Requirements: PHMSA is proposing to add minimum sizes for the OVERPACK and SALVAGE markings. These markings would be characters at least 12 mm (.47 inches) high. There is no minimum size for these marks currently in the HMR, and the information is not always readily visible. Further, the HMR already prescribe specific size requirements for the "UN" or "NA" markings and package specification markings. This proposal is a logical extension of existing requirements. To offset any increased cost associated with the proposed size requirements, PHMSA will propose to permit a permanently marked salvage package or overpack to remain in service with its existing marks regardless of whether the identification number markings meet the minimum size requirements.
- Revise Vessel Stowage Requirements: PHMSA is proposing to revise and add vessel stowage codes listed in column 10B of the HMT and segregation requirements in § 176.83 consistent with the IMDG Code. These changes would harmonize the HMR with the IMDG Code and would provide additional guidance on the loading and stowage of various materials. Additionally, we propose to increase the required segregation distances between Division 4.3 dangerous when

wet material (i.e. materials liable to give off a flammable or toxic gas in contact with water) and Class 3 flammable liquids and Division 2.1 flammable gases.

- Addition of Entries for Adsorbed Gases in the Hazardous Materials Table**:** Consistent with amendments adopted into the UN Model Regulations, PHMSA is proposing to revise the Hazardous Materials Table (HMT) in § 172.101 to include seventeen new entries for adsorbed gases. Additionally we propose to add into the HMR a definition for adsorbed gas, authorized packagings, and safety requirements including but not limited to quantity limitations and filling limits.
- Harmonized Requirements for Lithium Batteries: PHMSA proposes harmonization with the latest version of the ICAO Technical Instructions to ensure that the information currently authorized by the HMR to be provided by means of an alternative document be included on a shipping paper for batteries transported under the provisions of 49 CFR 173.185(c)(4)(v) - equivalent to Section IB of ICAO Packing Instructions 965 and 968. PHMSA also proposes to harmonize with the latest version of the ICAO Technical Instructions by requiring a "CARGO AIRCRAFT ONLY" label on packages containing small lithium metal batteries not packed in or with equipment.
- Definition of Non-Bulk Packaging: PHMSA proposes to revise the HMR definition of non-bulk packaging by adding a new paragraph (4) to include bags and boxes conforming to the applicable requirements for specification packagings in subpart L of part 178 of this subchapter, if they have a maximum net mass of 400 kg (882 pounds) or less. The UN Model regulations were revised to remove the volumetric limit for certain packaging types considered in Part 6 of the UN

Model Regulations that would be considered non-bulk packagings under the HMR. This change was based on recognition by the UN Transport of Dangerous Goods Sub-Committee that there are packagings suitable for the transportation of high volume, low mass materials (e.g., airbags).

If the amendments in this proposed rule are not adopted in the HMR by January 1, 2015, the date most of the international standards above take effect, U.S. companies, including numerous small entities competing in foreign markets, will be at an economic disadvantage. These companies will be forced to comply with a dual system of regulations. The amendments proposed in this rulemaking are intended to avoid this result.

If adopted in a final rule, the amendments proposed in this NPRM will result in minimal burdens on the regulated community. The benefits resulting from the adoption of the amendments include enhanced transportation safety resulting from the consistency of domestic and international hazard communication and continued access to foreign markets by U.S. manufacturers of hazardous materials. The majority of amendments in this NPRM should result in cost savings and ease the regulatory compliance burden for shippers engaged in domestic and international commerce, including trans-border shipments within North America.

PHMSA solicits comments on the need for these amendments and others proposed in this NPRM. Specifically, PHMSA requests comments on the benefits and costs of international harmonization, including the impact on safety and any other relevant concerns regarding the amendments proposed in this NPRM. In addition, PHMSA solicits

comment from the regulated community regarding approaches to reducing the costs of this rule while maintaining or increasing the benefits. In its preliminary analysis, PHMSA concluded that the aggregate benefits justify the aggregate costs as a result of the amendments proposed in this NPRM. Nonetheless, PHMSA solicits public comment on specific changes (for example, greater flexibility with regard to a particular amendment) that might improve the rule.

II. Background

In a final rule published December 21, 1990 (Docket HM-181; 55 FR 52402), the Research and Special Programs Administration (RSPA), the predecessor agency to PHMSA, comprehensively revised the HMR to harmonize U.S. hazardous materials transportation requirements with the UN Model Regulations. The UN Model Regulations constitute a set of recommendations issued by the United Nations Subcommittee of Experts (UNSCOE) on the Transport of Dangerous Goods and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). The UN Model Regulations are amended and updated biennially by the UNSCOE and serve as the basis for national, regional, and international modal regulations, including the IMDG Code and the ICAO TI.

Since publication of the 1990 rule, PHMSA has issued ten additional international harmonization rulemakings under Dockets: HM-215A [59 FR 67390]; HM-215B [62 FR 24690]; HM-215C [64 FR 10742]; HM-215D [66 FR 33316]; HM-215E [68 FR 44992]; HM-215G [69 FR 76044]; HM-215I [71 FR 78595]; HM-215J [74 FR 2200]; HM-215K [76 FR 3308]; and HM-215L [78 FR 987]. These rulemakings were based on biennial updates of the UN Model Regulations, the IMDG Code, and the ICAO TI.

Federal law and policy strongly favor the harmonization of domestic and

international standards for hazardous materials transportation. The Federal hazardous materials transportation law (Federal hazmat law; 49 U.S.C. 5101 et seq.) directs PHMSA to participate in relevant international standard-setting bodies and encourages alignment of the HMR with international transport standards to the extent practicable while recognizing that deviations may at times be necessary to ensure safety or be consistent with the public interest (see 49 U.S.C. 5120). Harmonization facilitates international trade by minimizing the costs and other burdens of complying with multiple or inconsistent safety requirements for transportation of hazardous materials. Harmonization has also become increasingly important as the volume of hazardous materials transported in international commerce grows. By facilitating compliance, harmonization enhances safety. PHMSA actively participates in relevant international standard-setting bodies and promotes the adoption of standards consistent with the high safety standards set by the HMR.

When considering alignment of the HMR with international standards, we review and evaluate each amendment on its own merit, on the basis of its overall impact on transportation safety, and the on the basis of the economic implications associated with its adoption into the HMR. Our goal is to harmonize without diminishing the level of safety currently provided by the HMR or imposing undue burdens on the regulated community.

Based on this review and evaluation, in this NPRM PHMSA is proposing to revise the HMR to incorporate changes from the 18th Revised Edition of the UN Model Regulations, Amendment 37-14 to the IMDG Code, and the 2015-2016 Edition of the ICAO Technical Instructions, which become effective January 1, 2015 (The IMDG Code is effective January 1, 2015; however, the previous amendment may continue to be used until January 1, 2016).

In addition, PHMSA proposes to incorporate by reference the newest editions of various international standards. These standards incorporated by reference are authorized for use, under specific circumstances, in Subpart C of Part 171 of the HMR. This proposed rule is necessary to incorporate revisions to the international standards and, if adopted in the HMR, will be effective January 1, 2015.

Possible Interim Final Rule

If the changes in this proposed rule are not adopted by January 1, 2015, U.S. companies, including numerous small entities competing in foreign markets, would be at an economic disadvantage because these companies would be forced to comply with a dual system of regulations (specifically, the U.S. HMR, UN Model Regulations, and ICAO Technical Instructions). As previously noted, the changes to the international standards will take effect on January 1, 2015. Therefore, it is essential that a final rule incorporating these standards by reference be published no later than December 31, 2014 with an effective date of January 1, 2015. To this end, if it appears a final rule under this docket will not be published prior to January 1, 2015, PHMSA will publish a bridging document in the form of an interim final rule to amend the HMR by incorporating the 18th Revised Edition of the UN Recommendations and the 2015-2016 Edition of the ICAO Technical Instructions.

With regard to Amendment 37-14 of the IMDG Code, the International Maritime Organization approved an implementation date of January 1, 2016. The current edition of the IMDG Code (Amendment 36-12) remains in effect through 2015 and, therefore, the newest version of the IMDG Code will not be included in any bridging document. The proposed incorporation by reference of the newest edition of the IMDG Code and all other

changes proposed in this NPRM would be addressed in a subsequent final rule also under this Docket, PHMSA-2013-0260 (HM–215M). Accordingly, any interim final rule will only incorporate by reference editions of the international standards that become effective on January 1, 2015.

III. Harmonization Proposals in this NPRM

In addition to various other revisions to the HMR, in this NPRM, PHMSA is proposing the following amendments to harmonize the HMR with the most recent revisions to the UN Model Regulations, ICAO TI, and the IMDG Code:

Hazardous Materials Table (HMT):

In this NPRM, PHMSA proposes amendments to the HMT to add, revise, or remove certain proper shipping names, hazard classes, packing groups, special provisions, packaging authorizations, bulk packaging requirements, vessel stowage and segregation requirements, and passenger and cargo aircraft maximum quantity limits.

Incorporation by Reference:

In this NPRM, PHMSA proposes to incorporate by reference the latest editions of various international transport standards including the 2015–2016 Edition of the ICAO Technical Instructions, Amendment 37–14 of the IMDG Code, and the 18th Revised Edition of the UN Model Regulations. Additionally, we are proposing to update our incorporation by reference of the Canadian Transportation of Dangerous Goods Regulations to include Amendment 8 (SOR/2011-239) published November 9, 2011; Amendment 9 (SOR/2011-60) published March 16, 2011; Amendment 10 (SOR/2011-210) published October 12, 2011; and Amendment 11 (SOR/2012-245) published November 9, 2012. This incorporation by reference augments the broad reciprocity

provided in § 171.12 where the HMR allow the use of the Canadian TDG Regulations under certain conditions when transporting hazardous materials to or from Canada by highway or rail. Finally, PHMSA is proposing the incorporation by reference of new and updated International Standards Organization (ISO) standards.

Petitions for Rulemaking: In this NPRM, PHMSA is addressing three petitions for rulemaking:

Alignment of the HMR with the ICAO TI to remove the segregation requirements in § 175.630 (P-1631)

In a petition for rulemaking (P-1631), UPS, Inc. requests that PHMSA align with the ICAO TI by removing the § 175.630 provisions requiring Division 6.1 and 6.2 packages to be segregated from materials marked as or known to be a foodstuff, feed, or any other edible material intended for consumption by humans or animals.

Section 175.630 imposes special segregation requirements for Division 6.1 (toxic) material and Division 6.2 (infectious substance) materials when transported by aircraft. Paragraph (a) requires that a package required to bear a POISON, POISON INHALATION HAZARD, or INFECTIOUS SUBSTANCE label may not be carried in the same compartment of an aircraft with material which is marked as or known to be a foodstuff, feed, or any other edible material intended for consumption by humans or animals unless:

(1) The Division 6.1 or Division 6.2 material and the foodstuff, feed, or other edible material are loaded in separate unit load devices which, when stowed on the aircraft, are not adjacent to each other; or

(2) The Division 6.1 or Division 6.2 material are loaded in one closed unit load device and the foodstuff, feed or other material is loaded in another closed unit load device

The petitioner notes that during 2012-2013 biennium, the ICAO Dangerous Goods Panel (DGP) determined that the high quality of packaging for Division 6.1 and 6.2 material required by the ICAO TI justified removal of the segregation requirements applied to Division 6.1 or Division 6.2 material and foodstuffs. The petitioner states that the alignment of the HMR with the ICAO TI on the matter of operator requirements is of great value for aircraft operators. In addition, the petitioner states that this amendment has the potential to introduce efficiencies for air carriers, including UPS. In this context, with the deletion of ICAO TI Part 7, Section 2.9, the petitioner recommends and requests that PHMSA remove the corresponding requirements of § 175.630.

PHMSA is in agreement with the petitioner and in this NPRM, is proposing to delete the special segregation requirements for Division 6.1 and Division 6.2 material. This action would harmonize the HMR with recent amendments that will appear in the 2015-2016 Edition of the ICAO TI. These segregation requirements are no longer necessary, and we propose to harmonize with ICAO because of: (1) the relative rarity of releases of toxic and infectious substances; (2) the small quantities released when a spill actually occurs; (3) the robust nature of combination packagings used for toxic and infectious substances; (4) the acceptance checks required by operators prior to loading hazardous materials aboard aircraft; (5) the lack of evidence of contamination of other packages by a release of toxic or infectious substances; and (6) the coverage by the hazard communication system already in place in the event of a release.

Passenger notification programs for tickets issued by phone (P-1623)

In a petition for rulemaking (P-1623), the Council on Safe Transportation of Hazardous Articles (COSTHA) requests that PHMSA remove the applicability of

passenger notifications in § 175.25(b) to telephone transactions.

In a final rule published January 19, 2011 under Docket No. PHMSA–2009–0126 (HM-215K); 76 FR 3308, PHMSA aligned with the ICAO TI by adding new requirements for certain information to be presented to passengers regarding what hazardous materials they may check-in or carry-on a flight. This information is to be provided at points of ticket sale and at automated or remote passenger check-in. On March 7, 2013, PHMSA received a request for a letter of interpretation (Reference 13-00058) from COSTHA pointing out that the January 19, 2011 final rule in § 175.25 (b) includes the word "phone" which is not in Part 7; 5.1.1 of the ICAO TI, nor is it part of the current scope of passenger notification programs. COSTHA requested clarification as to whether or not PHMSA intended the § 175.25(b) requirement to be applicable to passenger notification by telephone. In the July 11, 2013 response, PHMSA stated that §175.25(b) explicitly references purchase by telephone as a means of purchasing a ticket remotely. Therefore, as written, the § 175.25(b) passenger notification and acknowledgement requirements apply when purchasing a ticket by telephone and this is generally consistent with Part 7; 5.1.1 of the ICAO TI. This petition was submitted in response to the letter of interpretation issued by PHMSA on July 11, 2013 (Reference 13-0058).

In its petition, COSTHA states that they strongly disagree with PHMSA's position that inclusion of the term "phone" in § 175.25(b) is "generally consistent" with the language adopted in Part 7; 5.1.1 of the ICAO TI, and that PHMSA has not fully recognized or accounted for the significant costs such an interpretation would impose on industry and the competitive disadvantage that would result for U.S. passenger air carriers. The petitioner notes that the issue of ticket purchase and check-in on line was discussed

within a working group of the ICAO DGP (May 2009) and that the discussion only pertained to electronic transactions, not telephone transactions. The report from the meeting specifically states "when purchasing tickets or checking in electronically." The report includes comments from DGP members questioning who would enforce the requirement against internet-based travel agencies. There is no reference to ticket purchases made via telephone. At the 22nd meeting of the ICAO DGP (October 2009), ICAO adopted modifications to Part 7; 5.1 to bolster communication to passengers who purchase tickets or check-in electronically. Paragraph 2.8.2.1 from the DGP 22 report states:

> "A proposal to strengthen the requirements for the provision of information to passengers in respect of dangerous goods in baggage was discussed. It was suggested the use of the Internet to purchase tickets, to check in, and the use of automated check-in machines at the airport or by telephone made traditional methods of providing information to passengers obsolete. New text in Part 7;5.1 was developed to address this."

The petitioner notes that DGP 23 report contains the first reference to the use of telephones, and in this case it is in reference to passenger check-ins, not ticket purchase. Further revisions to the ICAO TI text resulted in mandatory requirements. However, the context of these discussions was again regarding electronic transactions, not via the telephone. The petitioner states based on the information contained in the ICAO reports that it was not the intention of ICAO to require extensive hazard communication during telephonic ticket purchases.

The petitioner states that by extending the application of notification to passengers

to telephonic ticket purchases, PHMSA is imposing significant training and implementation costs on industry and that these costs may not have been fully considered. In the petition, COSTHA includes estimated costs from three member air carriers for providing passenger notification via telephonic communication. One carrier estimated an annual cost increase of $17 million, another $750,000, and the third $450,000 a year for every second added to talk time. These figures do not include employee training costs. In addition, these three airlines provided data that between 3% and 5.1% of tickets are purchased over the phone. The petitioner points out that the vast majority of tickets are purchased on-line, and when purchased in this manner, passengers are notified about hazardous materials at the time of purchase, during check-in, and again via an announcement at the gate. The petitioner states that extending these requirements to telephone transactions will significantly increase costs to industry while reaching only 5% of passengers purchasing tickets.

In this NPRM, PHMSA is proposing to grant this petition by adopting into the HMR the revisions made to the passenger notification provisions of Part 7;5.1 of the ICAO TI adopted at the 24th meeting of ICAO DGP (October 2013). Paragraph 2.7.3.1 from the DGP 24 report states:

> "It was suggested that text which had existed in Part 7;5.1 prior to the 2011-2012 Edition of the Technical Instructions had been inadvertently removed and should be reinstated. Part 7;5.1 was amended in the 2011-2012 Edition to address the increasing use of the internet for flight bookings and check-in, the use of telephones and kiosks at airports for check-in. It was suggested, however, that the new text did not address cases when a

passenger might make a booking over the telephone with the operator providing the dangerous goods information with a booking confirmation by post or email."

Specifically, PHMSA is proposing to revise §175.25(b) for consistency with the ICAO TI to clarify that for ticket purchases the hazardous materials notification must be presented at the point of ticket purchase or, if this not practical, made available in another manner to passengers prior to the check-in process. This will allow an operator to provide the hazardous materials notification verbally, with the ticket or ticket receipt, or using another equally suitable method. In addition, PHMSA is proposing to remove the words "regardless if the process is completed remotely (e.g., via the Internet and Phone) or when completed at the airport, with or without assistance from another person (e.g., automated check in facility)" as examples of ticket purchases to fully harmonize §175.25(b) with the ICAO TI, and to clarify that the hazardous materials notification must be given with every ticket purchase. Finally, it is proposed to insert the words "provided via the internet" into the second sentence of §175.25(b) to clarify that passenger acknowledgement is only required when the ticket is purchased through the internet without assistance from another person. All of these proposed changes taken together will address the COSTHA petition and bring the HMR into full alignment with the ICAO TI.

Compliance date extension for passenger notification programs (P-1633)

In a petition for rulemaking (P-1633), COSTHA requests that PHMSA extend the transitional compliance date for "hazardous materials notifications to passengers at time of ticket purchase," which was adopted in a January 19, 2011 final rule (Docket No. PHMSA–2009–0126 (HM-215K); 76 FR 3308) and extended to January 1, 2015 in a final

rule published January 7, 2013 (Docket No. PHMSA–2009–0126 (HM-215K); 78 FR 1108). Specifically, COSTHA requests the current compliance date for passenger notifications requirements in § 175.25 be extended from January 1, 2015 until 12 months from the effective date of the HM-215M final rule publication, or January 1, 2016, whichever is later.

The petitioner states on April 30, 2013, the Federal Aviation Administration (FAA) chartered an Aviation Rulemaking Committee (ARC) on Passenger Notification of Hazardous Materials Regulations with a mission to develop consistent and effective messages for disseminating hazardous materials information to passengers and provide air carriers additional clarity to ensure regulatory compliance. The FAA timeline for the ARC and publication of the draft advisory circular was developed to provide air carriers eight months to implement the recommendations, employee training, program changes and to make necessary technology updates. Due to additional amendments to the passenger notification requirements of the ICAO TI the implementation and subsequent consideration for harmonization under this proposed rule the timeline established by the FAA was delayed. Given this delay, air carriers will not be provided sufficient time to implement changes necessary to comply with the modified §175.25.

In this NPRM, PHMSA is proposing to revise §175.25(b) for consistency with recent amendments to the ICAO TI to clarify that for ticket purchases made via the telephone, the hazardous materials notification must be provided to the passenger but can be done so using any suitable method prior to the check-in. Due to this revision, the extension requested in this petition is unnecessary. The requirement for air carrier reservation agents to verbally provide passenger notification at the time of purchase by

telephone was the basis for the effective date extension granted in the January 7, 2013 final rule (HM-215K). By removing the telephonic acknowledgement requirement, the previous effective date of January 1, 2015 will be waived as of publication. Other than the telephonic acknowledgement requirement, PHMSA is unaware of any additional new requirement imposed under HM-215K that has posed difficulty in implementation that would merit providing additional compliance date relief. Further, proposed amendments to §175.25 in this rulemaking are eligible for the one year delayed compliance.

IV. Amendments Not Being Considered for Adoption in this NPRM

This NPRM proposes changes to the HMR based on amendments adopted in the 18th Revised Edition of the UN Model Regulations, the 2015-2016 Edition of the ICAO Technical Instructions, and Amendment 37-14 to the IMDG Code. We are not, however, proposing to adopt all the amendments made to the various international standards into the HMR.

In many cases, amendments to the international recommendations and regulations have not been adopted because the framework or structure of the HMR makes adoption unnecessary. In other cases, we have addressed, or will address, the amendments in separate rulemaking proceedings. If we have inadvertently omitted an amendment in this NPRM, we will attempt to include the omission in the final rule. However, our ability to make changes in a final rule is limited by requirements of the Administrative Procedure Act (5 U.S.C. 553). In some instances, we can adopt a provision inadvertently omitted in the NPRM if it is clearly within the scope of changes proposed in the notice. Otherwise, in order to provide opportunity for notice and comment, the change must first be proposed in an NPRM.

One of the goals of this rulemaking is to continue to maintain consistency between the HMR and the international requirements. We are not striving to make the HMR identical to the international regulations but rather to remove or avoid potential barriers to international transportation.

The following is a list of significant amendments to the international regulations that we are not proposing to adopt in this NPRM, with a brief explanation of why the amendment was not included:

Damaged, Defective, and Waste Lithium Batteries:

The 18th Revised Edition of the UN Model Regulations adopted transportation provisions for damaged, defective, and waste lithium batteries. In this NPRM, PHMSA is not proposing to adopt changes to the domestic requirements for the treatment of these lithium batteries, as we believe existing HMR requirements sufficiently address shipments of this nature.

Dimensions on Hazard Communication Examples:

The 18th Revised Edition of the UN Model Regulations adopted modifications to example figures of markings, labels, and placards to note minimum dimensions for the appropriate hazard communication example pictograms. In this NPRM, PHMSA is not proposing to adopt the changes to example markings, labels, and placards found in the HMR. We believe the addition of dimensions to the example pictograms does not add significant value because these dimensions are described in the text of the HMR. These amendments to the international recommendations and regulations are not being adopted because the regulatory text associated with the various figures in the HMR depicting package markings, labels and placards adequately describes the item without adding

minimum dimensions to the example figures.

Flash Composition:

The 18th Revised Edition of the UN Model Regulations amended a note before the default fireworks classification table in 2.1.3.5.5. This amendment changed the criteria used in the meaning of "flash composition" from 8 ms for .5 g of pyrotechnic substance in the HSL Flash Composition Test in Appendix 7 of the Manual of Tests and Criteria, to 6 ms for .5g of pyrotechnic substance. In this NPRM, PHMSA is not adopting this change as work on this test is ongoing.

Radioactive Materials Transportation Requirements:

The 18th Revised Edition of the UN Model Regulations, the 2015-2016 Edition of the ICAO Technical Instructions, and Amendment 37-14 to the IMDG Code amended various radioactive transportation requirements to harmonize their regulations with the International Atomic Energy Agency (IAEA) Safety Standards for Protecting People and the Environment; Regulations for the Safe Transport of Radioactive Material, No. SSR-6. While PHMSA is proposing to incorporate by reference this document (see § 171.7) and adopt the new proper shipping name and associated shipping requirements for UN 3507, Uranium hexafluoride, radioactive material, excepted package, we are not proposing to harmonize the HMR with the remainder of the changes made by the various international regulations in this NPRM. Any further domestic radioactive harmonization issues will be addressed in a future rulemaking in conjunction with the Nuclear Regulatory Commission.

Discarded Packages:

The 18th Revised Edition of the UN Model Regulations adopted a new proper shipping name and UN number for Packaging discarded, empty, uncleaned, UN 3509.

This new proper shipping name was brought in to allow, with competent authority approval, packagings, large packagings or intermediate bulk containers, or parts thereof, which have contained hazardous materials, other than radioactive material to be transported for disposal, recycling or recovery of their material, other than reconditioning, repair, routine maintenance, remanufacturing or reuse, and which have been emptied to the extent that only residues of dangerous goods adhering to the packaging parts are present when they are presented for transport. This change was made primarily to address European land transport of packages that are no longer within appropriate package specifications. The ICAO DGP did not incorporate this entry into the ICAO TI dangerous goods list, and the IMDG Code has adopted very limited allowance for the use of this entry on short sea voyages.

PHMSA is not proposing to include a hazardous materials table entry for UN 3509 Packaging discarded, empty, uncleaned. We believe that the shipment of empty uncleaned packaging is adequately addressed by HMR under existing empty packaging provisions in § 173.29 and additional sections. Use of this description in the UN Model Regulations requires authorization by the competent authority, which can still be obtained from PHMSA via a special permit.

Used Medical Devices:

In the 2015-2016 Edition of the ICAO TI a note was added to an exception for used medical devices which excepts medical devices or equipment that have been drained of free liquid to the extent practicable; and clarifying that any capability requirement in the ICAO TI can be determined through testing a sample package as prepared for transport, or through alternative means such as non-destructive testing, engineering analysis, testing

with an article of similar mass and size, or other equivalent means. PHMSA is not making any corresponding amendments to § 173.134, as we believe the existing HMR satisfactorily addresses the hazards presented by used medical devices in transportation.

Coolants, Conditioners, and Asphyxiates

The 18th Revised Edition of the UN Model Regulations contains various editorial amendments applicable to packages and cargo transport units containing substances presenting a risk of asphyxiation when used for cooling or conditioning purposes. PHMSA did not adopt requirements for these shipments instituted in the 17th Revised Edition of the UN Model Regulations, and will not be adopting any of the editorial amendments incorporated into the 18th UN Model Regulations either. PHMSA believes that the current requirements for shipments of dry ice and other potential coolants adequately address the hazards associated with the use of these hazardous materials as coolants or conditioners.

Gas Cartridge and Fuel Cell Testing

The 18th Revised Edition of the UN Model Regulations was amended to authorize alternatives to the water bath test for gas cartridges and fuel cells. PHMSA believes that the current requirements provided by the HMR for testing these items adequately address the hazards associated with their use.

V. Section-By-Section Review

The following is a section-by-section review of the amendments proposed in this NPRM:

Part 171

Section 171.4 prohibits the transportation of materials meeting the definition of a marine pollutant except in accordance with HMR requirements. Paragraph (c) provides that marine pollutants transported in non-bulk packagings are excepted from the HMR unless the transportation is by vessel. In this NPRM, PHMSA proposes a new exception from the HMR for marine pollutants up to 5 l (1.3 gallons) for liquids or 5 kg (11 lbs) for solids when these materials are packaged in accordance with the general packaging requirements of §§ 173.24 and 173.24a. This proposed amendment, applicable to all modes, would exempt small packages of hazardous material from the HMR that are regulated only because of the presence of one or more marine pollutants. Materials in these quantities pose a low risk in transport and this proposal simplifies the current exceptions for marine pollutants and reduces impediments to multi-modal transport of these goods.

Section 171.7

The "National Technology Transfer and Advancement Act of 1996" directs agencies to use voluntary consensus standards. According to the Office of Management and Budget (OMB), Circular A-119, "Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities," government agencies must use voluntary consensus standards wherever practical in the development of regulations. Agency adoption of industry standards promotes productivity and efficiency in government and industry, expands opportunities for international trade, conserves resources, improves health and safety, and protects the environment.

To these ends, PHMSA actively participates in the development and updating of consensus standards through representation on more than 20 consensus standard bodies. PHMSA regularly reviews updated consensus standards and considers their merit for

inclusion in the HMR.

Section 171.7 provides a listing of all standards incorporated by reference into the HMR. For this rulemaking, we evaluated updated international consensus standards pertaining to proper shipping names, hazard classes, packing groups, special provisions, packaging authorizations, air transport quantity limitations, and vessel stowage requirements and determined that the revised standards provide an enhanced level of safety without imposing significant compliance burdens. These standards have a well-established and documented safety history and their adoption will maintain the high safety standard currently achieved under the HMR. Therefore, we propose to update by adding and revising the incorporation by reference materials for the following organizations:

Paragraph (s)(1) which incorporates the International Atomic Energy Agency (IAEA) Regulations for the Safe Transport of Radioactive Material 1996 edition would be revised to incorporate the SSR-6 2012 Edition. To address concerns over domestic and international differences in the transport conditions applicable to shipments of excepted fissile materials, PHMSA is proposing to add additional requirements to § 171.23 to ensure domestic concerns are addressed. Please see the discussion in the Section-by-Section Review under § 171.23 for a summary of proposed changes.

Paragraph (t)(1) which incorporates the International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air, 2013-2014 Edition would be revised to incorporate the 2014-2015 Edition.

Paragraph (v)(2), which incorporates the International Maritime Organization International Maritime Dangerous Goods Code, 2012 Edition, Incorporating Amendment 36-12, English Edition, Volumes 1 and 2, would be revised to incorporate the 2014

Edition, Amendment 37-14.

In paragraph (w) various International Organization for Standardization (ISO) entries which contain standards for the specifications, design, construction, testing and use of gas cylinders are proposed for incorporation by reference..

In paragraph (bb)(1), the Transport Canada, Transportation of Dangerous Goods Regulations, including Clear Language Amendments 1 through 7 sub-paragraphs (ix), (x), (xi), and (xii), would be added to include Amendment 8 (SOR/2011-239) which was published on November 9, 2011; Amendment 9 (SOR/2011-60) published March 16, 2011; Amendment 10 (SOR/2011-210) published October 12, 2011; and Amendment 11 (SOR/2012-245) published November 9, 2012 respectively. In the preamble of our January 7, 2013 final rule (HM215-L [78 FR 987]) we indicated we were adopting Amendments 8, 9 and 10 of the Transportation of Dangerous Goods Regulations, however this adoption inadvertently did not appear in the published regulatory text. To correct this oversight, we are again proposing the adoption of Amendments 8, 9 and 10, along with the proposed adoption of the most recent, Amendment 11.

Paragraph (dd)(1), the United Nations Recommendations on the Transport of Dangerous Goods— Model Regulations, 17th Revised Edition (2011), Volumes I and II, would be revised to incorporate the 18th Revised Edition (2013), Volumes I and II.

Paragraph (dd)(2), the United Nations Recommendations on the Transport of Dangerous Goods—Manual of Tests and Criteria, Fifth Revised Edition (2009), including Amendment 1 (2011), would be revised to reference § 171.24, and sub-paragraph (iii) would be added to incorporate Amendment 2 (2013).

Section 171.8

This section defines terms generally used throughout the HMR that have broad or multi-modal applicability. PHMSA is proposing to add the following terms:

Adsorbed gas: The proposed adoption of this term directs the reader to § 173.115 for the definition. See the § 173.115 entry of the Section-by-Section Review for a complete discussion of the proposed adoption of the definition of adsorbed gas.

Bundle of cylinders: Consistent with the ICAO TI, in this NPRM, PHMSA proposes to amend this definition to clarify that a "bundle of cylinders" is not permitted for air transport.

Large salvage packaging: Consistent with the UN Model Regulations, in this NPRM, PHMSA proposes to define a large salvage packaging. A large salvage packaging is a special packaging into which damaged, defective or leaking hazardous materials packages, or hazardous materials that have spilled or leaked are placed for the purpose of transport for recovery or disposal. The general requirements for a large salvage packaging are consistent with the existing requirements for a "large packaging." Large salvage packagings are not authorized for air transport.

Neutron radiation detector: Consistent with the UN Model Regulations, in this NPRM, PHMSA proposes to define a neutron radiation detector. A neutron radiation detector is a device that detects neutron radiation. In such a device, a gas may be contained in a hermetically sealed electron tube transducer that converts neutron radiation into a measurable electric signal.

Non-bulk packaging: The UN Model regulations were revised to remove the volumetric limit for certain packaging types considered in Part 6 of the UN Model Regulations that would be considered non-bulk packagings under the HMR. This was

based on recognition by the UN Transport of Dangerous Goods Sub-Committee that there are packagings suitable for the transportation of high volume, low mass materials (e.g., airbags) where the capacity of a box may exceed 450 liters (119 gallons) while the net mass of the box is less than 400 kg (882 pounds). Absent a corresponding amendment to the HMR, U.S. manufacturers and shippers would be placed at a competitive disadvantage by not being authorized to use the same packaging configurations other than as authorized for use by Part 171 Subpart C (use of international transport standards and regulations). Therefore, to maintain consistency with the UN Model Regulations, and to authorize the use of these packaging configurations for domestic transport, PHMSA proposes to revise the HMR definition of non-bulk packaging by adding a new paragraph (4) to include bags and boxes conforming to the applicable requirements for specification packagings in subpart L of part 178 of this subchapter, if they have a maximum net mass of 400 kg (882 pounds) or less. Based on our review of the UN Model Regulations, these are the only packagings affected by the UN amendment as only bags and boxes are authorized by specification to exceed 450 liters capacity.

Radiation Detection System: Consistent with the UN Model Regulations, in this NPRM, PHMSA proposes to define a radiation detection system. A radiation detection system is an apparatus that contains radiation detectors as components.

Section 171.23

Section 171.23 prescribes requirements for specific materials and packagings transported under various international standards. Section 171.22(b)(2) requires shipments made in accordance with an authorized international standard or regulation to conform to all applicable requirements of Subpart C of Part 171.

Paragraph (b)(2) of this section provides the requirement that the shipping paper description of items such as air bag inflators, air bag modules, and seat-belt pretensioners conform to the requirements in §173.166(c). Consistent with the UN Model Regulations, in this NPRM, PHMSA proposes to revise the proper shipping name of these items to read "Safety device," with the addition of the term "pyromechanical device" being included as a "Safety device." Paragraph (b)(2) is being revised to reference the new proper shipping name, "Safety device" and the new term "pyromechanical device." As a consequence of the addition of the proper shipping name "Safety devices, pyrotechnic," and special provision 161 being removed, paragraph (b)(2)(ii) is removed and reserved.

Paragraph (11) of this section prescribes additional requirements for shipments of radioactive materials made under authorized international standards or regulations. In this NPRM, PHMSA is proposing to incorporate by reference the 2012 IAEA SSR-6 regulations to allow shipments to be offered for transportation or transported under the most recent IAEA regulations. Several changes to the definition of excepted fissile materials and the requirements for its transport were adopted by the IAEA. Under their respective statutory authorities, DOT and the Nuclear Regulatory Commission (NRC) jointly regulate the transportation of radioactive materials to, from, and within the United States. The NRC has not initiated any rulemaking activities to address changes made by the IAEA regarding the transportation of excepted fissile materials. In order to maintain uniform treatment for shippers of excepted fissile materials, PHMSA is amending § 171.23 to require that shipments of excepted fissile materials offered in accordance with the IAEA SSR-6 regulations must also conform to the requirements of § 173.453.

Section 171.24

Section 171.24 details additional requirements for the use of the ICAO TI. In this NPRM, PHMSA is proposing to amend the marking requirement for packages containing primary lithium batteries and cells that meet the exceptions in paragraph (d)(1)(ii). Packages meeting these exceptions currently are required to be marked with an indication that they contain lithium batteries, and that these lithium batteries are forbidden for transport aboard passenger aircraft. PHMSA is proposing to allow the message that these batteries are forbidden for transport aboard passenger aircraft to be expressed through the current marking or by using a CARGO AIRCRAFT ONLY label as shown in §172.448.

Section 171.25

Section 171.24 details additional requirements for the use of the IMDG Code. In this NPRM, PHMSA is proposing to amend the marking requirement for packages containing primary lithium batteries and cells that meet the exceptions in § 173.185(c) in paragraph (b)(3). Packages meeting these exceptions currently are required to be marked with an indication that they contain lithium batteries, and that these lithium batteries are forbidden for transport aboard passenger aircraft. PHMSA is proposing to allow the message that these batteries are forbidden for transport aboard passenger aircraft to be expressed through the current marking or by using a CARGO AIRCRAFT ONLY label as shown in §172.448.

Part 172

Section 172.101

Section 172.101 provides instructions for using the Hazardous Materials Table (HMT) and the HMT itself. In this NPRM, PHMSA is proposing to revise the instructional text that precedes the HMT for paragraph (k) of this section.

Paragraph (k) of § 172.101 explains the purpose of column (10) of the HMT and prescribes the vessel stowage and segregation for specific entries in the HMT. Column (10) is divided into two columns: column (10A) [Vessel stowage] specifies the authorized stowage locations on board cargo and passenger vessels and column (10B) [Other provisions] specifies special stowage and segregation provisions. PHMSA is proposing to amend this instructional text to note that the codes in column 10B address not only codes for stowage requirements, but also, in certain instances, handling requirements that need to be observed during loading of the hazardous materials. The IMO, in amendment 37-14 of the IMDG Code, has split their stowage and segregation column (16) in the dangerous goods list into two columns and assigned codes to the existing stowage, handling, and segregation text. The new first column (16a) in the IMDG Code is entitled stowage and handling, and the second column (16b) is titled segregation. PHMSA is proposing to maintain the HMR's current column 10A and 10B system, with text in this section and § 176.84 indicating that handling/loading of hazardous materials is also covered by certain codes in column 10B. See Section 176.84 other requirements for stowage, cargo handling, and segregation for cargo vessels and passenger vessels for a detailed discussion of proposed changes.

Hazardous Materials Table (HMT)

In this NPRM, PHMSA is proposing to amend the HMT. Readers should review all changes for a complete understanding of the amendments. For purposes of the Government Printing Office's typesetting procedures, proposed changes to the HMT appear under three sections of the Table, "remove," "add," and "revise." Certain entries in the HMT, such as those with revisions to the proper shipping names, appear as a "remove"

and "add." Proposed amendments to the HMT include the following:

New HMT entries.

UN3507 Uranium hexafluoride, radioactive material, excepted package, less than 0.1 kg per package, non-fissile or fissile-excepted

This new HMT entry addresses small quantities of uranium hexafluoride having corrosive properties by assigning the material to Class 8 with a subsidiary risk of Class 7 since this would be more consistent with the general rule of classification of radioactive material in limited quantities possessing other hazards per § 173.423. Shipments must comply with new special provision 369 and requirements found in § 173.420(d).

UN3508 Capacitor, asymmetric with an energy storage capacity greater than 0.3Wh

This new HMT entry is intended to cover asymmetric capacitors with an energy storage capacity greater than 0.3 Wh. Asymmetric capacitors are assigned as a Class 9 miscellaneous hazardous.

UN3510 Adsorbed gas, flammable, n.o.s.

UN3511 Adsorbed gas, n.o.s.

UN3512 Adsorbed gas, toxic, n.o.s.

UN3513 Adsorbed gas, oxidizing, n.o.s.

UN3514 Adsorbed gas, toxic, flammable, n.o.s.

UN3515 Adsorbed gas, toxic, oxidizing, n.o.s.

UN3516 Adsorbed gas, toxic, corrosive, n.o.s.

UN3517 Adsorbed gas, toxic, flammable, corrosive, n.o.s.

UN3518 Adsorbed gas, toxic, oxidizing, corrosive, n.o.s.

UN3519 Boron trifluoride, adsorbed

UN3520 Chlorine, adsorbed

UN3521 Silicon tetrafluoride, adsorbed

UN3522 Arsine, adsorbed

UN3523 Germane, adsorbed

UN3524 Phosphorus pentafluoride, adsorbed

UN3525 Phosphine, adsorbed

UN3526 Hydrogen selenide, adsorbed

The "Adsorbed gas" HMT entries are added to address shipments of gas, which when packaged for transport, are adsorbed onto a solid porous material in a pressure receptacle. Entries classified as Division 2.3 gases are forbidden for transport by aircraft.

Duplicate entries for UN0214 Trinitrobenzene, *dry or wetted with less than 30 percent water, by mass* currently exist in the HMT; while the UN1354 entry has been inadvertently overwritten by one of these UN0214 entries in an unidentified previous rulemaking. PHMSA is proposing to remove one of the duplicate UN0214 entries, and to reinsert the correct UN1354 entry.

During the course of reviewing Column 10B (Vessel stowage Other codes) for harmonization with changes made in the 37-14 IMDG Code, PHMSA noticed that the entry for UN3231 Self-reactive liquid type B, temperature controlled is not currently listed in the HMR. This is believed to be the result of an inadvertent deletion in an unidentified rulemaking. PHMSA is proposing to reinstate the HMT entry for UN3231.

Amendments to the column (1) symbols.

Section 172.101(b) describes column (1) of the HMT and the associated symbols that may be indicated in the column. In accordance with § 172.101(b), the symbol "G" identifies proper shipping names for which one or more technical names of the hazardous material must be entered in parentheses in association with the basic description on a shipping paper. The symbol "I" indicates these proper shipping names are appropriate for describing materials in international transportation, but that an alternate proper shipping name may be selected when only domestic transportation is involved.

In this NPRM PHMSA is proposing to add international proper shipping names for "Asbestos , amphibole (amosite, tremolite, actinolite, anthophyllite, crocidolite)" and "Asbestos, chrysotile", and remove shipping descriptions for Blue, Brown, and White Asbestos. These new international proper shipping names for "Asbestos, amphibole" and "Asbestos, chrysotile" are proposed to have an "I" assigned in column one. PHMSA is also proposing to assign a "G" to the "Asbestos, amphibole" entry. The "G" indicates that the technical name(s) of the hazardous material must be entered in parentheses, in association with the basic description. In the case of this proposed proper shipping name, the technical name shown should be selected from the list of five different minerals (amosite, tremolite, actinolite, anthophyllite, crocidolite) indicated in italics after the proper shipping name. See the amendments to column (2) of the HMT for additional discussion regarding the revision of the proper shipping names for these entries.

Amendments to the column (2) hazardous materials descriptions and proper shipping names.

Section 172.101(c) describes column (2) of the HMT and the requirements for hazardous materials descriptions and proper shipping names.

The proper shipping name for "UN0222, Ammonium nitrate, with more than 0.2 percent combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance" is amended by removing the italicized text and placing the text into the new special provision 370.

The proper shipping name for "UN1942, Ammonium nitrate, with not more than 0.2% combustible materials, including any organic substance, calculated as carbon to the exclusion of any other added substance" is amended by replacing the word "materials" in italicized text with "substances" and the comma following "substance" is placed after the word "carbon." Due to the present placement of the comma in the description for the two ammonium nitrate entries, the 0.2% combustible materials/substances are measured differently. This amendment ensures that the 0.2% combustible level is calculated as carbon in the case of organic substances.

Two new proper shipping names "Asbestos , amphibole (amosite, tremolite, actinolite, anthophyllite, crocidolite)" and "Asbestos, chrysotile" are proposed to be assigned to identification numbers UN2212 and UN2590, respectively. These new proper shipping names more appropriately describe the material than the present "UN2212, Blue asbestos (Crocidolite) or Brown asbestos (amosite, mysorite)" and "UN2590, White asbestos (chrysotile, actinolite, anthophyllite, tremolite)." In the scientific community, Asbestos is divided into two chemical group names, "Amphiboles" and "Chrysotile". The amphibole group includes five different minerals (amosite, tremolite, actinolite, anthophyllite, crocidolite). The chrysotile group includes only the mineral chrysotile.

The proper shipping name for "UN3499, Capacitor, electric double layer (with an energy storage capacity greater than 0.3 Wh)" is amended by placing the phrase "electric

double layer" in Roman type. This amendment is necessary to differentiate this HMT entry from the new HMT entry, Capacitor, asymmetric.

A new proper shipping name "Safety devices, electrically initiated" is proposed to be assigned to identification number UN3268. Current proper shipping names assigned to UN3268 are "Air bag inflators, or Air bag modules, or Seat-belt pretensioners." The proposed proper shipping name more appropriately describes materials authorized under this HMT entry in conjunction with the proposed revision to special provision 160 to include a number of automotive industry life-saving appliances that are actuated by the electric signal of the crash sensor.

A new proper shipping name "Safety devices, pyrotechnic" is proposed to be assigned to identification number UN0503. The current proper shipping names assigned to UN0503 are "Air bag inflators, or Air bag modules, or Seat-belt pretensioners." The proposed proper shipping name more appropriately describes Class 1 materials authorized under this HMT entry.

The proper shipping name for "UN1082, Trifluorochloroethylene, stabilized" is amended by adding "Refrigerant gas R 1113" as an alternative proper shipping name for consistency with the Dangerous Goods Lists of the various international standards and the HMT of the HMR. The proposed proper shipping name for UN1082 is "Trifluorochloroethylene, stabilized or Refrigerant gas R 1113"

Amendments to Column (5) packing group.

Section 172.101(f) describes Column (5) of the HMT and the designation of the packing group(s) assigned to each proper shipping name.

For the entries "UN3316, Chemical kits" and "UN3316, First aid kits" the Packing

Groups II and III designations are proposed. The assignment of packing groups to these entries are not a new requirement; however, including packing group assignments in the HMT will ensure that shippers are aware that the most stringent packing group must be assigned to any individual substance in the kit in accordance 173.161(a)(2).

The HMT entries for several articles are revised to remove packing group assignments. For articles, the packing group does not relate to the degree of hazard posed by the material but rather is assigned generically to the article. There is limited value in requiring an indication of the packing group in association with the shipment. Currently and without specific rationale, some articles are assigned packing groups while others are not. This proposed change provides a level of consistency for all articles specifically listed in the HMT. In this NPRM, PHMSA is proposing to remove packing group assignments from the following HMT entries:

PROPER SHIPPING NAME	UN NUMBER
Ammunition, tear-producing, non-explosive, without burster or expelling charge, non-fuzed	UN2017
Ammunition, toxic, non-explosive, without burster or expelling charge, non-fuzed	UN2016
Batteries, containing sodium	UN3292
Lithium ion batteries including lithium ion polymer batteries	UN3480
Lithium ion batteries contained in equipment including lithium ion polymer batteries	UN3481
Lithium ion batteries packed with equipment including lithium ion polymer batteries	UN3481
Lithium metal batteries including lithium alloy batteries	UN3090
Lithium metal batteries contained in equipment including lithium alloy batteries	UN3091
Lithium metal batteries packed with equipment including lithium alloy batteries	UN3091
Mercury contained in manufactured articles	UN3506
Oxygen generator, chemical (including when contained in associated equipment, e.g., passenger service units (PSUs), portable breathing equipment (PBE), etc).	UN3356
Safety devices, electrically initiated*	UN3268
Tear gas candles	UN1700

* see amendments to Column 2

Amendments to the Column (7) special provisions.

Section 172.101(h) describes Column (7) of the HMT and § 172.102(c) the special provisions assigned to specific entries in the HMT. The particular modifications to the

entries in the HMT are discussed below. See Section 172.102 special provisions for a detailed discussion of the proposed additions, revisions, and deletions to the special provisions addressed in this NPRM.

In this NPRM, special provision 134 is added to the HMT entry "UN3072, Life-saving appliances, not self-inflating containing dangerous goods as equipment." The addition of this special provision will clarify that equipment containing only lithium batteries must be consigned under the entries "Lithium batteries contained in equipment" or "Lithium batteries packed with equipment," as appropriate.

Several HMT entries are revised to include new special provision 367. Special provision 367 authorizes the use of the "Paint related material" entries for consignments of packages containing "Paint" and "Paint related material" in the same package. This special provision also authorizes the proper shipping name "Printing ink related material" for consignments of packages containing "Printing Ink" and "Printing ink related material" in the same package.

In this NPRM, new special provision 367 is proposed to be assigned to the following entries:

PROPER SHIPPING NAME	UN NUMBER
Paint including paint, lacquer, enamel, stain, shellac solutions, varnish, polish, liquid filler, and liquid lacquer base	UN1263
Paint or Paint related material	UN3066
Paint, corrosive, flammable (including paint, lacquer, enamel, stain, shellac solutions, varnish, polish, liquid filler, and liquid lacquer base)	UN3470
Paint, flammable, corrosive, (including paint , lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base)	UN3469
Paint related material including paint thinning, drying, removing, or reducing compound	UN1263
Paint related material corrosive, flammable (including paint thinning or reducing compound)	UN3470
Paint related material, flammable, corrosive (including paint thinning or reducing compound)	UN3469
Printing ink, flammable or Printing ink related material (including printing ink thinning or reducing compound), flammable	UN1210

In this NPRM, we propose to add new special provision 368 to the HMT entry "UN2910, Radioactive material, excepted package-limited quantity of material."

In this NPRM, new special provision 369 is proposed to be assigned to the new HMT entry "UN3507, Uranium hexafluoride, radioactive material, excepted package, less than 0.1 kg per package, non-fissile or fissile-excepted."

In this NPRM, new special provision 370 is proposed to be assigned to the HMT entry "UN0222, Ammonium nitrate." This special provision contains qualifying language that previous to this NPRM, was part of the proper shipping name for UN0222

In this NPRM, new special provision 371 is proposed to be assigned to the HMT entry "UN3164, Articles, pressurized pneumatic or hydraulic containing non-flammable gas."

In this NPRM, new special provision 375 is proposed to be assigned to the HMT entries "UN3077, Environmentally hazardous substance, solid, n.o.s." and "UN3077, Environmentally hazardous substance, liquid, n.o.s."

In this NPRM, for the HMT Packing Group III entry "UN3089, Metal powders, flammable, n.o.s." special provision IB6 is replaced with IB8 and special provisions IP2, and IP4 are added. IB8 is presently assigned to the Packing Group II entry, therefore, fiberboard, wooden and flexible IBCs are allowed for the Packing Group II materials, but are forbidden for the less dangerous Packing Group III substance. These proposed revisions will correct the inconsistency.

In this NPRM, new special provision A61 is proposed to be assigned to the HMT entries "UN 3107, Organic peroxide type E, liquid" and "UN 3109, Organic peroxide type F, liquid"

Several HMT entries are revised to include new portable tank special provision TP47. Special provision TP47 indicates that the 2.5 year internal portable tank examination may be waived or substituted by other test methods or inspection procedures specified by the competent authority or its authorized body, provided that the portable tank is dedicated to the transport of the organometallic substances to which this tank special provision is assigned. However, this examination is required when the conditions of § 180.605(f) are met.

In this NPRM, new special provision TP47 is proposed to be assigned to the following entries:

PROPER SHIPPING NAME	UN NUMBER
Organometallic substance, liquid, pyrophoric, water-reactive	UN3394
Organometallic substance, liquid, water-reactive	UN3398
Organometallic substance, liquid, water-reactive, flammable	UN3399
Organometallic substance, solid, pyrophoric, water-reactive	UN3393
Organometallic substance, solid, water-reactive	UN3395
Organometallic substance, solid, water-reactive, flammable	UN3396
Organometallic substance, solid, water-reactive, self-heating	UN3397

Amendments to the Column (9) Quantity Limitations.

Section 172.101(j) describes Column (9) of the HMT and the quantity limitations for specific entries in the HMT. Furthermore, Columns (9A) and (9B) specify the maximum quantities that may be offered for transportation in one package by passenger-carrying aircraft or passenger-carrying rail car (Column (9A)) or by cargo-only aircraft (Column (9B)). The indication of "forbidden" means the material may not be offered for transportation or transported in the applicable mode of transport.

For the entry "UN3497, Krill meal" quantity limits of 15 kg and 50 kg for PG II, and 25 kg and 100 kg for PG III, are proposed for columns (9A) and (9B) respectively.

Previously, there was no limit to the amount authorized to be shipped in one package. These new quantity limits are consistent with authorized quantity limits found in the ICAO TI.

At the 24th meeting the ICAO DGP, it was agreed to incorporate certain UN numbers contained in the UN Model Regulations, but not currently listed in the ICAO TI. For the entry "UN2216, Fish meal, stabilized or Fish scrap, stabilized," the panel determined that it should be forbidden for transport on both cargo and passenger aircraft. Under the HMR, this entry is assigned a "W" in Column (1) meaning that the material is only subject to the requirements when offered or intended for transport by vessel. Because of this discrepancy, in this NPRM, PHMSA is soliciting public comment on any potential action to align with the ICAO TI (including potentially adding "A" to column one and forbidding this entry aboard both cargo and passenger aircraft) and what potential benefit or burden a change to these quantity limits for UN2216 could potentially impose upon shippers and air operators.

Amendments to the Column (10) vessel stowage requirements.

Vessel stowage location (10B).

Section 172.101(k) explains the purpose of column (10) of the HMT and prescribes the vessel stowage and segregation requirements for specific entries in the HMT. Column (10) is divided into two columns: column (10A) [Vessel stowage] specifies the authorized stowage locations on board cargo and passenger vessels and column (10B) [Other provisions] specifies special stowage and segregation provisions.

The IMO, in amendment 37-14 of the IMDG Code, split their stowage and segregation column (16) in the dangerous goods list into two columns and assigned codes

to the existing stowage, handling, and segregation text. The new first column (16a) in the IMDG Code is titled stowage and handling, and the second column (16b) is titled segregation. PHMSA is proposing to maintain the HMT's current column 10A and 10B, while also harmonizing our vessel stowage codes in columns 10A and 10B as closely as possible with those in amendment 37-14 of the IMDG Code. There are several instances where PHMSA is proposing to maintain additional codes (see UN numbers 0019, 0020, 0021, 0301, 0303, 1017, 1131, 1389, 1392, 1420, 1422, 1780, 1942, 1950, 2679, 2912, 3015, 3071, 3101-3106, 3108-3110, 3242, 3323, and 3497) that vary from IMDG Code stowage and segregation requirements. These additional stowage and segregation provisions vary by UN number, but are considered additional precautions deemed necessary to ensure the safe transport of these commodities during transportation by vessel. PHMSA welcomes comments on the continued need and or the impact of maintaining this limited number of domestic variations from the international stowage, handling, and segregation requirements.

During the preparation of this NPRM, PHMSA and the United States Coast Guard conducted an extensive review of all HMT entries to verify that domestic entries correspond as closely as possible with the provisions found in the IMDG Code. PHMSA is proposing numerous changes to the codes found in the HMT's column 10B [Other provisions] as a result of this review. The majority of the changes are a result of work done at the IMO to eliminate duplicate and unnecessary provisions. Some of the proposed changes to column 10B are proposed to harmonize existing differences in stowage, handling, and segregation provisions between the HMR and the IMDG Code. Recognizing that there are both shippers and carriers that only offer hazardous materials by vessel

domestically, PHMSA seeks comments on the costs and benefits to these domestic shippers and carriers of harmonizing the stowage provisions of the HMR with the provisions of the IMDG Code as proposed in this NPRM. PHMSA also solicits comments on the costs and benefits were we to maintain domestic stowage differences within the HMR. A table of proposed changes, listed in alphabetical order, showing the proper shipping name, UN identification number, any stowage codes proposed for removal, and any stowage codes proposed for addition is provided below. If a column is blank, no changes are proposed. The meaning of the codes in column 10B can be found either in § 176.84 or are listed in the § 176.84 Section-by-Section change portion of this NPRM.

Proper Shipping Name	UN ID Number	Proposed Removals	Proposed Additions
Aircraft hydraulic power unit fuel tank	UN3165		21, 40, 49, 100
Acrylamide, solid	UN2074		25
Acrylamide solution	UN3426		25
Aldol	UN2839		25
Alkali metal alloys, liquid, n.o.s.	UN1421		13, 148
Alkali metal amalgam, liquid	UN1389		13, 148
Alkali metal amalgam, solid	UN3401		13, 148
Alkali metal amides	UN1390		13, 148
Alkali metal dispersions, flammable or Alkaline earth metal dispersions, flammable	UN3482		13, 148
Alkali metal dispersions, or Alkaline earth metal dispersions	UN1391		13, 148
Alkaline earth metal alloys, n.o.s.	UN1393		13, 148
Alkaline earth metal amalgams, liquid	UN1392		13, 148
Alkaline earth metal amalgams, solid	UN3402		13, 148
Allyl chloroformate	UN1722		21, 100
Aluminum borohydride or Aluminum borohydride in devices	UN2870		13, 148
Aluminum carbide	UN1394		13, 148
Aluminum ferrosilicon powder (PG II and III)	UN1395		13, 148
Aluminum hydride	UN2463		13, 148
Aluminum phosphide	UN1397		13, 148
Aluminum powder, coated (PG II and III)	UN1309		13, 147, 148
Aluminum powder, uncoated (PG II and III)	UN1396		13, 148
Aluminum silicon powder, uncoated	UN1398		13, 148
Aluminum smelting by-products or Aluminum remelting by-products (PG II and III)	UN3170		13, 148
N-Aminoethylpiperazine	UN2815		25

Aminopyridines *(o-; m-; p-)*	UN2671		25
Ammonium nitrate based fertilizer	UN2067		124
Ammonium nitrate, liquid	UN2426		124
Ammonium nitrate	UN1942		66, 124
Ammonium polysulfide, solution (PG II and III)	UN2818		25
Ammonium sulfide solution	UN2683		25
Anisoyl chloride	UN1729		40
Antimony pentafluoride	UN1732		40
Arsenic bromide	UN1555		25
Barium	UN1400		13, 148
Barium alloys, pyrophoric	UN1854		13, 148
Barium azide, wetted	UN1571		36
Barium peroxide	UN1449	56	66, 148
Batteries, containing sodium	UN3292		13, 148
Beryllium, powder	UN1567		13, 147, 148
Boron tribromide	UN2692		25
Boron trifluoride dehydrate	UN2851		25
Boron trifluoride dimethyl etherate	UN2965		25
Bromoform			25
Bromine	UN1744		25
Bromine solutions (both PG I entries)	UN1744		25
Bromobenzyl cyanides, liquid	UN1694		25
Bromobenzyl cyanides, solid	UN3449		25
tert-Butyl hypochlorite	UN3255		40
Butyl mercaptan	UN2347		102
5-tert-Butyl-2,4,6-trinitro-m-xylene or Musk xylene	UN2956		40
Butyric acid	UN2820		25
Calcium	UN1401		13, 148
Calcium carbide (PG I and II)	UN1402		13, 148
Calcium cyanamide with more than 0.1 percent of calcium carbide	UN1403		13, 148
Calcium hydride	UN1404		13, 148
Calcium manganese silicon	UN2844		13, 148
Calcium peroxide	UN1457	56	66, 148
Calcium phosphide	UN1360		13, 148
Calcium, pyrophoric *or* Calcium alloys, pyrophoric	UN1855		13, 148
Calcium silicide (PG II and III	UN1405		13, 148
Carbon, activated	UN1362		25
Carbon (PG II and III)	UN1361		25
Castor beans or Castor meal *or* Castor pomace or Castor flake	UN2969		44, 122
Cerium, slabs, ingots, or rods	UN1333		13, 147, 148
Cerium, turnings or gritty powder	UN3078		13, 148
Cesium *or* Caesium	UN1407		13, 148
Chloroacetonitrile	UN2668		25
Chloroacetophenone, liquid, (CN)	UN3416		25
Chloroacetophenone, solid, (CN)	UN1697		25
Chlorocresols solution (PG II and III)	UN3437		25
Chloromethyl chloroformate	UN2745	21, 100	12
Chloronitrobenzenes, liquid	UN3409		44, 89, 100, 141

Chlorosilanes, water-reactive, flammable, corrosive, n.o.s	UN2988		13, 147, 148
Corrosive liquids, water-reactive, n.o.s. (PG I and II)	UN3094		13, 148
Corrosive solids, toxic, n.o.s. (PG III)	UN2923	95	
Corrosive solids, water-reactive, n.o.s. (PG I, II, and III)	UN3096		13, 148
Crotonic acid, liquid	UN3472		25
Crotonic acid, solid	UN2823		25
Cyanogen bromide	UN1889		52
Cyanuric chloride	UN2670		25
Cyclohexyl mercaptan	UN3054		102
1,1-Dichloro-1-nitroethane	UN2650		25
1,3-Dichloroacetone	UN2649		25
1,3-Dichloropropanol-2	UN2750		25
Diethylthiophosphoryl chloride	UN2751		25
Dipicryl sulfide, wetted	UN2852		36
2-Ethylhexyl chloroformate	UN2748	21, 100	
Ferrocerium	UN1323		13, 147, 148
Ferrosilicon with 30 percent or more but less than 90 percent silicon	UN1408		13, 148
Ferrous metal borings or Ferrous metal shavings or Ferrous metal turnings or Ferrous metal cuttings in a form liable to self-heating	UN2793		13, 148
Fuel cell cartridges or Fuel cell cartridges contained in equipment or Fuel cell cartridges packed with equipment, containing water-reactive substances	UN3476		13, 148
Hafnium powder, dry (PG I, II, and III)	UN2545		13, 148
Hexachlorocyclopentadiene	UN2646		25
Hexamethylenediamine, solid	UN2280		25
Hydrofluoric acid, with more than 60 percent strength	UN1790		25
Hydrofluoric acid, with not more than 60 percent strength	UN1790		25
Hydrogen, refrigerated liquid (cryogenic liquid)	UN1966		57
Hypochlorites, inorganic, n.o.s	UN3212	106	
Iron oxide, spent, or Iron sponge, spent obtained from coal gas purification	UN1376		13, 148
Isopropyl chloroformate	UN2407		21, 100
Life-saving appliances, not self inflating	UN3072		122
Life-saving appliances	UN2990		122
Lithium	UN1415		13, 148
Lithium aluminum hydride	UN1410		13, 148
Lithium aluminum hydride, ethereal	UN1411		13, 148
Lithium borohydride	UN1413		13, 148
Lithium ferrosilicon	UN2830		13, 148
Lithium hydride	UN1414		13, 148
Lithium hydride, fused solid	UN2805		13, 148
Lithium peroxide	UN1472		13, 148
Lithium silicon	UN1417		13, 148
Magnesium aluminum phosphide	UN1419		13, 148

Magnesium diamide	UN2004		13, 148
Magnesium granules, coated, particle size not less than 149 microns	UN2950		13, 148
Magnesium hydride	UN2010		13, 148
Magnesium *or* Magnesium alloys *with more than 50 percent magnesium in pellets, turnings or ribbons*	UN1869		13, 147, 148
Magnesium peroxide	UN1476		13, 148
Magnesium phosphide	UN2011		13, 148
Magnesium, powder or Magnesium alloys, powder (PG I, II, and III)	UN1418		13, 148
Magnesium silicide	UN2624		13, 148
Maleic anhydride	UN2215		95, 102
Maleic anhydride, molten	UN2215		95, 102
Malononitrile	UN2647		25
Maneb or Maneb preparations with not less than 60 percent maneb	UN2210		13. 148
Maneb stabilized or Maneb preparations, stabilized against self-heating	UN2968		13, 148
Metal powders, flammable, n.o.s. (PG II and III)	UN3089		74
Mercaptans, liquid, flammable, n.o.s. or Mercaptan mixture, liquid, flammable, n.o.s (PG I, II, and III)	UN3336		102
Mercaptans, liquid, flammable, toxic, n.o.s. or Mercaptan mixtures, liquid, flammable, toxic, n.o.s. (PG II and III)	UN1228		102
Mercaptans, liquid, toxic, flammable, n.o.s. or Mercaptan mixtures, liquid, toxic, flammable, n.o.s., flash point not less than 23 degrees C	UN3071		102
Metal catalyst, dry (PG I, II, and III)	UN2881		13, 147, 148
Metal hydrides, water reactive, n.o.s.(PG I and II)	UN1409		13, 148
Metal powder, self-heating, n.o.s. (PG II and III)	UN3189		13, 147, 148
Metal powders, flammable, n.o.s. (PG II and III)	UN3089		13, 74, 147, 148
Metallic substance, water-reactive, n.o.s. (PG I, II, and III)	UN3208		13, 148
Metallic substance, water-reactive, self-heating, n.o.s. (PG I, II, and III)	UN3209		13, 148
Methyl iodide	UN2644		25
Methyl magnesium bromide, in ethyl ether	UN1928		13, 148
Methyl vinyl ketone, stabilized			21, 100
Organic peroxide type B, liquid	UN3101	40	25
Organic peroxide type B, liquid, temperature controlled	UN3111	40	25
Organic peroxide type B, solid	UN3102	40	25
Organic peroxide type B, solid, temperature controlled	UN3112	40	25
Organic peroxide type C, liquid	UN3103	40	25
Organic peroxide type C, liquid, temperature	UN3113	40	25

controlled			
Organic peroxide type C, solid	UN3104	40	25
Organic peroxide type C, solid, temperature controlled	UN3114	40	25
Organic peroxide type D, liquid	UN3105	40	25
Organic peroxide type D, liquid, temperature controlled	UN3115	40	25
Organic peroxide type D, solid	UN3106	40	25
Organic peroxide type D, solid, temperature controlled	UN3116	40	25
Organic peroxide type E, liquid	UN3107	40	25
Organic peroxide type E, liquid, temperature controlled	UN3117	40	25
Organic peroxide type E, solid	UN3108	40	25
Organic peroxide type E, solid, temperature controlled	UN3118	40	25
Organic peroxide type F, liquid	UN3109	40	25
Organic peroxide type F, liquid, temperature controlled	UN3119	40	25
Organic peroxide type F, solid	UN3110	40	25
Organic peroxide type F, solid, temperature controlled	UN3120	40	25
Organometallic substance, liquid, pyrophoric	UN3392		13, 148
Organometallic substance, liquid, pyrophoric, water-reactive	UN3394		13, 52, 148
Organometallic substance, liquid, water-reactive (PG I, II, and III)	UN3398		13, 148
Organometallic substance, liquid, water-reactive, flammable (PG I, II, and III)	UN3399		13, 148
Organometallic substance, solid, pyrophoric, water-reactive	UN3393		13, 148
Organometallic substance, solid, water-reactive (PG I, II, and III)	UN3395		13, 148
Organometallic substance, solid, water-reactive, flammable (PG I, II, and III)	UN3396		13, 148
Organometallic substance, solid, water-reactive, self-heating (PG I, II, and III)	UN3397		13, 148
Oxidizing liquid, corrosive, n.o.s. (PG I)	UN3098	106	
Oxidizing liquid, corrosive, n.o.s. (PG II and III)	UN3098	106, 34	
Oxidizing liquid, n.o.s. (PG I, II, and III)	UN3139	106	
Oxidizing liquid, toxic, n.o.s (PG I, II, and III)	UN3099	106	
Oxidizing solid, corrosive, n.o.s (PG I, II, and III)	UN3085	106	
Oxidizing solid, flammable, n.o.s.	UN3137		13, 147, 148
Oxidizing solid, toxic, n.o.s. (PG I)	UN3087	106	
Oxidizing solid, toxic, n.o.s. (PG II and III)	UN3087	95, 106	
Oxidizing solid, water reactive, n.o.s.	UN3121		13, 148
Pentaborane	UN1380		13, 148
Peroxides, inorganic, n.o.s. (PG II and III)	UN1483		148
Persulfates, inorganic, aqueous solution,	UN3216		58

n.o.s.			
Pesticides, liquid, flammable, toxic, flash point less than 23 degrees C (PG I and II)	UN3021		40
Phenyl chloroformate	UN2746	21, 10	
Phosphorus heptasulfide, free from yellow or white phosphorus	UN1340		13, 147, 148
Phosphorus oxybromide	UN1939		25
Phosphorus pentabromide	UN2691		25
Phosphorus trioxide	UN2578		25
Phosphorus trisulfide, free from yellow or white phosphorus	UN1343		13, 147, 148
Piperazine	UN2579		25
Potassium	UN2257		13, 148
Potassium borohydride	UN1870		13, 148
Potassium, metal alloys, liquid	UN1420		13, 148
Potassium, metal alloys, solid	UN3403		13, 148
Potassium, metal alloys, solid	UN3403		13, 52, 148
Potassium peroxide	UN1491		148
Potassium phosphide	UN2012		13, 148
Potassium sodium alloys, liquid	UN1422		13, 148
Potassium sodium alloys, solid	UN3404		13, 148
Potassium superoxide	UN2466		13, 148
Pyrophoric liquid, inorganic, n.o.s	UN3194		13, 148
Pyrophoric liquids, organic, n.o.s	UN2845		13, 148
Pyrophoric metals, n.o.s., or Pyrophoric alloys, n.o.s.	UN1383		13, 148
Pyrophoric solid, inorganic, n.o.s.	UN3200		13, 148
Pyrophoric solids, organic, n.o.s.	UN2846		13, 148
Quinoline	UN2656		25
Rubidium	UN1423		13, 148
Seed cake with not more than 1.5 percent oil and not more than 11 percent moisture	UN2217		120
Self-reactive liquid type B	UN3221		25, 127
Self-reactive liquid type C	UN3223		25
Self-reactive liquid type C, temperature controlled	UN3233		25
Self-reactive liquid type D	UN3225		25
Self-reactive liquid type D, temperature controlled	UN3235		25
Self-reactive liquid type E	UN3227		25
Self-reactive liquid type E, temperature controlled	UN3237		25
Self-reactive liquid type F	UN3229		25
Self-reactive liquid type F, temperature controlled	UN3239		25
Self-reactive solid type B	UN3222		25, 127
Self-reactive solid type B, temperature controlled	UN3232		25
Self-reactive solid type C	UN3224		25
Self-reactive solid type C, temperature controlled	UN3234		25
Self-reactive solid type D	UN3226		25

Self-reactive solid type D, temperature controlled	UN3236		25
Self-reactive solid type E	UN3228		25
Self-reactive solid type E, temperature controlled	UN3238		25
Self-reactive solid type F	UN3230		25
Self-reactive solid type F, temperature controlled	UN3240		25
Sodium	UN1428		13, 148
Sodium aluminum hydride	UN2835		13, 148
Sodium borohydride	UN1426		13, 148
Sodium dinitro-o-cresolate, wetted	UN3369		28
Sodium hydride	UN1427		13, 148
Sodium peroxide	UN1504		13, 148
Sodium phosphide	UN1432		13, 148
Stannic phosphide	UN1433		13, 148
Strontium peroxide	UN1509		13, 148
Strontium phosphide	UN2013		13, 148
Titanium powder, dry (PG I, II, and III)	UN2546		13, 148
Titanium sponge granules or Titanium sponge powders	UN2878		13, 147, 148
Titanium trichloride, pyrophoric or Titanium trichloride mixtures, pyrophoric	UN2441		13, 148
Toxic by inhalation liquid, water-reactive, n.o.s. with an LC50 lower than or equal to 200 ml/m^3 and saturated vapor concentration greater than or equal to 500 LC50	UN3385		13, 148
Toxic by inhalation liquid, water-reactive, n.o.s. with an LC50 lower than or equal to 1000 ml/m^3 and saturated vapor concentration greater than or equal to 10 LC50	UN3386		13, 148
Toxic by inhalation liquid, water-reactive, flammable, n.o.s. with an LC50 lower than or equal to 200 ml/m3 and saturated vapor concentration greater than or equal to 500 LC50	UN3490		13, 148
Toxic by inhalation liquid, water-reactive, flammable, n.o.s. with an LC50 lower or equal to 1000 ml/m3 and saturated vapor concentration greater than or equal to 10 LC50	UN3491		13, 148
Toxic liquid, corrosive, inorganic, n.o.s. (PG I and II)	UN3289		40
Toxic liquid, inorganic, n.o.s (PG I, II, and III)	UN3287		40
Toxic liquids, water-reactive, n.o.s. (PG I and II)	UN3123		13, 148
Toxic solid, corrosive, inorganic, n.o.s. (PG I and II	UN3290		40
Toxic solid, inorganic, n.o.s. (PG I, II, and III)	UN3288		40
Toxic solids, water-reactive, n.o.s. (PG I and II)	UN3125		13, 148

Trifluoroacetic acid	UN2699		25
Trimethylacetyl chloride	UN2438		21, 100
Trinitrobenzene, wetted, with not less than 10% water, by mass	UN3367		28
Trinitrobenzoic acid, wetted with not less than 10% water by mass	UN3368		28
Trinitrobenzoic acid, wetted with not less than 30 percent water, by mass	UN1355		28
Trinitrochlorobenzene (picryl chloride), wetted, with not less than 10% water by mass	UN3365		28
Trinitrophenol (picric acid), wetted, with not less than 10 percent water by mass	UN3364		28
Trinitrotoluene (TNT), wetted, with not less than 10 percent water by mass	UN3366		28
Urea nitrate, wetted, with not less than 10 percent water by mass	UN3370		28
Vinylpyridines, stabilized	UN3073		100
Water-reactive liquid, corrosive, n.o.s. (PG I, II, and III)	UN3129		13, 148
Water-reactive liquid, n.o.s. (PG I, II, and III)	UN3148		13, 148
Water-reactive liquid, toxic, n.o.s. (PG I, II, and III)	UN3130		13, 148
Water-reactive solid, corrosive, n.o.s. (PG I, II, and III)	UN3131		13, 148
Water-reactive solid, flammable, n.o.s. (PG I, II, and III)	UN3132		13, 148
Water-reactive solid, n.o.s. (PG I, II, and III)	UN2813		13, 148
Water-reactive, solid, oxidizing, n.o.s. (PG II and III)	UN3133		13, 148
Water-reactive solid, self-heating, n.o.s. (PG I, II, and III)	UN3135		13, 148
Water-reactive solid, toxic, n.o.s. (PG I, II, and III)	UN3134		13, 148
Zinc ashes	UN1435		13, 148
Zinc dithionite or Zinc hydrosulfite	UN1931	49	13, 26, 123
Zinc peroxide	UN1516		13, 148
Zinc phosphide	UN1714		13, 148
Zinc powder or Zinc dust (PG I, II, and III)	UN1436		13, 148
Zirconium, dry, coiled wire, finished metal sheets, strip (thinner than 254 microns but not thinner than 18 microns)	UN2858		13, 147, 148
Zirconium, dry, finished sheets, strip or coiled wire	UN2009		13, 148
Zirconium powder, dry (PG I, II, and III)	UN2008		13, 148
Zirconium powder, wetted with not less than 25 percent water (a visible excess of water must be present) (a) mechanically produced, particle size less than 53 microns; (b) chemically produced, particle size less than 840 microns	UN1358		13, 147, 148
Zirconium scrap	UN1932		13, 148

Appendix B to § 172.101

Appendix B to § 172.101 lists Marine Pollutants regulated under the HMR. In this NPRM, PHMSA is proposing to revise the List of Marine Pollutants by adding sixty-two new entries consistent with the IMDG Code. These changes are proposed to include those substances that, by virtue of meeting the Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) defining criteria for marine pollutants, were either assigned a "P" in the dangerous goods list or identified in the alphabetical index to amendment 37-14 of the IMDG Code. The entry "Chlorotoluenes (meta-;para-)" would be removed based on its removal from the IMDG Code.

Section 172.102 Special Provisions

Section 172.102 lists special provisions applicable to the transportation of specific hazardous materials. Special provisions contain packaging requirements, prohibitions, and exceptions applicable to particular quantities or forms of hazardous materials. PHMSA is proposing the following revisions to § 172.102, special provisions:

Special Provision 28

Special provision 28 states that the dihydrated sodium salt of dichloroisocyanuric acid is not subject to the HMR. In this NPRM, PHMSA proposes to revise special provision 28 to convey that the dihydrated sodium salt of dichloroisocyanuric acid does not meet the definition of a Division 5.1 (oxidizer) and is not subject to the requirements of the subchapter unless it meets the criteria for inclusion in another Class or Division, such as Class 9, environmentally hazardous substance. Some formulations of the dihydrated sodium salt of dichloroisocyanuric acid meet the criteria for classification as an environmentally hazardous substance.

Special Provision 52

Special provision 52 authorizes use of the HMT entry "UN2067, Ammonium nitrate based fertilizer" for substances that do not exhibit explosive properties of Class 1 when tested in accordance with Test Series 1 and 2 of the UN Manual of Tests and Criteria, Part I. In this NPRM, PHMSA proposes to revise special provision 52 by removing the requirement to test in accordance with Test Series 1 because Test Series 2 determines whether such properties are indeed those of Class 1, not Test Series 1.

Special Provision 147

This special provision describes the composition of the material for which the use of the HMT entry "UN3375, Ammonium nitrate emulsion or Ammonium nitrate suspension or Ammonium nitrate gel, intermediate for blasting explosives" is authorized and prohibits the material from being classified and transported unless approved by the Associate Administrator. Special provision 147 requires that these substances must satisfactorily pass Test Series 8 of the UN Manual of Tests and Criteria, Part I, Section 18. Test Series 8 contains four test types. Tests 8(a), (b) and (c) are used for classification purposes while Test 8(d) is used to assess suitability for transport in portable tanks. The use of this entry (UN 3375) therefore requires only that Tests 8(a), (b) and (c) are satisfactorily passed. In this NPRM, PHMSA is proposing to revise special provision 147 by clarifying that Tests 8(a), (b) and (c), not the entire Test Series 8, are required for use in classification and subsequent approval by the Associate Administrator.

Special Provision 160

Special provision 160 is presently assigned to "UN3268, Air bag inflators, or Air bag modules, or Seat-belt pretensioners" in Class 9. Special provision 160 includes the

requirement that air bag inflators and modules must be tested in accordance with Test series 6 (c) of Part I of the UN Manual of Tests and Criteria. In this NPRM, PHMSA is proposing to revise special provision 160 in conjunction with revising the proper shipping name for UN3268 to "Safety devices, electrically initiated." The entry is revised to clarify that it applies to safety devices used in vehicles including vessels and aircraft, and pyromechanical devices that are added to the list of authorized devices. The development of safety products has seen significant progress since the introduction of UN3268 and the range of current products extends beyond what can presently be assigned to UN3268. Some of the newer safety products include elements that are actuated by the electrical signal of the crash sensor (e.g. pyromechanical devices). Examples include: devices that interrupt the electrical connection in case of emergency by disconnecting the main power cable in the vehicle from the battery to prevent short circuit and consequentially minimize the risk of fire in the vehicle; and actuators which are used for active headrests or for pedestrian protection to release special hinges of the engine hood. In addition, PHMSA is proposing to clarify that this entry does not apply to life saving appliances described in § 173.219 (UN Nos. 2990 and 3072).

Special Provision 161

Special provision 161 required that for domestic transportation the alternate shipping description "Articles, pyrotechnic for technical purposes" be used to describe air bag inflators, air bag modules and seat-belt pretensioners (UN0503) meeting the criteria for a Division 1.4G explosive. This was done to ensure a different shipping name was used to describe these articles to differentiate them from air bag inflators, air bag modules and seat-belt pretensioners (UN3268) in Class 9. In this NPRM, PHMSA proposes,

consistent with the UN Model Regulations, to adopt new proper shipping names for these items, "Safety devices" (UN3268) for these articles assigned to Class 9, and "Safety Devices, pyrotechnic" (UN0503) for these articles assigned to Division 1.4G. Since the proper shipping names for these items would no longer the same, there would be no need to use a different proper shipping name for these articles assigned to Division 1.4G. Therefore the need for this special provision would be obsolete and we propose to delete it from the regulations and to delete its reference from the UN0503 entry in the HMT. Under this proposed revision, for domestic transportation, air bag inflators, air bag modules and seat-belt pretensioners (UN0503) meeting the criteria for a Division 1.4G explosive, that are currently described as "Articles, pyrotechnic for technical purposes" would be described as "Safety devices, pyrotechnic" (UN0503).

Special Provision 238

Special provision 238 addresses the shipment of neutron radiation detectors. In this NPRM, PHMSA proposes to revise special provision 238 to align with the UN Model Regulations special provision 373 by expanding the transport conditions for neutron radiation detectors and radiation detection systems containing such detectors. Paragraph a. is restructured into: (a)(1), general transport requirements; (a)(2), requirements for radiation detectors transported as individual components; and (a)(3), requirements for completed neutron radiation detection systems containing detectors. Consistent with the UN Model Regulations, PHMSA is proposing the following revisions to the transport conditions: [1] in (a)(1), increase the total amount of gas authorized per detector from 12.8 grams to 13 grams; clarify that the minimum burst pressure is demonstrated by design type qualification testing; and add a new leaktightness standard; [2] in (a)(2), clarify that in

addition to being packed in a strong outer package, that the completed package must be capable of withstanding a drop of 1.8 meters (6-foot) without leakage of gas contents; and increase the total amount of gas from all detectors per outer packaging from 51.2 grams to 52 grams; and [3], in (a)(3), add a new requirement that for completed neutron radiation detection systems, the detectors must be contained in a strong sealed outer casing; and add a new requirement that the completed system must be capable of withstanding a 1.8 meter (6-foot) drop test without leakage unless a system's outer casing affords equivalent protection.

Special Provision 342

This special provision, assigned to "UN1040, Ethylene oxide or Ethylene oxide with nitrogen" allows sterilization devices containing ethylene oxide, conforming to the conditions in the special provision, and packaged in accordance with § 173.4a of the HMR to be offered for transportation and transported by all modes even though Column (9A) of the § 172.101 HMT lists the material as forbidden by passenger aircraft.

Consistent with the ICAO TI, in this NPRM, PHMSA is proposing to further clarify that irrespective of both Columns (9A) and (9B) of the § 172.101 HMT listing the material as forbidden, ethylene oxide conforming to the conditions in the special provision is eligible for air transport. Specifically, we are proposing to supplement the language in this special provision "irrespective of the restriction of §173.4a(b)" with "and the indication of "forbidden" in columns (9A) and (9B) of the § 172.101 table."

Special Provision 362

Special provision 362 specifies when a material can be considered a chemical under pressure. Specifically, the special provision states that classification of these materials is to

be based on hazard characteristics of the components in the propellant, the liquid, or the solid forms. In this NPRM, PHMSA proposes to revise special provision 362 by adding a new paragraph (f) to clarify that chemicals under pressure containing components forbidden for transport on both passenger and cargo aircraft must not be transported by air.

Special Provision 367

A new special provision 367 is proposed to clarify that the proper shipping name "Paint related material" or "Printing ink related material" may be used for consignments of packages containing both "Paint" and "Paint related material" or "Printing Ink" and "Printing ink related material" in the same package and sharing the same identification number (UN 1210, UN 1263, UN 3066, UN 3469, or UN 3470). For example, "UN1263, Paint including paint, lacquer, enamel, stain, shellac solutions, varnish, polish, liquid filler, and liquid lacquer base" and "UN1263, Paint related material" contained in the same package, may be consigned under the entry "UN1263, Paint related material including paint thinning, drying, removing, or reducing compound." Paint mainly consists of resin, pigment and solvent. Thinning compound consists of solvent as well. Thus under the same UN entry, there is no difference between "Paint" and "Paint related material" with regard to transport requirements.

Special Provision 368

In this NPRM, PHMSA proposes adding new special provision 368 and assigning it to "UN2910, Radioactive material, excepted package-limited quantity of material" to clarify that in the case of non-fissile or fissile-excepted uranium hexafluoride, the material must be classified under UN3507 or UN2978."

Special Provision 369

The 18th Revised Edition of the UN Model Regulations has adopted a new proper shipping name of "UN3507, Uranium hexafluoride, radioactive material, excepted package, less than 0.1 kg per package, non-fissile or fissile-excepted", to address small quantities of uranium hexafluoride containing corrosive properties, thus a new special provision is necessary in the HMR. In this NPRM, PHMSA proposes the assignment of special provision 369 to UN3507 to specify a primary hazard of Class 8 with subsidiary risk of Class 7, subject to certain conditions. The provisions in special provision 369 relating to conditions required when it is evident that packages have leaked are consistent with language proposed for inclusion in § 173.443(e) in HM-250 [Docket No. PHMSA-2009-0063]. PHMSA notes that if the proposed addition of these provisions in § 173.443(e) occurs, the portion of the text proposed in this NPRM referring to leaking packages may be replaced with a reference to § 173.443(e).

Special Provision 370

In this NPRM, PHMSA proposes adding new special provision 370 and assigning it to the revised HMT entry "UN0222, Ammonium Nitrate." As a result of the comma placement in the descriptions for the two ammonium nitrate entries, UN1942 and UN0222, the manner in which the 0.2% combustible materials/substances level is calculated would lead to different analyses and different, non-comparable results. In conjunction with revising the proper shipping name for UN0222 by removing the qualifying text, in this NPRM, PHMSA is proposing a new special provision assigned to UN0222 to include the qualifying text previously attached to the proper shipping name and further clarify the criteria for use of this entry by stipulating the following conditions: (1) ammonium nitrate with more than 0.2% combustible substances, including any organic substance calculated

as carbon, to the exclusion of any added substance; or (2) ammonium nitrate with not more than 0.2% combustible substances, including any organic substance calculated as carbon, to the exclusion of any added substance, that gives a positive result when tested in accordance with Test Series 2 of the UN Manual of Tests and Criteria, Part I.

Special Provision 371

In this NPRM PHMSA proposes adding a new special provision 371 and assigning it to "UN3164, Articles, pressurized pneumatic or hydraulic containing non-flammable gas." This special provision sets forth the requirements for confetti-shooters pressurized with gas instead of pyrotechnics. The shooter consists in principle, of a jacket of cardboard, the pressurized receptacle filled with compressed air or nitrogen, a lock mechanism made of plastics, a plug of rubber and a metal cap for closing the receptacle and different types of confetti. By turning a ring, or the bottom part of the shooter, a mechanism is unlocked and the pressurized gas is discharged so that the confetti is shot away for a few meters. This type of shooter does not contain any amount of explosives and therefore cannot be assigned to Class 1, and does not meet the requirements for gas cartridges or small pressure receptacles. The requirements set forth in the special provision ensure the same level of safety as for confetti-shooters with pyrotechnics.

Special Provision 372

In this NPRM, PHMSA proposes adding new special provision 372 and assigning it to the new HMT entry "UN3508, Capacitor, asymmetric." This special provision states that this entry applies to asymmetric capacitors with an energy storage capacity greater than 0.3 watt hours (Wh) and that asymmetric capacitors with an energy storage capacity of 0.3 Wh or less are not subject to the requirements of this subchapter. This special

provision also provides that nickel-carbon asymmetric capacitors containing Class 8 alkaline electrolytes must be transported as UN 2795, Batteries, wet, filled with alkali, electric storage.

Special Provision A60

Special provision A60 permits "UN2014, Hydrogen peroxide, aqueous solution," to be transported in excepted quantities. The special provision authorizes packagings to include a vent to permit the slow escape of gas (i.e. not more than 0.1 mL/hour per 30 mL inner packaging at 20 °C (68 °F) produced from gradual decomposition. As venting is permitted, the requirements of §§ 173.24(g)(1) and 173.27(c) are impracticable and should not apply. To address the issue, the ICAO DGP adopted a proposal to clarify these general requirements prohibiting venting should not be applicable. In this NPRM, we are proposing to harmonize with the ICAO TI with regard to waiving the general requirements of §§ 173.24(g)(1) and 173.27(c). Special provision A60 is revised accordingly.

Special Provision A61

In this NPRM, PHMSA proposes adding new special provision A61 and assigning it to the to the HMT entries "UN 3107, Organic peroxide type E, liquid" and "UN 3109, Organic peroxide type F, liquid." PHMSA proposes to align with Packing Instruction 570 of the ICAO TI to allow for limited venting of oxygen in the case of specialized peroxyacetic acid packagings when transported by cargo aircraft provided the packaging requirements of this special provision are met. It was reported to the ICAO DGP that peroxyacetic acid was commonly used as a sterilizer for health care purposes and that there is a need to transport the material by air for use in sterilizing medical equipment using custom packagings. The basis for the requirements that these specialized packagings must

meet originated from exemptions to permit the transport of this substance in small containers approved by appropriate national authorities in four States. The inclusion of this new special provision will eliminate the need for these exemptions and facilitate international transport.

IBC Codes and IP Codes

The introductory paragraph (c)(4) states that packagings are authorized for the Packing Group III entries of specific proper shipping names when either Special Provision IB3 or IB8 is assigned to that entry in the §172.101 Table. When no IB code is assigned in the §172.101 Table for a specific proper shipping name, or in §173.225(e) Organic Peroxide Table for Type F organic peroxides, use of an IBC or Large Packaging for the material may be authorized when approved by the Associate Administrator.

In this NPRM, PHMSA proposes to revise the introductory paragraph (c)(4) by adding a reference to § 173.185, preceding the reference to § 173.225(e), thereby authorizing the use of Large Packagings for lithium batteries without assigning IB3 or IB8 to the corresponding entries in the §172.101 Table. See Section 173.185 Lithium batteries for a detailed discussion of the proposed a use of rigid large packagings for lithium batteries.

In two final rules published in the Federal Register on January 19, 2011 (76 FR 3308; HM-215K) and January 7, 2013 (78 FR 988; HM-215L) the Table 1 (IBC Codes) in paragraph (c)(4) were editorially revised to remove UN Specifications 31A, 31B, 31N, 31H1, 31H2, 31HZ1, and 31HZ2 from IBC Codes IB4 through IB8. The revisions were consistent with amendments to international standards that removed the specifications from the indicated codes in the table because IBC Codes IB4 through IB8 are assigned to

solids, whereas, UN Specifications 31A, 31B, 31N, 31H1, 31H2, 31HZ1, and 31HZ2 are authorized for transportation of liquids in IBC Codes IB1 through IB3 and are assigned to liquid materials only. Information presented to the UN Committee of Experts on the Transport of Dangerous Goods (UNCOE) in this last biennium indicated that the removal of the above UN Specifications from IBC Codes IB4 through IB8 has created a problem. Prior to implementation of these revisions, certain liquid IBC types were used to transport powdery solids and solids that become liquid under conditions of transport. These solids may be loaded and unloaded from the IBC in liquid form raising the question of whether the remaining IBC's, which are intended for gravity or pressure discharge, are appropriate. The UN sub-committee adopted a proposal to reinstate the IBC's that were previously authorized. In this NPRM, we are proposing to harmonize with the UN Model Regulations by revising the IBC Codes IB4 through IB8 in paragraph (c)(4), the Table 1 (IBC Codes) to reinstate IBC's previously authorized.

A new IP Code 16 is added and assigned to UN3375. Consistent with international regulations, this special provision would authorize require IBCs of type 31A and 31N if approved by the Associate Administrator.

Special Provision TP47

In this NPRM, PHMSA proposes adding new special provision TP47 and assigning it to the organometallic substance HMT entries UN3393 through UN3399. The special provision waives the 2.5 year internal inspection for portable tanks used for the transport of liquid and solid organometallic substances provided that the portable tank remains in the dedicated service of transporting organometallic substances. However, all other required 2.5 year inspections and tests would still be performed, as well as the full 5 year periodic

test and inspection, which would include an internal inspection.

This special provision is added for the following reasons. Before an internal inspection can be performed, the tank must be cleaned and purged. In this process, it is difficult to ensure that all water or other impurities or contaminants introduced during the cleaning are fully removed before organometallic substances are again introduced into the tank potentially resulting in a dangerous reaction or have an effect on the purity of the product. Since these organometallic substances are fully compatible with, and, in particular, are not corrosive to the materials of construction used in such tanks, the likelihood that an internal inspection will reveal any corrosion, pitting or other deterioration of the tank is unlikely. In order to increase safety and avoid the risk of a dangerous reaction or product contamination the 2.5 year internal inspection is waived, provided the portable tank remains in the dedicated service of transporting organometallic substances and the tank does exhibit damaged or corroded areas, or leakage, or other conditions that indicate a deficiency in accordance with § 180.605(f).

Section 172.315

To promote the uniformity of markings, the UN Model Regulations have adopted revisions to clarify and standardize the specifications for limited quantity marking, including the air limited quantity marking. In this NPRM, PHMSA is proposing to revise the specifications for the limited quantity markings prescribed in § 172.315(a)(2) and (b)(2) to be consistent with the revised specifications for these markings in the UN Model Regulations. Also consistent with the UN Model Regulations, we propose to allow manufacturers and printers necessary time to retool to produce markings that conform to the revised specifications, and to allow for the depletion of supplies of existing markings.

PHMSA proposes a transitional period to authorize a limited quantity marking that is in conformance with the requirements of the regulations in effect on October 1, 2012, to be used until December 31, 2016.

Section 172.317

To promote the uniformity of the "Keep Away From Heat" handling mark throughout the international transportation community, revisions have been adopted in the ICAO Technical Instructions to clarify and standardize the specifications for this hazard communications element. In this NPRM, PHMSA is proposing to revise the specifications for the "Keep Away From Heat" handling mark prescribed in § 172.317(b) to be consistent with the revised specifications for this marking in the ICAO TI. Also, we propose to allow manufacturers and printers necessary time to retool to produce markings that conform to the revised specifications, and to allow for the depletion of supplies of existing markings. Thus we propose a transitional period to authorize a "Keep Away From Heat" handling mark that is in conformance with the requirements of the regulations in effect on October 1, 2012, to be used until December 31, 2016.

Section 172.322

In this NPRM, PHMSA is proposing to clarify in § 172.322(a)(2) and (b), that the marking requirements for marine pollutants are required unless otherwise provided for in the regulations.

In § 172.322 paragraph (e) PHMSA is proposing to delete the obsolete date of January 14, 2010 for the requirements for the marine pollutant mark.

To promote the uniformity of the marine pollutant mark throughout the international transportation community, the UN Model Regulations have adopted revisions

to clarify and standardize the specifications for this hazard communications element. In this NPRM, PHMSA is proposing to revise the specifications for the marine pollutant mark prescribed in § 172.322(e) to be consistent with the revised specifications for this marking in the UN Model Regulations. Also, to allow manufacturers and printers necessary time to retool to produce markings that conform to the revised specifications, and to allow for the depletion of supplies of existing markings, we propose a transitional period to authorize a marine pollutant mark that is in conformance with the requirements of the regulations in effect on October 1, 2012, to be used until December 31, 2016.

Section 172.327

To promote the uniformity of markings, in this NPRM, PHMSA is proposing to revise and clarify the specifications for the "petroleum sour crude oil" mark prescribed in § 172.327(a) to be consistent with the revised specifications for markings in the UN Model Regulations. Also, to allow manufacturers and printers necessary time to retool to produce markings that conform to the revised specifications, and to allow for the depletion of supplies of existing markings, we propose a transitional period to authorize a "petroleum sour crude oil" mark that is in conformance with the requirements of the regulations in effect on October 1, 2012, to be used until December 31, 2016.

Section 172.407

To promote the uniformity of hazard communications labels throughout the international transportation community, revisions have been adopted in the UN Model Regulations to clarify and standardize the specifications for labels. In this NPRM, PHMSA is proposing to revise the specifications for labels prescribed in § 172.407(a) to be consistent with the revised specifications for labels in the UN Model Regulations. In

addition, PHMSA is proposing to revise the (d)(2)(iii) that provides a color alternative for the symbol on the ORGANIC PEROXIDE LABEL to be consistent with the UN Model Regulations. Also to be consistent with the UN Model Regulations, and to allow manufacturers and printers necessary time to retool to produce labels that conform to the revised specifications, and to allow for the depletion of supplies of existing labels, we propose a transitional period to authorize a label that is in conformance with the requirements of the regulations in effect on October 1, 2012, to be used until December 31, 2016.

Finally, PHMSA is proposing to add paragraph (d)(2)(iv) to permit, consistent with the UN Model Regulations, a FLAMMABLE GAS label to be displayed on cylinders and gas cartridges for liquefied petroleum gases, where the symbol may be shown in the background color of the receptacle if adequate contrast is provided.

Section 172.512

The placarding requirements for freight containers and aircraft unit load devices are described in § 172.512. The reference in § 172.512(a)(3) to part 7; chapter 2, section 2.7 of the ICAO TI in this paragraph is inaccurate. This reference became inaccurate in the 2013–2014 Edition of the ICAO TI where the ICAO DGP re-designated part 7; chapter 2; section 2.6 as a new requirement for visibility of labels, moving all subsequent sections up. Part 7; chapter 2, section 2.7 of the ICAO TI now refers to replacement of labels, whereas section 2.8 refers to identification of unit load devices containing dangerous goods. PHMSA is revising this paragraph for the correct reference to cite part 7; chapter 2, section 2.8.

Section 172.519

To promote the uniformity of hazard communications placards throughout the

international transportation community, revisions have been adopted in the UN Model Regulations have adopted revisions to clarify and standardize the specifications for placards. In this NPRM, PHMSA is proposing to revise the specifications for placards prescribed in § 172.519(c) to be consistent with the revised specifications for labels in the UN Model Regulations. Additionally, to allow manufacturers and printers necessary time to retool to produce placards that conform to the revised specifications, and to allow for the depletion of supplies of existing placards, a transitional period is proposed. This transitional period would authorize a placard that is in conformance with the requirements of the regulations in effect on October 1, 2012, to be used until December 31, 2016. Finally, PHMSA realizes that in domestic transportation, numerous placards of a semi-permanent nature are in service. PHMSA is proposing that for domestic transportation, a placard manufactured prior to January 1, 2017, in conformance with the requirements of the regulations in effect on October 1, 2012, may continue in service until the end of its useful life provided the color tolerances are maintained and are in accordance with the display requirements of the subchapter.

Part 173

Section 173.2a

Section 173.2a outlines classification requirements for materials having more than one hazard. In this NPRM, PHMSA is proposing to amend paragraph (a)(1) to note that shipments of uranium hexafluoride, radioactive material, excepted package, less than 0.1 kg per package are not required to apply the radioactive hazard as the primary hazard. This change is being proposed to incorporate the transportation provisions for excepted packages of uranium hexafluoride adopted in the 18th Revised Edition of the UN Model

Regulations, the IMDG Code and the ICAO TI.

Section 173.3

To promote the uniformity of hazard communications markings throughout the international transportation community, the UN Model Regulations have adopted revisions to clarify and standardize the specifications for placards. In this NPRM, PHMSA is proposing to revise the specifications for markings for salvage packagings prescribed in § 173.3(c)(3); salvage cylinders prescribed in § 173.3(d)(3); and to prescribe requirements for the marking of the proposed large salvage packaging in § 173.3(f) to be consistent with the revised specifications for salvage packaging markings in the UN Model Regulations. Also, to be consistent with the UN Model Regulations, and to allow shippers necessary time to implement the new marking requirements, we propose a transitional period to authorize a marking that is in conformance with the requirements of the regulations in effect on October 1, 2012, to be used until December 31, 2016. Finally, PHMSA realizes that in domestic transportation numerous salvage and salvage cylinder markings are in service that are of a more permanent nature. In recognition of this PHMSA is proposing that for domestic transportation, a salvage packaging or a salvage cylinder that is permanently marked prior to January 1, 2017 in conformance with the requirements of the regulations in effect on October 1, 2012, may continue in service until the end of its useful life.

Also PHMSA is proposing to add a new paragraph (f) to § 173.3 authorizing and prescribing the use of large salvage packaging for all modes of transportation other than air.

Section 173.4a

To promote the uniformity of markings, throughout the international transportation community, the UN Model Regulations have been revised to clarify and standardize the specifications for the excepted quantities marking. In this NPRM, PHMSA is proposing to revise the specifications for the excepted quantities marking prescribed in § 173.4a(g)(2) to be consistent with the revised specifications for these markings in the UN Model Regulations. Also consistent with the UN Model Regulations, we propose to allow manufacturers and printers necessary time to retool to produce markings that conform to the revised specifications, and to allow for the depletion of supplies of existing markings, a transitional period is being proposed to authorize an excepted quantities marking that is in conformance with the requirements of the regulations in effect on October 1, 2012, to be used until December 31, 2016.

Section 173.9

To promote the uniformity of markings, UN Model Regulations have been revised to clarify and standardize the specifications for the fumigant marking. In this NPRM, PHMSA is proposing to revise the specifications for the fumigant marking prescribed in § 173.9(e) to be consistent with the revised specifications for these markings in the UN Model Regulations. Also consistent with the UN Model Regulations, to allow manufacturers and printers necessary time to retool to produce markings that conform to the revised specifications, and to allow for the depletion of supplies of existing markings, we propose a transitional period to authorize a fumigant marking that is in conformance with the requirements of the regulations in effect on October 1, 2012, to be used until December 31, 2016.

Section 173.11

In this NPRM, PHMSA proposes to add a new § 173.11 providing exceptions to the regulations for certain lamps containing hazardous materials based on their transport conditions, the quantity of hazardous materials contained in each lamp or package, and the type of packaging. This proposed new section is consistent with newly adopted provisions in the UN Model Regulations.

Section 173.24

In this NPRM, PHMSA proposes to revise § 173.24 to authorize the use of supplementary packagings within an outer packaging (e.g., an intermediate packaging or a receptacle inside a required inner packaging) in addition to what is required by the regulations provided all applicable requirements are met and, if appropriate suitable cushioning is used to prevent movement within the packaging. This proposed revision is consistent with newly adopted provisions in the UN Model Regulations.

Section 173.25

To promote the uniformity of markings, the UN Model Regulations have been revised to clarify and standardize the specifications for the overpack marking. In this NPRM, PHMSA is proposing to revise the specifications for the overpack marking prescribed in § 173.25(a)(4) to be consistent with the revised specifications for these markings in the UN Model Regulations. Also consistent with the UN Model Regulations, to allow manufacturers and printers necessary time to retool to produce markings that conform to the revised specifications, and to allow for the depletion of supplies of existing markings, we propose a transitional period to authorize an overpack marking that is in conformance with the requirements of the regulations in effect on October 1, 2012, to be used until December 31, 2016.

Section 173.62

Consistent with the UN Model Regulations, in this NPRM, PHMSA is proposing to revise §173.62 relating to specific packaging requirements for explosives as follows:

In paragraph (b), in the Explosives Table, the entry for UN0222 is revised to expand the packaging authorizations to include Packing Instruction 117 in addition to the existing Packaging Instructions 112(b) and 112(c).

In paragraph (c), in the Table of Packing Methods, Packing Instruction 116 would be revised to delete provision 5, which states that woven plastic bags (5H2 or 5H3) must be used only for UN 0082, 0241, 0331 and 0332. Packing Instruction 117 would be revised to add provision 5 which states, "For UN0222, when other than metal or rigid plastics IBCs are used, they must be offered for transportation in a closed freight container or a closed transport vehicle."; and provision 6 which states, "For UN0222, flexible IBCs must be sift-proof and water-resistant or must be fitted with a sift-proof and water-resistant liner." Packing Instructions 131 and 137 would be revised to expand the authorization for outer packagings to include solid plastic boxes (4H2).

Section 173.115

Section 173.115 prescribes the definitions for Class 2 materials. In this NPRM a new paragraph (m) is proposed to define the term "Adsorbed gas". The term means a gas which when packaged for transport is adsorbed onto a solid porous material resulting in an internal receptacle pressure of less than 101.3 kPa at 20 °C and less than 300 kPa at 50 °C.

Currently the HMR do not prescribe requirements for the transport of adsorbed gases. In this NPRM, PHMSA is proposing to adopt various transportation requirements for adsorbed gases. Prior to adoption of such standards, the term "Adsorbed gas" must be

defined. Therefore in this NPRM we are proposing to adopt the above definition of an adsorbed gas based on the definition found in the 18th Revised Edition of the UN Model Regulations, the IMDG Code and the ICAO TI.

Section 173.121

Section 173.121 prescribes the requirements for the selection of packing groups for Class 3 flammable liquids. Paragraph (b) of this section describes the criteria for inclusion of viscous Class 3 materials in Packing Group III. Paragraph (b)(1)(ii) currently states that the mixture cannot contain any substances with a primary or subsidiary risk of Division 6.1 or Class 8. In this NPRM, PHMSA proposes to revise paragraph (b)(1)(ii) to clarify that a mixture or any separated solvent cannot contain any substances with a primary or subsidiary risk of Division 6.1 or Class 8. This proposed change is consistent with the current language in the 18th Revised Edition of the UN Model Regulations, the IMDG Code and the ICAO TI.

Section 173.127

In this NPRM, PHMSA is proposing to revise § 173.127(a) to authorize an alternative test for assigning packing groups to Division 5.1 oxidizing solids. The proposed test is in addition to the currently authorized test using potassium bromate. The alternative test uses calcium peroxide as a reference substance which is neither carcinogenic nor as acutely toxic as potassium bromate. In addition, the proposed alternative test replaces the highly subjective visual determination of the burning time with a gravimetric determination of the burning rate. This change is consistent with the test adopted into the UN Model Regulations.

Section 173.151

Section 173.151 provides exceptions for Class. In this NPRM PHMSA is proposing to revise paragraph (b) to replace a pre-existing paragraph (b)(2) relating to exceptions for charcoal briquettes (NA1361) that was inadvertently deleted in the final rule dated January 7, 2013 (HM-215K; 78 FR 1101).

Section 173.161

Section 173.161 prescribes packaging requirements for chemical kits and first aid kits that contain small amounts of hazardous materials. Paragraph (b)(2) contains the requirement that "The packing group assigned to the chemical kit and first aid kit as a whole must be the most stringent packing group assigned to any individual substance in the kit." This requirement creates problems for shippers and air transport acceptance personnel because it does not specify what must be shown for the packing group on the shipping paper or what packaging standard must be applied to kits containing hazardous materials to which no packing group is assigned. In this NPRM, PHMSA is proposing to revise paragraph (b)(2) to require that for kits containing only hazardous materials to which no packing group is assigned, a packing group need not be indicated on the shipping paper although such packagings shall meet the Packing Group II performance level.

Section 173.164

Section 173.164 prescribes requirements for the transportation of Mercury (metallic and articles containing mercury). In this NPRM, PHMSA is eliminating the existing exception for lamps containing mercury in paragraph (b)(5). This paragraph will be redundant and unnecessary since this exception will be covered in the proposed new § 173.11 relating to exceptions for shipment of lamps containing hazardous materials.

Section 173.166

Section 173.166 prescribes requirements for the transportation of air bag inflators, air bag modules and seat-belt pretensioners, UN3268 and UN0503. Due to technological developments, new safety devices for vehicles are becoming available. The devices include pyromechanical devices that meet the definition of a hazardous material but are not accurately described by the proper shipping names Air bag inflators, Air bag modules, or Seat-belt pretensioners. The proper shipping name for these devices has been revised in the UN Model Regulations to "Safety devices, electrically initiated" for UN 3268 and "Safety devices, pyrotechnic" for UN0503. Consistent with the UN Model Regulations, in this NPRM, PHMSA is proposing to adopt these revised proper shipping names and revise § 173.166 to adopt the term "Safety Devices" for these items. An entry for the existing proper shipping name "Air bag inflators, or Air bag modules, or Seat-belt pretensioners" has been left in the § 172.101 Hazardous Materials Table to direct the reader to the new proper shipping names "Safety devices, electrically initiated" and "Safety devices, pyrotechnic."

Also, The current § 173.166(b)(1)(iv) provides that under certain conditions a Class 9 (UN3268) air bag inflator, air bag module, or seat-belt pretensioner design is not required to be submitted to the Associate Administrator for approval or assigned an EX number. Air bag inflators, air bag modules, and seat-belt pretensioners have a long history of safety in their design and manufacture. However, new types of safety devices such as pyromechanical devices do not yet have an established history. Therefore in the interest of safety PHMSA is proposing not to extend this exception to all Class 9 safety devices but only maintain this exception for air bag inflators, air bag modules, and seat-belt pretensioners and still require that other types of safety devices, such as pyromechanical

devices, that are candidates for Class 9 be submitted to the Associate Administrator for approval or assigned an EX number. Finally, in this NPRM, PHMSA proposes to add a new paragraph (d)(5) to § 173.166 to permit the continued transportation of an air bag inflator, air bag module, or seat-belt pretensioner that was classed and approved for transportation prior to January 1, 2015 under the terms of the existing approval, using the proper shipping name "Safety Devices" or "Safety Devices, Pyrotechnic" as appropriate.

Section 173.167

Section 173.167 prescribes the requirements for consumer commodities intended for air transportation. In this NPRM, PHMSA is proposing to revise the drop test requirements in (a)(4) by including the criteria for passing the test. A completed consumer commodity package will be considered to have passed the drop test if the outer packaging does not exhibit any damage liable to affect safety during transport and there is no leakage from the inner packaging(s).

Section 173.176

Section 173.176 addresses capacitors by prescribing the testing, marking, safety, and packaging requirements for electric double layer capacitors with energy storage capacity greater than 0.3 watt hours (Wh). In this NPRM, PHMSA is proposing to revise section 173.176 to include provisions for asymmetric capacitors in accordance with the new HMT entry "UN3508, Capacitor, asymmetric (with an energy storage capacity greater than 0.3Wh)." In addition, paragraph (a)(5) presently requires that capacitors must be marked with the energy storage capacity in Wh. As many pre-existing capacitors do not have Wh marking they are not permitted to be transported even when all other requirements of this section are met. In this NPRM, PHMSA is proposing to amend

paragraph (a)(5) to require that the Wh marking is required for non-asymmetric capacitors manufactured after December 31, 2013 and for asymmetric capacitors manufactured after December 31, 2015.

Section 173.181

Section 173.181 prescribes the non-bulk packaging requirements applicable to pyrophoric liquids. On January 7, 2013, PHMSA published final rule PHMSA–2012–0027 (HM–215L) [78 FR 987] to maintain alignment with international standards by incorporating various amendments, including changes to proper shipping names, hazard classes, packing groups, special provisions, packaging authorizations, air transport quantity limitations, and vessel stowage requirements. In that final rule PHMSA revised paragraphs (b) and (c) to add authorizations for additional authorized packagings for these materials. Paragraphs (c) 1-3 were inadvertently deleted due to an incorrect amendatory instruction and in this NPRM PHMSA is proposing to place paragraphs (c) 1-3 back into § 173.181 as they were prior to the publication of HM-215L. It was never PHMSA's intention to remove these important safety provisions for the transport of pyrophoric liquids, and we ask individuals who package and offer these materials to continue to abide by these requirements pending their reinsertion in the HMR.

Section 173.185

In this NPRM, PHMSA is proposing to add paragraph (b)(6) and revise paragraph(f)(3) to authorize and prescribe the use of a large packaging for a single large lithium battery or a battery contained in equipment. This authorization does not include transportation by aircraft. The proposed addition of this packaging type into this section is consistent with provisions for lithium batteries in the UN Model Regulations.

The ICAO DGP took a decision during the most recent biennium to remove the alternative written documentation option in Section IB of ICAO Packing Instructions 965 and 968 and instead require a standard transport document (shipping paper). Section IB is applicable to packages that exceed the number or quantity (mass) limits for smaller lithium batteries in Section II of Packing Instructions 965 and 968 excepting such packages from specification packaging requirements when containing no more than 2.5 kg of lithium metal cells or batteries or 10 kg of lithium ion cells or batteries per package. As this revision will appear in the 2015-2016 Edition of the ICAO TI, in this NPRM PHMSA is proposing to amend paragraph (c)(4)(v) to require a shipping paper for these packages containing no more than 2.5 kg of lithium metal cells or batteries or 10 kg of lithium ion cells or batteries per package. PHMSA is seeking input as to the costs and benefits of harmonizing the provisions of the HMR with the provisions of the ICAO Technical Instructions by requiring shipping papers as opposed to alternative documentation. PHMSA also solicits comments on the costs and benefits of maintaining a domestic difference within the HMR to continue to allow the use of the alternative documentation in lieu of a shipping paper as required by the ICAO Technical Instructions.

The ICAO Working Group on Lithium Batteries, at their April 2014 meeting, forbid the shipment of lithium metal cells and batteries as cargo on passenger aircraft with the exception of lithium metal cells and batteries packed with or contained in equipment not exceeding 5 kg net weight. This prohibition of lithium metal batteries as cargo on passenger aircraft is consistent with current HMR requirements. As a consequence to this prohibition, Section II of Packing Instruction 968 in the ICAO TI was amended to require shipments of small lithium metal cells and batteries to display the “CARGO AIRCRAFT

ONLY" label where previously only a lithium battery handling marking was required. Presently under the HMR, a package containing such lithium metal cells or batteries as provided in § 173.185(c)(1)(iii), is required to be marked "PRIMARY LITHIUM BATTERIES—FORBIDDEN FOR TRANSPORT ABOARD PASSENGER AIRCRAFT" or "LITHIUM METAL BATTERIES—FORBIDDEN FOR TRANSPORT ABOARD PASSENGER AIRCRAFT." Following the change to the ICAO TI, the present text marking will now be redundant for international shipments. In this NPRM, PHMSA is proposing to provide an alternative to the existing marking requirement in § 173.185(c)(1)(iii) with the option to display a "CARGO AIRCRAFT ONLY" label. This allowance to either utilize the current marking or the "CARGO AIRCRAFT ONLY" label will provide shippers with the flexibility to utilize supplies of preprinted markings or packagings, while also allowing shippers to transition to the use of the "CARGO AIRCRAFT ONLY" if desired.

Section 173.199

To promote the uniformity of markings, the UN Model Regulations have been revised to clarify and standardize the specifications for the square-on-point marking for Category B infectious substances. In this NPRM, PHMSA is proposing to revise the specifications for the Category B infectious substance marking prescribed in § 173.199(a)(5) to be consistent with the revised specifications for these markings in the UN Model Regulations. Also consistent with the UN Model Regulations, to allow manufacturers and printers necessary time to retool to produce markings that conform to the revised specifications, and to allow for the depletion of supplies of existing markings, we propose a transitional period to authorize a Category B infectious substance marking

that is in conformance with the requirements of the regulations in effect on October 1, 2012, to be used until December 31, 2016.

Section 173.225

Section 173.225 prescribes packaging requirements and other provisions for organic peroxides. In this NPRM, PHMSA is proposing to revise the Organic Peroxide Portable Tank Table in paragraph (g). PHMSA proposes to revise the entry in the second column of the table pertaining to the hazardous material "Peroxyacetic acid, distilled, stabilized, not more than 41%" to include a Note 1, that a ""Corrosive" subsidiary risk placard is required." The proposed adoption of this requirement is consistent with the requirements in the UN Model Regulations.

Section 173.231

Currently, the § 172.101 HMT Column (8B) and (8C) packaging authorization for Ammonium nitrate emulsion, suspension, or gel, UN3375, directs the reader to § 173.214 which requires that packagings and method of shipment must be approved by the Associate Administrator prior to the first shipment. In this NPRM, PHMSA is proposing to add a new § 173.231 titled "Ammonium nitrate emulsion, suspension or gel" and assigned this section to UN3375 to authorize and prescribe the use of packagings for this material. The requirements of the proposed new section are consistent with the requirements in the UN Model Regulations.

Section 173.301b

In this NPRM, PHMSA is proposing to revise paragraph (c) relating to pressure receptacle valve requirements to include that a valve manufactured on or before December 31, 2008, conforming to the requirements in ISO 10297:1999 is authorized. This proposed

revision is consistent with the requirements in the UN Model Regulations.

Section 173.302

In this NPRM, PHMSA is proposing to adopt the new UN Model Regulation requirements for the transportation of adsorbed gases in cylinders. This section specifies requirements for the filling of cylinders with non-liquefied (permanent) compressed gases. PHMSA is proposing to amend the title of this section and to amend paragraph (a) to include and specify requirements for the transportation of adsorbed gases.

Section 172.302c

In this NPRM, PHMSA is proposing to add a new § 173.302c to adopt the new authorization in the UN Model Regulations for the transportation of adsorbed gases in UN pressure receptacles. The proposed adoption of these requirements into this new section is consistent with the requirements in the UN Model Regulations.

Section 173.307

Section 173.307 provides exceptions from the regulations for compressed gases. In this NPRM, PHMSA is proposing to revise paragraph (a)(5) relating to manufactured articles or apparatuses to clarify that the exception for manufactured articles does not include lamps. The exceptions for lamps are contained in the proposed new § 173.11 relating to exceptions for shipment of lamps containing hazardous materials. Also, we are proposing to revise paragraph (a)(6) relating to light bulbs to clarify that the exceptions does not apply to lamps as described in the proposed new § 173.11 relating to exceptions for shipment of lamps containing hazardous materials.

Section 173.309

Section 173.309 prescribes requirements for fire extinguishers. In this NPRM, we

are proposing to add a new introductory paragraph describing fire extinguisher types authorized for transport in accordance with this section and covered by the HMT entry "UN1044, Fire extinguishers."

Section 173.403

Consistent with the UN Model regulations, in this NPRM, PHMSA is proposing to revise two definitions in § 173.403 relating to the transportation of Class 7 (Radioactive Materials). "Exclusive Use" is being revised to clarify that it also applies to the shipment of the load and that exclusive use only applies when compliance is required by the regulations. "Freight Container" is being revised to eliminate the requirement that a "small freight container" has one outer dimension less than 1.4 m (4.9 feet).

Section 173.420

Section 173.420 prescribes the transport conditions for Uranium hexafluoride. In this NPRM PHMSA is proposing to amend paragraph (d) which provides the requirements for shipments of uranium hexafluoride in quantities less than 0.1 kg to incorporate changes made by the IAEA in SSR-6 that were subsequently incorporated in the UN Model Regulations. In this NPRM PHMSA is proposing to amend this paragraph to note that fissile-excepted shipments less than 0.1 kg may be offered under UN3507. PHMSA is proposing to amend the requirements for these shipments to align with IAEA SSR-6 requirements, while maintaining general packaging requirements from §§ 173.24 and 173.24a.

Part 175

Section 175.9

Section 175.9 prescribes the applicability of the HMR to special aircraft and

rotocraft operations. This section also prescribes the conditions under which certain operations may be performed in accordance with 14 CFR and 49 CFR (e.g., avalanche and weather control). Consistent with the ICAO TI, in this NPRM, PHMSA is proposing to revise paragraphs (b)(6) and (b)(6)(v) by including "ice jam control" and "landslide clearance" for operations where explosives are used in a similar manner to avalanche control.

Section 175.10

Section 175.10 specifies the conditions for which passengers, crew members, or an operator may carry hazardous materials aboard an aircraft. Consistent with revisions to the ICAO TI, in this NPRM, PHMSA is proposing several revisions to this section.

PHMSA is proposing to revise paragraph (a)(11), applicable to passenger provisions for self-inflating life jackets, to include different types of self-inflating personal safety devices in order to account for those carried by, but not limited to, motorcycle and horseback riders. In addition, PHMSA is clarifying that a passenger is limited to one self-inflating safety device, in addition to two spare cartridges, and is requiring that both the safety device and spares be packed in such a manner that they cannot be accidently activated.

PHMSA is proposing to add a new subparagraph (a)(18)(iv) to clarify that articles containing lithium metal or lithium ion cells or batteries, with a primary function to provide power to another device, must carried as spare batteries in accordance with the provisions of this paragraph.

PHMSA is proposing to revise paragraph (a)(24), applicable to small cartridges for other devices, by amending the phrase "small cylinders" to the more appropriate phrase

"small cartridges," and restricting the carriage of small gas cartridges to only those without a subsidiary risk. The existing operator approval requirement was moved to make it more clearly align with the ICAO TI.

Section 175.25

Section 175.25 prescribes the notification that operators must provide to passengers regarding restrictions on the types of hazardous material they may or may not carry aboard an aircraft on their person or in checked or carry-on baggage. Consistent with revisions to the ICAO TI, in this NPRM, PHMSA is proposing to revise paragraph (b) as follows: (1) for all ticket purchases, clarify that the hazardous materials notification must be presented at the point of ticket purchase, or if this is not practical, made available to passengers in another manner prior to the check-in process and; (2) for such internet purchases, require that the final ticket purchase cannot be completed until the passenger or a person acting on the passenger's behalf has been presented with this information, in addition to the existing requirement to indicate that they understand the restrictions on hazardous materials in baggage. In this NPRM, PHMSA is proposing to revise paragraph (c) as follows: (1) replace the text "provided" with "presented" to make it clear that passengers must see information on the types of hazardous material forbidden to be transported before proceeding with check-in. It was reported that some operators published the required information in areas on a website that were not always visible to the passenger, believing that this met the requirement of being "provided" and; (2) require that the check-in process cannot be completed until the passenger or a person acting on the passenger's behalf has been presented with the hazardous materials information, in addition to the existing

requirement to indicate that they understand the restrictions on hazardous materials in baggage.

In paragraphs (b) and (c) PHMSA is proposing to remove the present effective dates of January 1, 2015 and the word "phone" used as an example of a ticket purchase or check-in completed remotely. Furthermore, PHMSA is proposing to remove the words "regardless if the process is completed remotely (e.g., via the Internet and Phone) or when completed at the airport, with or without assistance from another person (e.g., automated check in facility)" in order to bring paragraph (b) into full alignment with 7;5.1.1 of the ICAO TI. By removing the examples in conjunction with other revisions to paragraph (b) it is now clear that passenger notification is required for all ticket purchases; however, for assisted ticket purchase transactions via the telephone the hazardous material information may be provided to the passenger using any suitable method prior to the check-in process and passenger acknowledgement is not required. These revisions represent full harmonization with the ICAO TI and additional flexibility in meeting the passenger notification requirements and, therefore, the previous effective date of January 1, 2015 will be waived as of publication of the rule.

In addition, the revision proposed in this NPRM providing clarification for ticket purchases made via the telephone, permitting the hazardous materials notification to be made available in another manner to passengers prior to the check-in process, is consistent with a petition for rulemaking (P-1623) filed by COSTHA.

Section 175.30

Section 175.30 prescribes inspection procedures for operators. Paragraph (e)(1) prohibits an overpack from containing a package bearing the "CARGO AIRCRAFT

ONLY" label unless certain conditions are met and that the overpack affords clear visibility of and easy access to the package contained within. In this NPRM, PHMSA is proposing to remove paragraph (e)(1) consistent with revisions made to the ICAO TI in which current provisions require accessibility to the overpack when loaded aboard an aircraft, not the individual packages contained within, making reference to packages redundant. As the loading requirements in § 175.75(d)(1) require a package bearing the "CARGO AIRCRAFT ONLY" label to be accessible once loaded on the aircraft, but do not require they are visible, the requirements in (e)(1) place an unnecessary burden on offerers without any additional safety function in the loading process.

Paragraph (a)(5) states that no person may accept for transportation aboard an aircraft shipments of lithium batteries described with an alternative written document authorized in § 173.185(c)(4)(v). The proposed removal of the alternative written document from § 173.185(c)(4)(v) necessitates the removal of this paragraph.

Section 175.33

Section 175.33 establishes requirements for shipping papers and for the notification of the pilot-in-command when hazardous materials are transported by aircraft.

With the exception of package type, paragraph (a)(1)(i) currently requires any additional shipping paper description requirements provided in §§ 172.202, and 172.203 to be included on the notification of the pilot-in-command. Section 172.203(k) requires the use of technical names for "n.o.s." and generic descriptions for proper shipping names identified by the letter "G" in column (1) of the § 172.101 Table. In this NPRM, PHMSA is proposing to revise paragraph (a)(1)(i) to state that technical names are not required to be provided on the notification of pilot-in-command. This clarification will align the HMR

with changes adopted in the ICAO TI and supports the overall goal of harmonization. Harmonization of the notification of pilot-in-command requirements ensures consistency across all air operators thus reducing impediments in commerce and reducing costs associated with training to two different sets of standards. In addition, the technical name is not referenced in the Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods (Doc 9481) or the North American Emergency Response Guidebook (ERG). The ICAO panel determined that the technical names provided little benefit to safety, particularly during the initial stage of emergency response while the number of materials requiring a technical name is on the rise, thereby increasing the burden on operators to provide this information. In addition, the technical name is not referenced in the Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods (Doc 9481) or the North American Emergency Response Guidebook (ERG).

Paragraphs (a)(12) and (c)(5) both mention the alternative written document authorized in § 173.185(c)(4)(v). The proposed removal of the alternative written document from § 173.185(c)(4)(v) necessitates the removal of these paragraphs. Any information required to be a part of the notification of the pilot-in-command previously under paragraph (a)(12) will be detailed on a shipping paper and be included on the notification of the pilot-in-command.

Section 175.630

Section 175.630 prescribes special requirements for Division 6.1 (Toxic) and 6.2 (Infectious) materials in the HMT. Consistent with revisions to the ICAO TI, in this NPRM, PHMSA is proposing to remove paragraph (a) which prescribes segregation requirements for loading certain Division 6.1 or Division 6.2 materials in the same

compartment of an aircraft with material marked as or known to be a foodstuff, feed, or any other edible material intended for consumption by humans or animals. At the time these segregation requirements were initially included in the ICAO TI and the HMR, the packing instructions were much less detailed than they are at present. The UN Model Regulations do not impose segregation requirements for Division 6.2 infectious substances. The segregation requirements for infectious substances under the ICAO TI and HMR only apply to UN2814 and UN2900 which already require robust triple packagings. For Division 6.1, the UN Recommendations allow the segregation requirements to be relaxed for substances in Packing Groups II and III, provided the competent authority is satisfied that the packing and segregation are adequate to prevent contamination. In addition, the inspection procedures prescribed in § 175.30 require a physical check to ensure that the packagings are free from damage. The revisions proposed in this NPRM are consistent with a petition for rulemaking (P-1631) filed by UPS, Inc., who voiced strong support for such action.

Section 175.705

Section 175.705 prescribes requirements for aircraft that have been contaminated with radioactive material and the procedures that must be followed prior to returning the aircraft to service. Consistent with revisions to the ICAO TI, in this NPRM, PHMSA is proposing to revise paragraph (c) by stating that the dose rate at every accessible surface "must not exceed" 0.005 mSv per hour, where it presently states "is less than".

Part 176

Section 176.80

Section 176.80 details segregation requirements in addition to any segregation

requirements set forth elsewhere in subchapter C. In this NPRM PHMSA is proposing a prohibition on stowing goods of Division 1.4, compatibility group S in the same compartment or hold, or cargo transport unit with hazardous materials of Class 1 of compatibility groups A and L. Limited quantity shipments are currently excepted from segregation requirements for vessel transport by both the IMDG Code and the HMR. The IMO noted that when creating this exception a long standing prohibition on stowing limited quantity goods of division 1.4, compatibility group S in the same compartment or hold, or cargo transport unit with hazardous materials of Class 1 of compatibility groups A and L was not carried over into amendment 36-12 of the IMDG Code. Amendment 37-14 of the IMDG Code reinstates these segregation provisions, and PHMSA is proposing an equivalent change.

Section 176.83

Section 176.83 details segregation requirements for hazardous materials vessel transport. Paragraph (b) includes a table for users to determine segregation requirements between various Classes (Divisions) of hazardous materials. In this NPRM, PHMSA proposes to amend the segregation requirements for vessel transportation between hazardous materials of Class 4.3 (dangerous when wet) and Class 2.1 (flammable gas), and Class 3 (flammable liquid). Proposed changes in the segregation table in paragraph (b) are to change the segregation requirements between goods of Class 4.3 and Class 2.1 from an "x" (segregation, if any, is shown in the § 172.101 table) to a "2" (separated from), and between goods of Class 4.3 and Class 3 from a "1" (away from) to a "2" (separated from). The meaning of these terms differs depending on the method of transport onboard a vessel (shipping break-bulk cargo versus segregation of cargo transport units on board container

vessels). PHMSA assumes the majority of commodities transported by vessel that will be affected by the proposed changes, are offered in closed cargo transport units (CTU). A description of the proposed changes, and how they will be impact these CTUs, is outlined in the following table.

Hazard Classes and Transport Unit	Current Segregation	Proposed Segregation
Class 4.3 versus Class 2.1 CTU	Vertical – Segregation if any, is shown in the § 172.101 table. Horizontal fore and aft both on and under deck - Segregation if any, is shown in the § 172.101 table. Horizontal athwartships – Segregation if any, is shown in the § 172.101 table.	Vertical – Not in the same vertical line unless segregated by a deck. Horizontal fore and aft both on and under deck – One container space. Horizontal athwartships – One container space.
Class 4.3 versus Class 3 CTU	Vertical – One on top of the other permitted Horizontal fore and aft both on and under deck – No restriction. Horizontal athwartships – No restriction.	Vertical – Not in the same vertical line unless segregated by a deck. Horizontal fore and aft on deck – One container space. Horizontal fore and aft under deck – One container space or one bulkhead. Horizontal athwartships – One container space.

The proposed changes are based on amendments adopted by the IMO and are aimed at enhancing efforts to prevent the spread of fire in an emergency situation. Fire extinguishing methods available to vessel crews are often quite limited. Due to these limited fire extinguishing options, the only recommended option to control the consequences of a fire originating from these goods is to let the fire burn and to prevent the spread of fire to other cargo or equipment which is crucial for the safe operation of the ship. The proposed changes are intended to address situations where a fire originates in a

shipment of flammable liquids or gases and is likely to spread to goods which cannot be extinguished, or when a fire originates in goods which cannot be extinguished and threatens to spread to highly flammable goods. The new proposed segregation distances will enhance efforts to control the emergency situation.

Section 176.84

Section 176.84 prescribes the meanings and requirements for numbered or alpha-numeric stowage provisions for vessel shipments listed in column 10B of the § 172.101 Hazardous Materials Table. The provisions in § 176.84 are broken down into general stowage provisions whose meanings are defined in the "table of provisions" in paragraph (b), and the stowage provisions applicable to vessel shipments of Class 1 explosives, which are defined in the table to paragraph (c)(2).

In this NPRM, PHMSA is proposing to amend the title of the section to note that the codes in column 10B address not only codes for stowage requirements, but also handling requirements that need to be observed during loading of the hazardous materials. PHMSA is also proposing to create footnote 3 and assign it to stowage provision 12 and 13. Footnote 3 is added to note that these provisions apply not only to stowage of the cargo transport unit, but also to the loading of hazardous materials into the cargo transport unit.

PHMSA is additionally proposing to create new stowage provisions 147 and 148 consistent with changes adopted in Amendment 37-14 of the IMDG Code. Stowage provision 147 is proposed to read "Stow "separated from" flammable gases and flammable liquids." Stowage provision 148 is proposed to read "In addition: from flammable gases

and flammable liquids when stowed on deck of a containership a minimum distance of two container spaces athwartship shall be maintained, when stowed on ro-ro ships a distance of 6 m athwartship shall be maintained."

Section 176.905

Section 176.905 prescribes specific requirements for motor vehicles or mechanical equipment powered by internal combustion engines that are offered for transportation and transported by vessel. In this NPRM PHMSA is proposing to align our exceptions for vessel transportation for motor vehicles and mechanical equipment powered by internal combustion engines with those recently adopted by the IMO. PHMSA believes aligning these exceptions will enhance the safe vessel transport of motor vehicles and mechanical equipment powered by internal combustion engines.

PHMSA is proposing to amend paragraphs (i)(1), (i)(2), (i)(4), and (i)(5) to require as a condition of exception from the subchapter that batteries installed in motor vehicles or mechanical equipment powered by internal combustion engines be protected from short circuit. PHMSA is also proposing to revise paragraph (i)(2), which provides conditions that need to be met for vehicles or mechanical equipment with an internal combustion engine that uses liquid fuel with a flashpoint of 38 °C (100 °F) or higher. Currently up to 418 L (110 gallons) may remain in the equipment or vehicle, and if other noted conditions are met the vehicle is excepted from all other requirements of subchapter C. PHMSA is proposing to amend this fuel threshold to 450 L (119 gallons).

PHMSA is proposing to add paragraph (i)(6) to add exceptions for fuel cell powered vehicles or mechanical equipment with an internal combustion engine powered by fuel cells. When the engine is protected from inadvertent operation by closing fuel

supply lines or by other means, and the fuel supply reservoir has been drained and sealed, the vehicle or mechanical equipment is excepted from the requirements of subchapter C.

Part 178

Section 178.71

Consistent with the UN Model Regulations, in this NPRM, PHMSA is proposing to revise paragraph (a) to clarify that UN pressure receptacles and service equipment constructed according to the standards applicable at the date of manufacture may continue in use subject to the continuing qualification and maintenance provisions of part 180 of the subchapter.

Consistent with the UN Model Regulations PHMSA is proposing to revise paragraphs (d)(2), (g), and (k) to reflect the adoption of the latest ISO standards for the design, construction, and testing of gas cylinders and their associated service equipment. These paragraphs also contain proposed end dates when the manufacture of cylinders and service equipment are no longer authorized to be manufactured in accordance with the outdated ISO standard.

Consistent with the UN Model Regulations PHMSA is proposing a new paragraph (n) and the redesignation of the existing paragraphs (n) through (s). The proposed new paragraph (n) adopts design and construction requirements of UN cylinders for the transportation of adsorbed gases, consistent with those adopted into the UN Model Regulations.

Consistent with the UN Model Regulations, PHMSA is proposing to revise the proposed redesignated paragraph (o) to adopt the current ISO standards relating to material compatibility.

Finally, PHMSA is proposing to add new paragraphs (u) and (v) to adopt the marking requirements for bundles of cylinders that have been adopted in the UN Model regulations.

Section 178.75

Consistent with the UN Model Regulations PHMSA is proposing to revise paragraph (d)(3) to reflect the adoption of the latest ISO standards for the design, construction, and testing of gas cylinders that are part of MEGCs. This paragraph also contains proposed end dates when the manufacture of cylinders that are part of MEGCs are no longer authorized to be manufactured in accordance with the outdated ISO standard.

Section 178.703

To promote the uniformity of markings, throughout the international transportation community, revisions have been adopted in the UN Model Regulations to clarify and standardize the specifications for markings, including the marking of IBCs. In this NPRM, PHMSA is proposing to revise the specifications for the markings prescribed in § 178.703(b)(7)(iii) to be consistent with the revised specifications for these markings in the UN Model Regulations. Also consistent with the UN Model Regulations, a transitional period is being proposed to authorize markings in conformance with the requirements of this paragraph in effect on October 1, 2012, to continue to be applied to all IBCs manufactured, repaired or remanufactured between January 1, 2011 and December 31, 2016.

Section 178.910

In this NPRM, PHMSA is proposing to revise paragraph (a) relating to the marking of large packagings to include markings for the proposed large salvage packagings.

Consistent with the UN Model Regulations, following the large packaging design type identification code on a large packaging. a large salvage packaging conforming to the requirements of subpart P of part 178 is proposed to be marked with the letter "T".

In addition, to promote the uniformity of markings, throughout the international transportation community, revisions have been adopted in the UN Model Regulations to clarify and standardize the specifications for markings, including the marking of large packagings and large salvage packaging. In this NPRM, PHMSA is proposing to revise the specifications for the markings prescribed in § 178.910(b) to be consistent with the revised specifications for these markings in the UN Model Regulations. Also consistent with the UN Model Regulations, a transitional period is being proposed to authorize markings in conformance with the requirements of this paragraph in effect on October 1, 2012, to continue to be applied to all large packagings manufactured, repaired or remanufactured between January 1, 2015 and December 31, 2016.

Part 180

Section 180.207

Requirements for requalification of UN pressure receptacles are prescribed in § 180.207. Table 1 in paragraph (c) of § 180.207 provides requalification intervals for UN pressure vessels. In this NPRM, PHMSA is proposing to add an additional entry to the end of Table 1 to prescribe a requalification interval of 5 years for pressure receptacles used for adsorbed gases. This requalification period is consistent with the requalification period adopted in the UN Model Regulations for the use of these cylinders. Section 173.302c relating to authorization for the use of cylinders for adsorbed gases directs the reader to this section for the requalification period for these cylinders.

The proposed paragraph (d)(5) provides that each UN cylinder used for adsorbed gases must be inspected and tested in accordance with § 173.302c and ISO 11513:2011. Both § 173.302c and ISO 11513:2011 are being proposed for adoption in this NPRM.

VI. Regulatory Analyses and Notices

A. Statutory/Legal Authority for this Rulemaking

This proposed rule is published under the following statutory authorities:

1. 49 U.S.C. 5103(b) authorizes the Secretary of Transportation to prescribe regulations for the safe transportation, including security, of hazardous materials in intrastate, interstate, and foreign commerce. This proposed rule amends regulations to maintain alignment with international standards by incorporating various amendments, including changes to proper shipping names, hazard classes, packing groups, special provisions, packaging authorizations, air transport quantity limitations and vessel stowage requirements. To this end, the proposed rule amends the HMR to more fully align with the biennial updates of the UN Model Regulations, the IMDG Code and the ICAO TI.

Harmonization serves to facilitate international commerce; at the same time, harmonization promotes the safety of people, property, and the environment by reducing the potential for confusion and misunderstanding that could result if shippers and transporters were required to comply with two or more conflicting sets of regulatory requirements. While the intent of this rulemaking is to align the HMR with international standards, we review and consider each amendment on its own merit based on its overall impact on transportation safety and the economic implications associated with its adoption into the HMR. Our goal is to harmonize without sacrificing the current HMR level of

safety and without imposing undue burdens on the regulated community. Thus, as explained in the corresponding sections above, we are not proposing harmonization with certain specific provisions of the UN Model Regulations, the IMDG Code, and the ICAO TI. Moreover, we are maintaining a number of current exceptions for domestic transportation that should minimize the compliance burden on the regulated community. Additionally, the following external agencies were consulted in the development of this rule:

U.S. Coast Guard

U.S. Department of Energy

U.S. Department of Interior

2. 49 U.S.C. 5120(b) authorizes the Secretary of Transportation to ensure that, to the extent practicable, regulations governing the transportation of hazardous materials in commerce are consistent with standards adopted by international authorities. This rule proposes to amend the HMR to maintain alignment with international standards by incorporating various amendments to facilitate the transport of hazardous material in international commerce. To this end, as discussed in detail above, PHMSA proposes to incorporate changes into the HMR based on the 18th Revised Edition of the UN Model Regulations, Amendment 37-14 to the IMDG Code, and the 2015-2016 Edition of the ICAO TI, which become effective January 1, 2015. The large volume of hazardous materials transported in international commerce warrants the harmonization of domestic and international requirements to the greatest extent possible.

B. Executive Orders 12866 and 13563 and DOT Regulatory Policies and Procedures.

This notice is not considered a significant regulatory action under section 3(f) of

Executive Order 12866 ("Regulatory Planning and Review") and, therefore, was not reviewed by the Office of Management and Budget. This notice is not considered a significant rule under the Regulatory Policies and Procedures of the Department of Transportation (44 FR 11034). Additionally, E.O. 13563 ("Improving Regulation and Regulatory Review") supplements and reaffirms E.O. 12866, stressing that, to the extent permitted by law, an agency rulemaking action must be based on benefits that justify its costs, impose the least burden, consider cumulative burdens, maximize benefits, use performance objectives, and assess available alternatives.

Benefits to Harmonization.

In an earlier regulatory evaluation,[1] we estimated a proxy for benefits of harmonization of the HMR with international standards of $62 million. More specifically, this $62 million was estimated by multiplying a hazard communication cost per dollar of hazardous materials output—$0.001—by the value of hazardous materials involved in international trade, as estimated by the proportion of trade (the total of gross imports and gross exports) in the fuels and lubricants, chemicals, and medicinal/dental/pharmaceutical products industries ($498 billion in 2010)[2] that are hazardous products (i.e., 12.4 percent).[3] [4]

For estimating benefits of this Amendment 1, we follow a nearly identical approach (acknowledging there is an inherent imprecision of benefits here), updating data and

[1] HM-215L: Hazardous Materials: Harmonization with International Standards (RRR), Final Rule, Section V.B., 78 FR 1023 et seq., January 7, 2013.
[2] As reported in the quarterly trade data of the U.S. Bureau of Economic Analysis, available at: http://www.bea.gov/international/detailed_trade_data.htm.
[3] U.S. Census Bureau's 2007 Commodity Flow Survey, Table 10.
[4] See Section V.B. for more detailed calculations of these figures.

assumptions where possible. 2012 Commodity Flow Survey data on hazardous materials are not yet available as of the date of this regulatory evaluation.

However, the 12.4 percent proportion (of total shipment values classed as hazardous materials) estimated in the earlier regulatory evaluation may have had a high-side bias due to the variety of different classes of products classified as hazardous. In actuality, the percentage of shipments properly classified as hazardous is likely lower, particularly for medicinal/dental/pharmaceuticals. Here, we assume a slightly lower proportion to arrive at an estimate of benefits of 10 percent.

We update our estimate of value of hazardous materials involved in international trade by using U.S. Trade in Goods seasonally adjusted, Census-based total gross imports and gross exports in the fuels and lubricants, chemicals, and medicinal/dental/pharmaceutical products industries for the fourth quarter of 2013, the most recent quarter available—

- Gross imports: $134 billion (rounded)
    - Fuels and lubricants: $94.744 billion
    - Chemicals: $18.637 billion
    - Medicinal/dental/pharmaceutical products: $20.613 billion
- Gross exports: $85.8 billion (rounded)
    - Fuels and lubricants: $44.301 billion
    - Chemicals: $30.089 billion
    - Medicinal/dental/pharmaceutical products: $11.416 billion

- Gross imports plus gross exports: $219.8 billion[5]

Multiplying the quarterly estimate of $219.8 billion by 4 gives an annual estimate of gross imports plus gross exports in the three industries of $879.2 billion. Multiplying this figure by 10 percent (the estimated proportion of annual trade in these three industries that are hazardous products) by the average hazard communication cost per dollar of hazardous materials produced in the United States ($0.001) results in an estimate of benefits from Amendment 1 of $87.9 million (rounded) annually.

If U.S. regulations are not harmonized with international standards, we estimate that it will cost U.S. companies an additional $87.9 million per year to comply with both the HMR and the international standards. Harmonizing the HMR with the international standards, however, will avert these $87.9 million in additional costs, and these averted costs are therefore considered the primary benefit attributable to this rulemaking.

Costs of Harmonization. The primary cost of updating references in the U.S. HMR (to incorporate the most recent international hazardous material standards) is the purchase of updated copies of the international standards being incorporated by reference in the HMR. These costs will be borne by offerors and transporters of hazmat if this rulemaking were finalized.

It is unknown how many individuals and firms involved in shipping hazmat will purchase copies of these international standards as a result of finalizing this rulemaking. We take a conservative approach to estimating such a figure by using as a proxy the number of shippers, carriers, or other offerors or transporters of hazmat in commerce with

[5] Bureau of Economic Analysis, U.S. Department of Commerce, U.S. Trade in Goods (IDS-0008), available at: http://www.bea.gov/international/detailed_trade_data.htm.

a PHMSA registration expiring in 2014. Currently, PHMSA's registration database indicates 36,731 registrants as of May 20, 2014.[6] Of these, 29,877 (approximately 81 percent) are small businesses as defined by the U.S. Small Business Administration. Further, 31,598 registrants (approximately 86 percent) indicated that they offer or transport hazmat solely by highway method.

If we assume (for conservative estimation purposes) that all registrants will purchase copies of all publications, this indicates an estimated cost of this amendment of $56.68 million (rounded, $1,543 cost of all publications * 36,731 registrants). (In reality, all of the ISO standards incorporated will not be purchased by the majority of shippers and carriers, and will likely only impact a small subset of the regulated community. Further, it is likely that many companies will purchase multiple copies of the IMDG Code and ICAO TI, rather than only one copy. We do not believe we have sufficient data to estimate the precise number of registrants. However, we use one copy per registrant as a reasonably conservative estimate on costs of the proposed rulemaking.)

However, further assuming that those who indicated that they offer or transport in commerce hazmat only via highway, two publications included in the $1,543 cost will not apply to such registrants (ICAO TI [for air] and IMDG Code [by vessel]). Therefore, costs for the 31,598 highway-only registrants would total $32.99 million ($1,543 – $155 [ICAO TI] – $344 [IMDG Code] * 31,598 highway-only registrants). Conservatively (i.e., overestimating costs and underestimating benefits) assuming all other registrants (while acknowledging that, in fact, some will purchase all standards copies and some will

[6] See PHMSA Hazardous Materials Registration Program Registration Data Files, link available at http://www.phmsa.dot.gov/hazmat/registration, accessed on May 20, 2014.

purchase none) will purchase updated copies of all standards publications listed here indicates a total cost of this Amendment 1 of $40.91 million, incurred once ($32.99 million + $1,543 * [36,731 total registrants – 31,598 highway-only registrants], rounded).

Net Benefit. Based on the discussions of benefits and costs provided above, the estimated net benefit associated with the international harmonization final rule (2137-AF05) is $47 million in the first year after publication and $87.9 million in the second year after publication. Please see the complete regulatory analysis, a copy of which has been placed in the docket for this rulemaking, for a more detailed analysis of the costs and benefits of this proposed rule.

C. Executive Order 13132

This proposed rule has been analyzed in accordance with the principles and criteria contained in Executive Order 13132 ("Federalism"). This proposed rule preempts State, local, and Indian tribe requirements but does not propose any regulation that has substantial direct effects on the States, the relationship between the national government and the States, or the distribution of power and responsibilities among the various levels of government. Therefore, the consultation and funding requirements of Executive Order 13132 do not apply.

The Federal hazardous material transportation law, 49 U.S.C. 5101-5128, contains an express preemption provision (49 U.S.C. 5125(b)) that preempts State, local, and Indian tribe requirements on certain covered subjects, as follows:

- The designation, description, and classification of hazardous material;
- The packing, repacking, handling, labeling, marking, and placarding of hazardous material;

- The preparation, execution, and use of shipping documents related to hazardous material and requirements related to the number, contents, and placement of those documents;
- The written notification, recording, and reporting of the unintentional release in transportation of hazardous material; and
- The design, manufacture, fabrication, inspection, marking, maintenance, recondition, repair, or testing of a packaging or container represented, marked, certified, or sold as qualified for use in transporting hazardous material in commerce.

This proposed rule addresses the covered subject items above and preempts State, local, and Indian tribe requirements not meeting the "substantively the same" standard. This proposed rule is necessary to incorporate changes adopted in international standards, effective January 1, 2015. If the changes in this proposed rule are not adopted in the HMR, U.S. companies, including numerous small entities competing in foreign markets, would be at an economic disadvantage. These companies would be forced to comply with a dual system of regulations. The changes in this proposed rulemaking are intended to avoid this result. Federal hazardous materials transportation law provides at 49 U.S.C. 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. PHMSA proposes the effective date of Federal preemption be 90 days from publication of a final rule in this matter.

D. Executive Order 13175

This proposed rule was analyzed in accordance with the principles and criteria contained in Executive Order 13175 ("Consultation and Coordination with Indian Tribal Governments"). Because this proposed rule does not have tribal implications, does not impose substantial direct compliance costs, and is required by statute, the funding and consultation requirements of Executive Order 13175 do not apply.

E. Regulatory Flexibility Act, Executive Order 13272, and DOT Procedures and Policies

The Regulatory Flexibility Act (5 U.S.C. 601 et seq.) requires an agency to review regulations to assess their impact on small entities, unless the agency determines that a rule is not expected to have a significant impact on a substantial number of small entities. This proposed rule facilitates the transportation of hazardous materials in international commerce by providing consistency with international standards. This proposed rule applies to offerors and carriers of hazardous materials, some of whom are small entities, such as chemical manufacturers, users and suppliers, packaging manufacturers, distributors, and training companies. As discussed above, under Executive Order 12866, the majority of amendments in this proposed rule should result in cost savings and ease the regulatory compliance burden for shippers engaged in domestic and international commerce, including trans-border shipments within North America.

Many companies will realize economic benefits as a result of these amendments. Additionally, the changes effected by this NPRM will relieve U.S. companies, including small entities competing in foreign markets, from the burden of complying with a dual system of regulations. Therefore, we certify that these amendments will not, if

promulgated, have a significant economic impact on a substantial number of small entities.

This proposed rule has been developed in accordance with Executive Order 13272 ("Proper Consideration of Small Entities in Agency Rulemaking") and DOT's procedures and policies to promote compliance with the Regulatory Flexibility Act to ensure that potential impacts of draft rules on small entities are properly considered.

F. Paperwork Reduction Act

PHMSA currently has approved information collection under Office of Management and Budget (OMB) Control Number 2137-0034, "Hazardous Materials Shipping Papers and Emergency Response Information." We anticipate that this proposed rule will result in an increase in the annual information collection burden of this information collection due to an increase in the number of shipping papers prepared for packages containing batteries that exceeds the number or quantity (mass) limits in the table shown in §173.185(c)(4), but containing no more than 2.5 kg of lithium metal cells or batteries or 10 kg of lithium ion cells or batteries per package. Shipments utilizing this allowance currently provide alternative documentation containing the name and address of the offeror and consignee, the UN number, an indication of compliance with this paragraph (c)(4) (or the applicable ICAO Packing Instruction), and the number of packages and the gross mass of each package.

This rulemaking identifies a revised information collection that PHMSA will submit to OMB for approval based on the requirements in this NPRM. PHMSA has developed burden estimates to reflect changes in this NPRM, and estimates the information collection and recordkeeping burden in this rule are as follows:

OMB Control Number 2137-0034

Annual Increase in Number of Respondents	150
Annual Increase in Annual Number of Responses	13,167
Annual Increase in Annual Burden Hours	219
Annual Increase in Annual Burden Costs	$4,380

Under the Paperwork Reduction Act of 1995, no person is required to respond to an information collection unless it has been approved by OMB and displays a valid OMB control number. Section 1320.8(d), title 5, Code of Federal Regulations requires that PHMSA provide interested members of the public and affected agencies an opportunity to comment on information and recordkeeping requests. PHMSA specifically requests comments on the information collection and recordkeeping burdens associated with developing, implementing, and maintaining these proposed requirements. Address written comments to the Dockets Unit as identified in the ADDRESSES section of this rulemaking. We must receive comments regarding information collection burdens prior to the close of the comment period identified in the DATES section of this rulemaking. In addition, you may submit comments specifically related to the information collection burden to the PHMSA Desk Officer, Office of Management and Budget, at fax number 202-395-6974. Requests for a copy of this information collection should be directed to Steven Andrews or T. Glenn Foster, Standards and Rulemaking Division (PHH-10), Pipeline and Hazardous Materials Safety Administration, 1200 New Jersey Avenue, S.E., Washington, DC 20590-0001. If these proposed requirements are adopted in a final rule, PHMSA will submit the revised information collection and recordkeeping requirements to OMB for approval.

G. 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 contained in the heading of this document can be used to cross-reference this action with the Unified Agenda.

H. Unfunded Mandates Reform Act

This proposed rule does not impose unfunded mandates under the Unfunded Mandates Reform Act of 1995. It does not result in costs of $141.3 million or more, adjusted for inflation, to either State, local, or tribal governments, in the aggregate, or to the private sector in any one year, and is the least burdensome alternative that achieves the objective of the rule.

I. Environmental Assessment

The National Environmental Policy Act, 42 U.S.C. 4321-4375, requires that federal agencies analyze proposed actions to determine whether the action will have a significant impact on the human environment. The Council on Environmental Quality (CEQ) regulations require federal agencies to conduct an environmental review considering: (1) the need for the proposed action; (2) alternatives to the proposed action; (3) probable environmental impacts of the proposed action and alternatives; and (4) the agencies and persons consulted during the consideration process. 40 CFR 1508.9(b).

Description of Action

Docket No. PHMSA-2013-0260 (HM-215M), NPRM. The transportation of hazardous materials in commerce is subject to the HMR, issued under authority of Federal

hazardous materials transportation law, codified at 49 U.S.C. 5001 et seq. To facilitate the safe and efficient transportation of hazardous materials in international commerce, the HMR provides that both domestic and international shipments of hazardous materials may be offered for transportation and transported under provisions of the international regulations.

Purpose and Need

This action is necessary to integrate into the HMR 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 TI), and the United Nations Recommendations on the Transport of Dangerous Goods—Model Regulations (UN Model Regulations) effective January 1, 2015. If the changes in this proposed rule are not adopted in the HMR by this effective date, US companies, including numerous small entities competing in foreign markets, would be at an economic disadvantage. These companies would be forced to comply with a dual system of transport regulations that could result in shippers and carriers segmenting domestic and international operations to accommodate differing requirements. The changes to the HMR contained in this proposed rulemaking are intended to avoid this result.

The intended effect of this action is to align the HMR with international hazardous material transport standards and requirements to the extent practicable in accordance with Federal Hazardous Materials transportation law (49 U.S.C. 5210). When considering the adoption of international hazardous material standards under the HMR, PHMSA reviews and evaluates each amendment on its own merit, on the basis of its overall impact on

transportation safety, and the economic implications associated with its adoption into the HMR. Our goal is to harmonize without diminishing the level of safety currently provided by the HMR and without imposing undue burdens on the regulated public.

In this NPRM, PHMSA is proposing to amend the Hazardous Materials Regulations to maintain alignment with international standards by incorporating various amendments, including changes to proper shipping names, hazard classes, packing groups, special provisions, packaging authorizations, air transport quantity limitations, and vessel stowage requirements. These revisions are necessary to harmonize and align the HMR with recent amendments adopted in the UN Model Regulations, IMDG Code, and the ICAO TI. The amendments proposed in this notice are intended to facilitate the safe and efficient transportation of hazardous materials in international commerce, provide clarity to encourage and increase regulatory compliance, and improve the efficacy of emergency response in the event of a hazardous materials incident.

Alternatives

In proposing this rulemaking, PHMSA is considering the following alternatives:

No Action Alternative:

If PHMSA chose this alternative, it would not proceed with any rulemaking on this subject and the current regulatory standards would remain in effect.

Preferred Alternative:

This alternative is the current proposal as it appears in this Notice of Proposed Rulemaking (NPRM), applying to the transportation of hazardous materials by various transport modes (highway, rail, vessel and aircraft). The proposed amendments included in this alternative are more fully addressed in the preamble and regulatory text sections of this

NPRM. However, they generally include: 1) Updates to references to various international hazardous materials transport standards; 2) Amendments to the hazardous materials table to add, revise, or remove certain proper shipping names, packing groups, special provisions, packaging authorizations, bulk packaging requirements and vessel stowage requirements; 3) Amendments to add and delete various substances to the list of marine pollutants in Appendix B to § 172.101; 4) Changes throughout the Part 173 packaging requirements to authorize more flexibility when choosing packages for hazardous materials; 5) An exception from the HMR for marine pollutants up to 5 liters (1.3 gallons) for liquids or 5 kg (11 pounds) for solids when these materials are packaged in accordance with the general packaging requirements of §§ 173.24 and 173.24a; 6) Minimum sizes for the OVERPACK and SALVAGE markings; and; 7) Revisions and additions to vessel stowage codes listed in column 10B of the HMT and segregation requirements in § 176.83 consistent with the IMDG Code.

No Action Alternative:

If PHMSA were to select the No Action Alternative, current regulations would remain in place, and no new provisions would be added. However, efficiencies gained through harmonization in updates to transport standards, lists of regulated substances, definitions, packagings, stowage requirements/codes, flexibilities allowed, enhanced markings, segregation requirements, etc., would not be realized. Foregone efficiencies in the No Action Alternative include freeing up limited resources to concentrate on vessel transport hazard communication (hazcom) issues of potentially much greater environmental impact.

Additionally, the Preferred Alternative encompasses enhanced and clarified regulatory requirements, which would result in increased compliance and fewer environmental and safety incidents. Not adopting the proposed environmental and safety requirements in the NPRM under the No Action Alternative would result in a lost opportunity for reducing environmental and safety-related incidents.

Greenhouse gas emissions would remain the same under the No Action Alternative.

Preferred Alternative:

If PHMSA selects the provisions as proposed in this NPRM, we believe that safety and environmental risks would be reduced and that protections to human health and environmental resources would be increased. Potential environmental impacts of each proposed amendment in the preferred alternative are discussed below:

1. Propose updates to references to various international hazardous materials transport standards, including the 2015–2016 Edition of the ICAO TI; Amendment 37–14 to the IMDG Code; the 18th Revised Edition of the UN Model Regulations; Amendment 2 to the 5th revised edition of the UN Manual of Tests and Criteria; incorporation by reference of the Canadian Transportation of Dangerous Goods Regulations to include Amendment 11 (SOR/2011-239) October 27, 2011 and; adding two new references standards and update four other references to standards applicable to the manufacture, use, and requalification of pressure vessels published by the International Organization for Standardization:

The HMR authorize shipments prepared in accordance with the ICAO TI and transported by motor vehicle either before or after being transported by aircraft. Similarly, the HMR authorize shipments prepared in accordance with the IMDG Code if all or part of

the transportation is by vessel. The authorizations to use the ICAO TI and the IMDG code are subject to certain conditions and limitations outlined in part 171 subpart C. PHMSA believes that this proposed amendment, which will increase standardization and consistency of regulations, will result in greater protection of human health and the environment. Consistency between US and international regulations enhances the safety and environmental protection of international hazardous materials transportation through better understanding of the regulations, an increased level of industry compliance, the smooth flow of hazardous materials from their points of origin to their points of destination, and consistent emergency response in the event of a hazardous materials incident.

Enhanced environmental protection will also be achieved through more targeted and effective training. This proposed amendment will eliminate inconsistent hazardous materials regulations, which hamper compliance training efforts. For ease of compliance with appropriate regulations, air and vessel carriers engaged in the transportation of hazardous materials generally elect to comply with the ICAO TI and IMDG Code as appropriate. By maintaining consistency between these international regulations and the HMR, shippers and carriers are able to train their hazmat employees in a single set of requirements for classification, packaging, hazard communication, handling, stowage, etc., thereby minimizing the possibility of improperly preparing and transporting a shipment of hazardous materials because of differences between domestic and international regulations.

Greenhouse gas emissions would remain the same under this proposed amendment.

2. Propose amendments to the HMT to add, revise, or remove certain proper shipping names, packing groups, special provisions, packaging authorizations, bulk packaging requirements and vessel stowage requirements:

PHMSA believes that this proposed amendment, which will increase standardization and consistency of regulations, will result in greater protection of human health and the environment. Consistency between US and international regulations enhances the safety and environmental protection of international hazardous materials transportation through better understanding of the regulations, an increased level of industry compliance, the smooth flow of hazardous materials from their points of origin to their points of destination, and consistent emergency response in the event of a hazardous materials incident. New and revised entries to the HMT reflect emerging technologies, and a need to better describe or differentiate between existing entries. These proposed changes mirror changes in the Dangerous Goods list of The 18th Revised Edition of the UN Model Regulations, the 2015-2016 Edition of the ICAO TI and the 37-14 amendments to the IMDG Code. It is extremely important for the domestic HMR to mirror the UN Model Regulations, the ICAO TI, and the IMDG Code with respect to the entries in the HMT to ensure consistent naming conventions across modes and international borders.

Enhanced environmental protection will also be achieved through more targeted and effective training. This proposed amendment will eliminate inconsistent hazardous materials regulations, which hamper compliance training efforts. For ease of compliance with appropriate regulations, international carriers engaged in the transportation of hazardous materials by vessel generally elect to comply with the IMDG Code. By maintaining consistency between these international regulations and the HMR, shippers

and carriers are able to train their hazmat employees in a single set of requirements for classification, packaging, hazard communication, handling, stowage, etc., thereby minimizing the possibility of improperly preparing and transporting a shipment of hazardous materials because of differences between domestic and international regulations.

The packing group assignment reflects a degree of danger associated with a particular material and identifies appropriate packaging. However, assignment of a packing group is not appropriate in all cases (e.g. explosives, gases, radioactive material). In such cases the packing group does not indicate a degree of danger and the packaging requirements for those materials are specified in the appropriate section in part 173. Similarly for articles, the packing group only reflects the degree of the danger posed by the hazardous component, but may not reflect danger of the article itself, which may be substantially reduced or changed when compared to shipping the hazardous component alone. Currently and without specific rationale, some articles are assigned packing groups while others are not. The inconsistent application of packing groups to articles can create problems for trainers when trying to explain regulatory structure to students. This proposed change provides a level of consistency for all articles specifically listed in the HMT, without diminishing environmental protection and safety.

For adsorbed gases, PHMSA proposes adding into the HMR a definition, HMT entries, authorized packagings and safety requirements including but not limited to quantity limitations and filling limits. PHMSA believes that this proposed amendment will result in greater protection of human health and the environment by facilitating the safe and efficient transport of gases adsorbed onto a porous media within cylinders. This technology allows the cylinder to be filled and transported with gas at sub-atmospheric

pressure. Sub-atmospheric transport of gas minimizes potential leaks of gas during transportation, thus providing significant safety and environmental improvements over traditional high-pressure cylinders. This method of transporting gas is a proven safe method authorized through a PHMSA special permit for over ten years and recently adopted into the UN Model Regulations, the ICAO TI and the IMDG Code.

Greenhouse gas emissions would remain the same under this proposed amendment.

3. Propose additions and deletions of various substances to/from the list of Marine Pollutants in HMR, Appendix B to 172.101:

As for the above amendments, PHMSA believes that this proposed amendment, which will increase standardization and consistency of regulations, will result in greater protection of human health and the environment. Consistency between US and international regulations enhances the safety and environmental protection of international hazardous materials transportation through better understanding of the regulations, an increased level of industry compliance, the smooth flow of hazardous materials from their points of origin to their points of destination, and consistent emergency response in the event of a hazardous materials incident. The proposed additions and deletions are based on the criteria contained in the IMDG code for substances classified as toxic to the aquatic environment. The HMR maintain a list as the basis for regulating substances toxic to the aquatic environment and allow use of the criteria in the IMDG Code if a listed material does not meet the criteria for a marine pollutant. PHMSA periodically updates its list based on changes to the IMDG code and evaluation of listed materials against the IMDG code criteria. Amending the marine pollutant list will facilitate consistent communication

of the presence of marine pollutants and facilitate safe and efficient transportation without imposing significant burden associated with characterizing mixtures as marine pollutants.

Also similar to the above amendments, enhanced environmental protection will also be achieved through more targeted and effective training. This proposed amendment will eliminate inconsistent hazardous materials regulations, which hamper compliance training efforts. For ease of compliance with appropriate regulations, international carriers engaged in the transportation of hazardous materials by vessel generally elect to comply with the IMDG Code. By maintaining consistency between these international regulations and the HMR, shippers and carriers are able to train their hazmat employees in a single set of requirements for classification, packaging, hazard communication, handling, stowage, etc., thereby minimizing the possibility of improperly preparing and transporting a shipment of hazardous materials because of differences between domestic and international regulations.

Greenhouse gas emissions would remain the same under this proposed amendment.

4. Propose adopting changes throughout the HMR Part 173 packaging requirements to authorize more flexibility when choosing packages for hazardous materials:

The proposed changes would adopt manufacturing and performance standards for small gas pressure receptacles without a relief device, clarify the use of the HMT entry "fire extinguisher", authorize the use of large salvage packagings and provide a list of authorized packagings for ammonium nitrate emulsions. As for the above amendments, PHMSA believes that these proposed amendments, which will increase standardization and consistency of regulations, will result in greater protection of human health and the

environment. Consistency between US and international regulations enhances the safety and environmental protection of international hazardous materials transportation through better understanding of the regulations, an increased level of industry compliance, the smooth flow of hazardous materials from their points of origin to their points of destination, and consistent emergency response in the event of a hazardous materials incident. PHMSA proposes to adopt changes throughout the Part 173 packaging requirements to authorize more flexibility when choosing packages for hazardous materials. This action is consistent with amendments adopted into the UN Model Regulations.

These amendments permit additional flexibility for authorized packages without compromising environmental protection or safety. Manufacturing and performance standards for small gas pressure receptacles ensure a safe packaging that is capable of retaining its contents without being overly prescriptive. The proposed clarification for fire extinguishers increases the transparency of the regulations, which will in turn result in increased compliance, reduced incidents of undeclared or mis-declared hazardous material and enhanced environmental protection and safety. Increased flexibility will also add to environmental protection by increasing the ease of regulatory compliance.

Also similar to the above amendments, enhanced environmental protection will be achieved through more targeted and effective training. This proposed amendment will eliminate inconsistent hazardous materials regulations, which hamper compliance training efforts. By maintaining consistency between the UN Model Regulations and the HMR, shippers and carriers are able to train their hazmat employees in a single set of requirements for classification, packaging, hazard communication, handling, stowage, etc.,

thereby minimizing the possibility of improperly preparing and transporting a shipment of hazardous materials because of differences between domestic and international regulations.

Greenhouse gas emissions would remain the same under this proposed amendment.

5. Proposed exception from the HMR for marine pollutants up to 5 liters (1.3 gallons) for liquids or 5 kg (11 lbs.) for solids when these materials are packaged in accordance with the general packaging requirements of §§ 173.24 and 173.24a:

PHMSA believes that this proposed amendment would provide for a slight net increase in environmental protection and safety by reducing confusion and simplifying multi-modal transit hazardous material transportation requirements. Currently, packages containing less than 5 liters (1.3 gallons) for liquids or 5 kg (11 lbs.) of material containing marine pollutants are subject to additional requirements such as shipping papers, Class 9 labelling and UN packaging when offered for transport by air or vessel in accordance with the ICAO TI or the IMDG Code. However, these same materials would not be subject to the HMR when transported by motor vehicle, rail car or aircraft in the US. The presence of these labels in one mode of transport can cause confusion in the US supply chain.

The proposed amendment would exempt from the HMR small packages of hazardous material that are regulated only because of the presence of one or more marine pollutants. Materials in these quantities pose a low risk in transportation. In addition, these low quantities of materials present even lower risks in transportation because they often contain low concentrations of marine pollutant constituents. Lastly, risks of incidents are very low. In the past 10 years, in tens of thousands of vessel shipments, PHMSA's data contains only one record of marine pollutant released on a vessel that caused environmental damage. In this incident, the material was packaged in a 55-gallon

drum and would not be impacted by the proposed amendment, since the package would still be required to display the marine pollutant mark and the shipping documents would still have to communicate the presence of a marine pollutant. By reducing the hazard communication (hazcom) burdens for lower risk commodities, industry, shippers, and transporters can focus hazard communication resources on areas with potentially greater environmental and safety consequences.

The proposed action is consistent with recent revisions to the IMDG Code. PHMSA believes that this proposed amendment will increase standardization and consistency of regulations, may also result in greater protection of human health and the environment. Consistency between US and international regulations enhances the safety and environmental protection of international hazardous materials transportation through better understanding of the regulations, an increased level of industry compliance, the smooth flow of hazardous materials from their points of origin to their points of destination, and consistent emergency response in the event of a hazardous materials incident. Excepting these quantities of marine pollutants from the HMR will facilitate consistent communication of the presence of marine pollutants and facilitate safe and efficient transportation without imposing significant burden associated with characterizing mixtures as marine pollutants.

Also similar to the above amendments, enhanced environmental protection will also be achieved through more targeted and effective training. This proposed amendment will eliminate inconsistent hazardous materials regulations, which hamper compliance training efforts. For ease of compliance with appropriate regulations, international carriers engaged in the transportation of hazardous materials by vessel generally elect to comply

with the IMDG Code. By maintaining consistency between these international regulations and the HMR, shippers and carriers are able to train their hazmat employees in a single set of requirements for classification, packaging, hazard communication, handling, stowage, etc., thereby minimizing the possibility of improperly preparing and transporting a shipment of hazardous materials because of differences between domestic and international regulations.

Greenhouse gas emissions would remain the same under this proposed amendment.

6. Proposed amendments to add minimum sizes for the OVERPACK and SALVAGE markings. These markings would be characters at least 12 mm (.47 inches) high:

PHMSA believes that this proposed amendment, which will provide for enhanced hazard communication, will result in greater protection of human health and the environment. An overpack is an enclosure to provide protection or convenience of handling for one or more packages such as pallets and crates. A salvage package is used to contain a damaged, leaking or non-conforming package. The HMR require these packages to be marked OVERPACK or SALVAGE, as appropriate. This communicates the nature of these specialized packaging configurations to package handlers and emergency responders. However, because there is currently no minimum size requirement for these marks, this information is not always readily visible. This proposed amendment would ensure that these hazard markings are visible, thus resulting in decreased incidents with impacts to the environment and safety.

Greenhouse gas emissions would remain the same under this proposed amendment.

7. Proposed amendments to revise and add vessel stowage codes listed in column 10B of the HMT and segregation requirements in HMR § 176.83 consistent with the

IMDG Code. These changes are designed to harmonize with the IMDG Code and would provide additional guidance on the loading and stowage of various materials. Additionally, proposed amendments to increase the required segregation distances between Division 4.3 dangerous when wet material (i.e. materials liable to give off a flammable or toxic gas in contact with water) and Class 3 flammable liquids and Division 2.1 flammable gases:

As discussed for previous amendments herein, PHMSA believes that this proposed amendment, which will increase standardization and consistency of regulations, will result in greater protection of human health and the environment. Consistency between US and international regulations enhances the safety and environmental protection of international hazardous materials transportation through better understanding of the regulations, an increased level of industry compliance, the smooth flow of hazardous materials from their points of origin to their points of destination, and consistent emergency response in the event of a hazardous materials incident. New and revised entries to the HMT reflect emerging technologies, and a need to better describe or differentiate between existing entries. These proposed changes mirror the IMDG Code. It is extremely important for the domestic HMR and HMT to mirror the IMDG Code to ensure consistent naming conventions across modes and international borders.

Enhanced environmental protection will also be achieved through more targeted and effective training. This proposed amendment will eliminate inconsistent hazardous materials regulations, which hamper compliance training efforts. For ease of compliance with appropriate regulations, international carriers engaged in the transportation of hazardous materials by vessel generally elect to comply with the IMDG Code. By

maintaining consistency between these international regulations and the HMR, shippers and carriers are able to train their hazmat employees in a single set of requirements for classification, packaging, hazard communication, handling, stowage, etc., thereby minimizing the possibility of improperly preparing and transporting a shipment of hazardous materials because of differences between domestic and international regulations.

PHMSA also believes that this group of amendments will increase environmental protection and safety through its increased segregation distance requirements and enhanced guidance, which will better prevent materials from contacting each other and/or water in transportation. Increased segregation distances prevent the mixing of incompatible material and the subsequent evolution of flammable or toxic gases, along with attendant fires and explosions. Together, stowage and segregation help manage the risks associated with the transport of hazardous materials by water. While the risk associated with the transport of these materials is relatively low, these measures would further reduce that risk and prevent the spread of a fire between flammable materials and materials that react dangerously with water.

Greenhouse gas emissions would remain the same under this proposed amendment.

Agencies Consulted:

This NPRM represents PHMSA's first action in the US for this program area. PHMSA has coordinated with the US Federal Aviation Administration and the US Coast Guard, in the development of this proposed rule. PHMSA will consider the views expressed in comments to the NPRM submitted by members of the public, state and local governments, and industry.

Conclusion:

The provisions of this proposed rule build on current regulatory requirements to enhance the transportation safety and security of shipments of hazardous materials transported by highway, rail, aircraft and vessel, thereby reducing the risks of an accidental or intentional release of hazardous materials and consequent environmental damage. PHMSA believes the net environmental impact will be positive. PHMSA believes that there are no significant environmental impacts associated with this proposed rule.

PHMSA welcomes any views, data, or information related to environmental impacts that may result if the proposed requirements are adopted, as well as possible alternatives and their environmental impacts.

J. Privacy Act

Anyone is able to search the electronic form of any written communications and comments received into any of our dockets by the name of the individual submitting the document (or signing the document, if submitted on behalf of an association, business, labor union, etc.). You may review DOT's complete Privacy Act Statement in the Federal Register published on April 11, 2000 (65 FR 19477) or you may visit http://www.dot.gov/privacy.html.

K. Executive Order 13609 and International Trade Analysis

Under E.O. 13609, agencies must consider whether the impacts associated with significant variations between domestic and international regulatory approaches are unnecessary or may impair the ability of American business to export and compete internationally. In meeting shared challenges involving health, safety, labor, security, environmental, and other issues, international regulatory cooperation can identify approaches that are at least as protective as those that are or would be adopted in the

absence of such cooperation. International regulatory cooperation can also reduce, eliminate, or prevent unnecessary differences in regulatory requirements.

Similarly, the Trade Agreements Act of 1979 (Public Law 96-39), as amended by the Uruguay Round Agreements Act (Public Law 103-465), prohibits Federal agencies from establishing any standards or engaging in related activities that create unnecessary obstacles to the foreign commerce of the United States. For purposes of these requirements, Federal agencies may participate in the establishment of international standards, so long as the standards have a legitimate domestic objective, such as providing for safety, and do not operate to exclude imports that meet this objective. The statute also requires consideration of international standards and, where appropriate, that they be the basis for U.S. standards.

PHMSA participates in the establishment of international standards to protect the safety of the American public, and we have assessed the effects of the proposed rule to ensure that it does not cause unnecessary obstacles to foreign trade. In fact, the rule is designed to facilitate international trade. Accordingly, this rulemaking is consistent with E.O. 13609 and PHMSA's obligations under the Trade Agreement Act, as amended.

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

Education, Hazardous materials transportation, Hazardous waste, Incorporation by reference, Labeling, Markings, Packaging and containers, Reporting and recordkeeping

requirements.

49 CFR Part 173

Hazardous materials transportation, Incorporation by reference, 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

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

49 CFR Part 178

Hazardous materials transportation, Incorporation by reference, Motor vehicle safety, Packaging and containers, Reporting and recordkeeping requirements.

49 CFR Part 180

Hazardous materials transportation, Motor carriers, Motor vehicle safety, Packaging and containers, Railroad safety, Reporting and recordkeeping requirements.

In consideration of the foregoing, PHMSA proposes to amend 49 CFR Chapter I 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. 5101-5128, 44701; Pub. L. 101-410 section 4 (28 U.S.C. 2461 note); Pub. L. 104-134, section 31001; 49 CFR 1.81 and 1.97.

2. In § 171.4, paragraph (c) is revised to read as follows:

§171.4 Marine pollutants.

* * * * *

(c) Exceptions. (1) Except when all or part of the transportation is by vessel, the requirements of this subchapter specific to marine pollutants do not apply to non-bulk packagings transported by motor vehicle, rail car or aircraft.

(2) Single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass of 5 kg or less for solids, are not subject to any other requirements of this subchapter provided the packagings meet the general requirements in §§ 173.24 and 173.24a. This exception does not apply to marine pollutants that are a hazardous waste, a hazardous substance, or meet the definition for inclusion in another hazard class.

* * * * *

3. In § 171.7:

a. Paragraphs (a)(1), (s)(1), (t)(1), (v)(2), and (w)(1) through (52) are revised;

b. Paragraphs (w)(53 through (58) and (bb)(1)(ix) through (xii) are added;

c. Paragraph (dd)(1) and paragraph (dd)(2) introductory text are revised; and

d. Paragraph (dd)(2)(iii) is added.

The revisions and additions read as follows:

§ 171.7 Reference material.

(a) *Matter incorporated by reference*—(1) *General.* There is incorporated, by

reference in parts 170-189 of this subchapter, matter referred to that is not specifically set forth. This matter is hereby made a part of the regulations in parts 170-189 of this subchapter. The matter subject to change is incorporated only as it is in effect on the date of issuance of the regulation referring to that matter. The material listed in paragraphs (b) through (ee) of this section have been approved for incorporation by reference by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Material is incorporated as it exists on the date of the approval and a notice of any change in the material will be published in the FEDERAL REGISTER. Matters referenced by footnote are included as part of the regulations of this subchapter.

* * * * *

(s) * * *

(1) IAEA Safety Standards for Protecting People and the Environment; Regulations for the Safe Transport of Radioactive Material, No. SSR-6, (IAEA Regulations), 2012 Edition, into §§ 171.22, 171.23, 171.26, 173.415, 173.416, 173.417, 173.473.

* * * * *

(t) * * *

(1) Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Technical Instructions), 2015-2016 Edition, into §§171.8; 171.22; 171.23; 171.24; 172.101; 172.202; 172.401; 172.512; 172.519; 172.602; 173.56; 173.320; 175.10, 175.33; 178.3.

* * * * *

(v) * * *

(2) International Maritime Dangerous Goods Code (IMDG Code), Incorporating Amendment 37-14 (English Edition), 2013, into §§171.22; 171.23; 171.25; 172.101 172.202; 172.203 172.401; 172.502; 172.519; 172.602; 173.21; 173.56; 176.2; 176.5; 176.11; 176.27; 176.30; 176.83; 176.84; 176.140; 176.720; 178.3; 178.274.

(w) * * *

(1) ISO 535-1991(E) Paper and board—Determination of water absorptiveness—Cobb method, 1991, into §178.516; 178.707; 178.708.

(2) ISO 1496-1: 1990 (E)—Series 1 freight containers—Specification and testing, Part 1: General cargo containers. Fifth Edition, (August 15, 1990), into §173.411.

(3) ISO 1496-3(E)—Series 1 freight containers—Specification and testing—Part 3: Tank containers for liquids, gases and pressurized dry bulk, Fourth edition, March 1995, into §178.74; 178.75; 178.274.

(4) ISO 1516:2002(E), Determination of flash/no flash—Closed cup equilibrium method, Third Edition, 2002-03-01, into §173.120.

(5) ISO 1523:2002(E), Determination of flash point—Closed cup equilibrium method, Third Edition, 2002-03-01, into §173.120.

(6) ISO 2431-1984(E) Standard Cup Method, 1984, into §173.121.

(7) ISO 2592:2000(E), Determination of flash and fire points—Cleveland open cup method, Second Edition, 2000-09-15, into §173.120.

(8) ISO 2719:2002(E), Determination of flash point—Pensky-Martens closed cup method, Third Edition, 2002-11-15, into §173.120.

(9) ISO 2919:1999(E), Radiation Protection — Sealed radioactive sources — General requirements and classification, (ISO 2919), second edition, February 15, 1999, into § 173.469.

(10) ISO 3036-1975(E) Board—Determination of puncture resistance, 1975, into §178.708.

(11) ISO 3405:2000(E), Petroleum products—Determination of distillation characteristics at atmospheric pressure, Third Edition, 2000-03-01, into §173.121.

(12) ISO 3574-1986(E) Cold-reduced carbon steel sheet of commercial and drawing qualities, into §178.503; Part 178, appendix C.

(13) ISO 3679:2004(E), Determination of flash point—Rapid equilibrium closed cup method, Third Edition, 2004-04-01, into §173.120.

(14) ISO 3680:2004(E), Determination of flash/no flash—Rapid equilibrium closed cup method, Fourth Edition, 2004-04-01, into §173.120.

(15) ISO 3807-2(E), Cylinders for acetylene—Basic requirements—Part 2: Cylinders with fusible plugs, First edition, March 2000, into §§173.303; 178.71.

(16) ISO 3924:1999(E), Petroleum products—Determination of boiling range distribution—Gas chromatography method, Second Edition, 1999-08-01, into §173.121.

(17) ISO 4126-1:2004(E): Safety devices for protection against excessive pressure—Part 1: Safety valves, Second edition 2004-02-15, into §178.274.

(18) ISO 4126-7:2004(E): Safety devices for protection against excessive pressure—Part 7: Common data, First Edition 2004-02-15 into §178.274.

(19) ISO 4126-7:2004/Cor.1:2006(E): Safety devices for protection against excessive pressure—Part 7: Common data, Technical Corrigendum 1, 2006-11-01, into §178.274.

(20) ISO 4626:1980(E), Volatile organic liquids—Determination of boiling range of organic solvents used as raw materials, First Edition, 1980-03-01, into §173.121.

(21) ISO 4706:2008(E), Gas cylinders—Refillable welded steel cylinders—Test pressure 60 bar and below, First Edition, 2008-04-15, Corrected Version, 2008-07-01, into §178.71.

(22) ISO 6406(E), Gas cylinders—Seamless steel gas cylinders—Periodic inspection and testing, Second edition, February 2005, into §180.207.

(23) ISO 6892 Metallic materials—Tensile testing, July 15, 1984, First Edition, into §178.274.

(24) ISO 7225(E), Gas cylinders—Precautionary labels, Second Edition, July 2005, into §178.71.

(25) ISO 7866(E), Gas cylinders—Refillable seamless aluminum alloy gas cylinders—Design, construction and testing, First edition, June 1999, into §178.71.

(26) ISO 8115 Cotton bales—Dimensions and density, 1986 Edition, into §172.102.

(27) ISO 9809-1:1999: Gas cylinders—Refillable seamless steel gas cylinders—Design, construction and testing—Part 1: Quenched and tempered steel cylinders with tensile strength less than 1100 MPa., First edition, June 1999, into §§178.71; 178.75.

(28) ISO 9809-1:2010: Gas cylinders—Refillable seamless steel gas cylinders—Design, construction and testing—Part 1: Quenched and tempered steel cylinders with tensile strength less than 1100 MPa., Second edition, 2010-04-15, into §§178.71; 178.75.

(29) ISO 9809-2:2000: Gas cylinders—Refillable seamless steel gas cylinders—Design, construction and testing—Part 2: Quenched and tempered steel cylinders with tensile strength greater than or equal to 1100 MPa., First edition, June 2000, into §§178.71; 178.75.

(30) ISO 9809-2:2010: Gas cylinders—Refillable seamless steel gas cylinders—Design, construction and testing—Part 2: Quenched and tempered steel cylinders with tensile strength greater than or equal to 1100 MPa., Second edition, 2010-04-15, into §§178.71; 178.75.

(31) ISO 9809-3:2000: Gas cylinders—Refillable seamless steel gas cylinders—Design, construction and testing—Part 3: Normalized steel cylinders, First edition, December 2000, into §§178.71; 178.75.

(32) ISO 9809-3:2010: Gas cylinders—Refillable seamless steel gas cylinders—Design, construction and testing—Part 3: Normalized steel cylinders, Second edition, 2010-04-15, into §§178.71; 178.75.

(33) ISO 9978:1992(E)—Radiation protection—Sealed radioactive sources—Leakage test methods. First Edition, (February 15, 1992), into §173.469.

(34) ISO 10156:2010(E): Gases and gas mixtures—Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets, Third edition, 2010-04-01, into §173.115.

(35) ISO 10156:2010/Cor.1:2010(E): Gases and gas mixtures—Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets, Technical Corrigendum 1, 2010-09-01, into §173.115.

(36) ISO 10297:1999(E), Transportable gas cylinders—Cylinder valves—Specification and type testing, First Edition, 1995-05-01, into §173.301b; 178.71.

(37) ISO 10297:2006(E), Transportable gas cylinders—Cylinder valves—Specification and type testing, Second Edition, 2006-01-15, into §173.301b; 178.71.

(38) ISO 10461:2005(E), Gas cylinders—Seamless aluminum-alloy gas cylinders—Periodic inspection and testing, Second Edition, 2005-02-15 and Amendment 1, 2006-07-15, into §180.207.

(39) ISO 10462 (E), Gas cylinders—Transportable cylinders for dissolved acetylene—Periodic inspection and maintenance, Second edition, February 2005, into §180.207.

(40) ISO 10692-2:2001(E), Gas cylinders—Gas cylinder valve connections for use in the micro-electronics industry—Part 2: Specification and type testing for valve to cylinder connections, First Edition, 2001-08-01, into §§173.40; 173.302c.

(41) ISO 11114-1:2012(E), Gas cylinders—Compatibility of cylinder and valve materials with gas contents—Part 1: Metallic materials, Second edition, (2012-03-16), into §§173.301b; 178.71.

(42) ISO 11114-2(E), Transportable gas cylinders—Compatibility of cylinder and valve materials with gas contents—Part 2: Non-metallic materials, First edition, December 2000, into §§173.301b; 178.71.

(43) ISO 11117:1998(E): Gas cylinders—Valve protection caps and valve guards—Design, construction and tests, First edition, 1998-08-01, into §173.301b.

(44) ISO 11117:2008(E): Gas cylinders—Valve protection caps and valve guards—Design, construction and tests, Second edition, 2008-09-01, into §173.301b.

(45) ISO 11117:2008/Cor.1:2009(E): Gas cylinders—Valve protection caps and valve guards—Design, construction and tests, Technical Corrigendum 1, 2009-05-01, into §173.301b.

(46) ISO 11118(E), Gas cylinders—Non-refillable metallic gas cylinders—Specification and test methods, First edition, October 1999, into §178.71.

(47) ISO 11119-1(E), Gas cylinders—Gas cylinders of composite construction—Specification and test methods—Part 1: Hoop-wrapped composite gas cylinders, First edition, May 2002, into §178.71.

(48) ISO 11119-2(E), Gas cylinders—Gas cylinders of composite construction—Specification and test methods—Part 2: Fully wrapped fibre reinforced composite gas cylinders with load-sharing metal liners, First edition, May 2002, into §178.71.

(49) ISO 11119-3(E), Gas cylinders of composite construction—Specification and test methods—Part 3: Fully wrapped fibre reinforced composite gas cylinders with non-load-sharing metallic or non-metallic liners, First edition, September 2002, into §178.71.

(50) ISO 11120(E), Gas cylinders—Refillable seamless steel tubes of water capacity between 150 L and 3000 L—Design, construction and testing, First edition, March 1999, into §§178.71; 178.75.

(51) ISO 11513:2011(E), Gas cylinders—Refillable welded steel cylinders containing materials for sub-atmospheric gas packaging (excluding acetylene) - Design,

construction, testing, use and periodic inspection, First edition, 2011-09-12, into §173.302c; 180.207.

(52) ISO 11621(E), Gas cylinders—Procedures for change of gas service, First edition, April 1997, into §§173.302, 173.336, 173.337.

(53) ISO 11623(E), Transportable gas cylinders—Periodic inspection and testing of composite gas cylinders, First edition, March 2002, into §180.207.

(54) ISO 13340:2001(E) Transportable gas cylinders—Cylinder valves for non-refillable cylinders—Specification and prototype testing, First edition, 2004-04-01, into §§173.301b; 178.71.

(55) ISO 13736:2008(E), Determination of flash point—Abel closed-cup method, Second Edition, 2008-09-15, into §173.120.

(56) ISO 16111:2008(E), Transportable gas storage devices—Hydrogen absorbed in reversible metal hydride, First Edition, 2008-11-15, into §§173.301b; 173.311; 178.71.

(57) ISO 18172-1:2007(E), Gas cylinders—Refillable welded stainless steel cylinders—Part 1: Test pressure 6 MPa and below, First Edition, 2007-03-01, into §178.71.

(58) ISO 20703:2006(E), Gas cylinders—Refillable welded aluminum-alloy cylinders—Design, construction and testing, First Edition, 2006-05-01, into §178.71.

* * * * *

(bb) * * *

(1) * * *

(ix) SOR/2011-239 November 9, 2011

(x) SOR/2011-60 March 16, 2011

(xi) SOR/2011-210 October 12, 2011

(xii) SOR/2012-245 November 9, 2012

* * * * *

(dd) * * *

(1) UN Recommendations on the Transport of Dangerous Goods, Model Regulations (UN Recommendations), 18th revised edition, Volumes I and II (2013), into §§171.8; 171.12; 172.202; 172.401; 172.407; 172.502; 173.22; 173.24; 173.24b; 173.40; 173.56; 173.192; 173.302b; 173.304b; 178.75; 178.274.

(2) UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, (Manual of Tests and Criteria), into §§ 171.24, 172.102; 173.21; 173.56; 173.57; 173.58; 173.60; 173.115; 173.124; 173.125; 173.127; 173.128; 173.137; 173.185; 173.220; part 173, appendix H; 178.274:

* * * * *

(iii) Fifth revised edition, amendment 2 (2013).

* * * * *

4. In § 171.8:

a. A definition for "Adsorbed gas" is added in alphabetical order;

b. The definition for "Bundle of cylinders" is revised;

c. Definitions for "Large salvage packaging" and "Neutron Radiation Detector" are added in alphabetical order;

d. The definition for "Non-bulk packaging" is revised; and

e. A definition for "Radiation detection system" is added in alphabetical order.

The additions and revisions read as follows:

§ 171.8 Definitions and abbreviations.

* * * * *

Adsorbed gas. See § 173.115 of this subchapter.

* * * * *

Bundle of cylinders means assemblies of UN cylinders fastened together and interconnected by a manifold and transported as a unit. The total water capacity for the bundle may not exceed 3,000 L, except that a bundle intended for the transport of gases in Division 2.3 is limited to a water capacity of 1,000 L. Not permitted for air transport.

* * * * *

Large salvage packaging means a special packaging into which damaged, defective or leaking hazardous materials packages, or hazardous materials that have spilled or leaked are placed for the purpose of transport for recovery or disposal, that—

(1) Is designed for mechanical handling; and

(2) Has a net mass greater than 400 kg (882 pounds) or a capacity of greater than 450 L (119 gallons), but has a volume of not more than 3 cubic meters (106 cubic feet).

* * * * *

Neutron Radiation Detector means a device that detects neutron radiation. In such a device, a gas may be contained in a hermetically sealed electron tube transducer that converts neutron radiation into a measurable electric signal.

Non-bulk packaging means a packaging which has:

(1) A maximum capacity of 450 L (119 gallons) or less as a receptacle for a liquid;

(2) A maximum net mass of 400 kg (882 pounds) or less and a maximum capacity of 450 L (119 gallons) or less as a receptacle for a solid;

(3) A water capacity of 454 kg (1000 pounds) or less as a receptacle for a gas as defined in §173.115 of this subchapter; or

(4) Regardless of the definition of bulk packaging, a maximum net mass of 400 kg (882) or less for a bag or a box conforming to the applicable requirements for specification packagings in subpart L of part 178 of this subchapter.

* * * * *

Radiation detection system means an apparatus that contains radiation detectors as components.

* * * * *

5. In § 171.23 revise paragraph (b)(2) and add paragraph (b)(11)(ix) to read as follows:

§ 171.23 Requirements for specific materials and packagings transported under the ICAO Technical Instructions, IMDG Code, Transport Canada TDG Regulations, or the IAEA Regulations.

* * * * *

(b) * * *

(2) Safety devices for vehicles, vessels or aircraft, e.g. air bag inflators, air bag modules, seat-belt pretensioners, and pyromechanical devices. For each approved safety device, the shipping paper description must conform to the requirements in §173.166(c) of this subchapter.

(i) The EX number or product code must be included in association with the basic shipping description. When a product code is used, it must be traceable to the specific EX number assigned to the inflator, module or seat-belt pretensioner by the Associate Administrator. The EX number or product code is not required to be marked on the outside package.

(ii) [Reserved]

* * * * *

(11) * * *

(ix) Packages containing fissile materials must conform to the requirements of § 173.453 to be otherwise excepted from the requirements of Subpart I of Part 173 for fissile materials.

* * * * *

6. In § 171.24 paragraph (d)(1)(ii) is revised to read as follows:

§171.24 Additional requirements for the use of the ICAO Technical Instructions.

* * * * *

(d) * * *

(1) * * *

(ii) Lithium metal cells and batteries. Lithium metal cells and batteries (UN3090) are forbidden for transport aboard passenger-carrying aircraft. The outside of each package that contains lithium metal cells or lithium metal batteries (UN3090) transported in accordance with Packing Instruction 968, Section II must be marked "PRIMARY LITHIUM BATTERIES—FORBIDDEN FOR TRANSPORT ABOARD PASSENGER AIRCRAFT" or "LITHIUM METAL BATTERIES—FORBIDDEN FOR TRANSPORT

ABOARD PASSENGER AIRCRAFT", or labeled with a CARGO AIRCRAFT ONLY label specified in § 172.448 of this subchapter.

* * * * *

7. In § 171.25, paragraph (b)(3) is revised to read as follows:

§ 171.25 Additional requirements for the use of the IMDG Code.

* * * * *

(b) * * *

(3) The outside of each package containing lithium metal cells or batteries (UN3090) transported in accordance with special provision 188 of the IMDG Code must be marked "PRIMARY LITHIUM BATTERIES—FORBIDDEN FOR TRANSPORT ABOARD PASSENGER AIRCRAFT" or "LITHIUM METAL BATTERIES—FORBIDDEN FOR TRANSPORT ABOARD PASSENGER AIRCRAFT", or labeled with a CARGO AIRCRAFT ONLY label specified in § 172.448 of this subchapter. The provisions of this paragraph do not apply to packages that contain 5 kg (11 pounds) net weight or less of lithium metal cells or batteries that are packed with, or contained in, equipment.

* * * * *

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

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

Authority: 49 U.S.C. 5101–5128, 44701; 49 CFR 1.81, 1.96 and 1.97.

9. In § 172.101:

a. Paragraph (f) and paragraph (k) introductory text are revised;

b. The Hazardous Materials Table is amended by removing the entries under "[REMOVE]", by adding in the appropriate alphabetical sequence the entries under "[ADD]" and revising entries under "[REVISE]"; and

c. Appendix B to § 172.101, the List of Marine Pollutants is amended by removing one (1) entry and adding the following sixty-two (62) entries in appropriate alphabetical order.

The additions and revisions read as follows:

§ 172.101 Purpose and use of the hazardous materials table.

* * * * *

(f) *Column 5: Packing group*. Column 5 of the HMT specifies one or more packing groups assigned to a material corresponding to the proper shipping name and hazard class for that material. Class 2, Class 7, Division 6.2 (other than regulated medical wastes), and ORM-D materials, do not have packing groups. Articles in other than Class 1 are not assigned to packing groups. For packing purposes, any requirement for a specific packaging performance level is set out in the applicable packing authorizations of part 173. Packing Groups I, II and III indicate the degree of danger presented by the material is either great, medium or minor, respectively. If more than one packing group is indicated for an entry, the packing group for the hazardous material is determined using the criteria for assignment of packing groups specified in subpart D of part 173. When a reevaluation of test data or new data indicates a need to modify the specified packing group(s), the data should be submitted to the Associate Administrator. Each reference in this column to a

material which is a hazardous waste or a hazardous substance, and whose proper shipping name is preceded in Column 1 of the Table by the letter “A” or “W”, is modified to read “III” on those occasions when the material is offered for transportation or transported by a mode in which its transportation is not otherwise subject to requirements of this subchapter.

* * * * *

(k) *Column 10: Vessel stowage requirements*. Column 10A [Vessel stowage] specifies the authorized stowage locations on board cargo and passenger vessels. Column 10B [Other provisions] specifies codes for stowage and handling requirements for specific hazardous materials. Hazardous materials offered for transportation as limited quantities are allocated stowage category A and are not subject to the stowage codes assigned by column 10B. The meaning of each code in Column 10B is set forth in § 176.84 of this subchapter. Section 176.63 of this subchapter sets forth the physical requirements for each of the authorized locations listed in Column 10A. (For bulk transportation by vessel, see 46 CFR parts 30 to 40, 70, 98, 148, 151, 153 and 154.) The authorized stowage locations specified in Column 10A are defined as follows:

* * * * *

Sym-bols	Hazardous materials descrip-tions and proper shipping names	Hazard class or divisio n	Identi-fication Numbers	PG	Label Codes	Special Provisions (§ 172.102)	(8) Packaging (§ 173.***)			(9) Quantity limitations (see §§ 173.27 and 175.75)		(10) Vessel stowage	
							Excep-tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air-craft only	Loca-tion	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	[REMOVE]												
	*		*		*		*		*		*		*
I	Air bag inflators, or Air bag modules, or Seat-belt pretensioners.	1.4G	UN0503		1.4G	161, A200	None	62	None	Forbidden	75 kg	02	25
	Air bag inflators, or Air bag modules, or Seat-belt pretensioners.	9	UN3268	III	9	160, A200	166	166	166	25 kg	100 kg	A	
	*		*		*		*		*		*		*
	Ammonium nitrate, with more than 0.2 percent combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance	1.1D	UN0222	II	1.1D		None	62	None	Forbidden	Forbidden	04	25, 19E
	Ammonium nitrate, with not more than 0.2% total combustible material, including any organic substance, calculated as carbon to the exclusion of any other added substance	5.1	UN1942	III	5.1	A1, A29, B120, IB8, IP3, T1, TP33	152	213	240	25 kg	100 kg	A	25, 59, 60, 116
	*		*		*		*		*		*		*
I	Blue asbestos (Crocidolite) or Brown asbestos (amosite, mysorite)	9	UN2212	II	9	156, IB8, IP2, IP4, T3, TP33	155	216	240	Forbidden	Forbidden	A	34, 40
	*		*		*		*		*		*		*
	Capacitor, electric double layer (with an energy storage capacity greater than 0.3 Wh)	9	UN3499		9	361	176	176	176	No limit	No limit	A	

	*		*		*		*		*		*		*
	Chemical kits	9	UN3316		9	15	161	161	None	10 kg	10 kg	A	
	*		*		*		*		*		*		*
	First aid kits	9	UN3316		9	15	161	161	None	10 kg	10 kg	A	
	*		*		*		*		*		*		*
	Trinitrobenzene, dry or wetted with less than 30 percent water, by mass	1.1D	UN0214	II	1.1D		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
I	White asbestos (chrysotile, actinolite, anthophyllite, tremolite)	9	UN2590	III	9	156, IB8, IP2, IP3, T1, TP33	155	216	240	200 kg	200 kg	A	34, 40
	*		*		*		*		*		*		*
	[**ADD**]												
G	Adsorbed gas, n.o.s.	2.2	UN3511		2.2		None	302c	302c	75 kg	150 kg	A	
G	Adsorbed gas, flammable, n.o.s.	2.1	UN3510		2.1		None	302c	302c	Forbidden	150 kg	D	40
G	Adsorbed gas, oxidizing, n.o.s.	2.2	UN3513		2.2, 5.1		None	302c	302c	75 kg	150 kg	D	
G	Adsorbed gas, toxic, n.o.s. Inhalation hazard zone A.	2.3	UN3512		2.3	1	None	302c	302c	Forbidden	Forbidden	D	40
G	Adsorbed gas, toxic, n.o.s. Inhalation hazard zone B.	2.3	UN3512		2.3	2, B9, B14	None	302c	302c	Forbidden	Forbidden	D	40
G	Adsorbed gas, toxic, n.o.s. Inhalation hazard zone C.	2.3	UN3512		2.3	3, B14	None	302c	302c	Forbidden	Forbidden	D	40
G	Adsorbed gas, toxic, n.o.s. Inhalation hazard zone D.	2.3	UN3512		2.3	4	None	302c	302c	Forbidden	Forbidden	D	40
G	Adsorbed gas, toxic, corrosive, n.o.s. Inhalation hazard zone A.	2.3	UN3516		2.3, 8	1	None	302c	302c	Forbidden	Forbidden	D	40
G	Adsorbed gas, toxic, corrosive, n.o.s. Inhalation hazard zone B.	2.3	UN3516		2.3, 8	2, B9, B14	None	302c	302c	Forbidden	Forbidden	D	40
G	Adsorbed gas, toxic, corrosive, n.o.s. Inhalation hazard zone C.	2.3	UN3516		2.3, 8	3, B14	None	302c	302c	Forbidden	Forbidden	D	40

G	Adsorbed gas, toxic, corrosive, n.o.s. Inhalation hazard zone D.	2.3	UN3516		2.3, 8	4	None	302c	302c	Forbidden	Forbidden	D	40
G	Adsorbed gas, toxic, flammable, n.o.s. Inhalation hazard zone_A.	2.3	UN3514		2.3, 2.1	1	None	302c	302c	Forbidden	Forbidden	D	40
G	Adsorbed gas, toxic, flammable, n.o.s. Inhalation hazard zone_B.	2.3	UN3514		2.3, 2.1	2, B9, B14	None	302c	302c	Forbidden	Forbidden	D	40
G	Adsorbed gas, toxic, flammable, n.o.s. Inhalation hazard zone_C.	2.3	UN3514		2.3, 2.1	3, B14	None	302c	302c	Forbidden	Forbidden	D	40
G	Adsorbed gas, toxic, flammable, n.o.s. Inhalation hazard zone_D.	2.3	UN3514		2.3, 2.1	4	None	302c	302c	Forbidden	Forbidden	D	40
G	Adsorbed gas, toxic, flammable, corrosive, n.o.s. Inhalation_hazard zone_A.	2.3	UN3517		2.3, 2.1, 8	1	None	302c	302c	Forbidden	Forbidden	D	17, 40
G	Adsorbed gas, toxic, flammable, corrosive, n.o.s. Inhalation_hazard zone_B.	2.3	UN3517		2.3, 2.1, 8	2, B9, B14	None	302c	302c	Forbidden	Forbidden	D	17, 40
G	Adsorbed gas, toxic, flammable, corrosive, n.o.s. Inhalation_hazard zone_C.	2.3	UN3517		2.3, 2.1, 8	3, B14	None	302c	302c	Forbidden	Forbidden	D	17, 40
G	Adsorbed gas, toxic, flammable, corrosive, n.o.s. Inhalation_hazard zone_D.	2.3	UN3517		2.3, 2.1, 8	4	None	302c	302c	Forbidden	Forbidden	D	17, 40
G	Adsorbed gas, toxic, oxidizing, n.o.s. Inhalation hazard zone_A.	2.3	UN3515		2.3, 5.1	1	None	302c	302c	Forbidden	Forbidden	D	40
G	Adsorbed gas, toxic, oxidizing, n.o.s. Inhalation hazard zone_B.	2.3	UN3515		2.3, 5.1	2, B9, B14	None	302c	302c	Forbidden	Forbidden	D	40
G	Adsorbed gas, toxic, oxidizing, n.o.s. Inhalation hazard zone_C.	2.3	UN3515		2.3, 5.1	3, B14	None	302c	302c	Forbidden	Forbidden	D	40
G	Adsorbed gas, toxic, oxidizing, n.o.s. Inhalation hazard zone_D.	2.3	UN3515		2.3, 5.1	4	None	302c	302c	Forbidden	Forbidden	D	40
G	Adsorbed gas, toxic, oxidizing, corrosive, n.o.s. . Inhalation_hazard zone_A.	2.3	UN3518		2.3, 5.1, 8	1	None	302c	302c	Forbidden	Forbidden	D	40, 89, 90
G	Adsorbed gas, toxic, oxidizing, corrosive, n.o.s. . Inhalation_hazard zone_B.	2.3	UN3518		2.3, 5.1, 8	2, B9, B14	None	302c	302c	Forbidden	Forbidden	D	40, 89, 90
G	Adsorbed gas, toxic, oxidizing, corrosive, n.o.s. . Inhalation_hazard zone_C.	2.3	UN3518		2.3, 5.1, 8	3, B14	None	302c	302c	Forbidden	Forbidden	D	40, 89, 90

G	Adsorbed gas, toxic, oxidizing, corrosive, n.o.s. . Inhalation hazard zone D.	2.3	UN3518		2.3, 5.1, 8	4	None	302c	302c	Forbidden	Forbidden	D	40, 89, 90
	*		*		*		*		*		*		*
	Air bag inflators, or Air bag modules, or Seat-belt pretensioners, see Safety devices, electrically initiated or Safety devices, pyrotechnic.												
	*		*		*		*		*		*		*
	Ammonium nitrate	1.1D	UN0222	II	1.1D	370	None	62	None	Forbidden	Forbidden	04	25, 19E
	Ammonium nitrate, with not more than 0.2% combustible substances, including any organic substance, calculated as carbon to the exclusion of any other added substance	5.1	UN1942	III	5.1	A1, A29, B120, IB8, IP3, T1, TP33	152	213	240	25 kg	100 kg	A	25, 59, 60, 66, 116, 124
	*		*		*		*		*		*		*
G I	Asbestos, amphibole (amosite, tremolite, actinolite, anthophyllite, or crocidolite)	9	UN2212	II	9	156, IB8, IP2, IP4, T3, TP33	155	216	240	Forbidden	Forbidden	A	34, 40
I	Asbestos, chrysotile	9	UN2590	III	9	156, IB8, IP2, IP3, T1, TP33	155	216	240	200 kg	200 kg	A	34, 40
	*		*		*		*		*		*		*
	Boron trifluoride, adsorbed	2.3	UN3519		2.3, 8	2, B9, B14	None	302c	302c	Forbidden	Forbidden	D	40
	*		*		*		*		*		*		*
	Capacitor, asymmetric (with an energy storage capacity greater than 0.3Wh)	9	UN3508		9	372	176	176	176	No limit	No Limit	A	
	Capacitor, electric double layer (with an energy storage capacity greater than 0.3 Wh)	9	UN3499		9	361	176	176	176	No limit	No limit	A	
	*		*		*		*		*		*		*
	Chemical kits	9	UN3316	II	9	15	161	161	None	10 kg	10 kg	A	

	*		*		*		*		*		*		*
	Chlorine, adsorbed	2.3	UN3520		2.3, 5.1, 8	2, B9, B14, N86	None	302c	302c	Forbidden	Forbidden	D	40, 89, 90
	*		*		*		*		*		*		*
	First aid kits	9	UN3316	II	9	15	161	161	None	10 kg	10 kg	A	
	First aid kits	9	UN3316	III	9	15	161	161	None	10 kg	10 kg	A	
	*		*		*		*		*		*		*
	Germane, adsorbed	2.3	UN3523		2.3, 2.1	2	None	302c	302c	Forbidden	Forbidden	D	40
	*		*		*		*		*		*		*
	Hydrogen selenide, adsorbed	2.3	UN3526		2.3, 2.1	1	None	302c	302c	Forbidden	Forbidden	D	40
	*		*		*		*		*		*		*
	Phosphine, adsorbed	2.3	UN3525		2.3, 2.1	1	None	302c	302c	Forbidden	Forbidden	D	40
	*		*		*		*		*		*		*
	Phosphorus pentafluoride, adsorbed	2.3	UN3524		2.3, 8	2, B9, B14	None	302c	302c	Forbidden	Forbidden	D	40
	*		*		*		*		*		*		*
G	Self-reactive liquid type B, temperature controlled	4.1	UN3231	II	4.1		None	224	None	Forbidden	Forbidden	D	2, 25, 52, 53
	*		*		*		*		*		*		*
	Safety devices, electrically initiated	9	UN3268		9	160, A200	166	166	166	25 kg	100 kg	A	
	Safety devices, pyrotechnic	1.4G	UN0503		1.4G	A200	None	62	None	Forbidden	75 kg	02	25
	*		*		*		*		*		*		*
	Silicon tetrafluoride, adsorbed	2.3	UN3521		2.3, 8	2	None	302c	302c	Forbidden	Forbidden	D	40
	*		*		*		*		*		*		*

	Trifluorochloroethylene, stabilized or Refrigerant gas R 1113	2.3	UN1082		2.3, 2.1	3, B14, T50	None	304	314, 315	Forbidden	Forbidden	D	40
	*		*		*		*		*		*		*
	Trinitrobenzene, dry or wetted with less than 30 percent water, by mass	1.1D	UN0214	II	1.1D		None	62	None	Forbidden	Forbidden	04	25
	Trinitrobenzene, wetted with not less than 30 percent water, by mass.	4.1	UN1354	I	4.1	23, A2, A8, A19, N41	None	211	None	0.5 kg	0.5 kg	E	28, 36
	*		*		*		*		*		*		*
	Uranium hexafluoride, radioactive material, excepted package, less than 0.1 kg per package, non-fissile or fissile-excepted	8	UN3507	I	8, 7	369	420	None	None	Less than .1 kg	Less than .1 kg	A	132
	*		*		*		*		*		*		*
	[**REVISE**]												
	Aircraft hydraulic power unit fuel tank *(containing a mixture of anhydrous hydrazine and monomethyl hydrazine) (M86 fuel)*	3	UN3165	I	3, 6.1, 8		None	172	None	Forbidden	42 L	E	21, 40, 49, 100
	*		*		*		*		*		*		*
	Acrylamide, solid	6.1	UN2074	III	6.1	IB8, IP3, T1, TP33	153	213	240	100 kg	200 kg	A	12, 25
	Acrylamide solution	6.1	UN3426	III	6.1	IB3, T4, TP1	153	203	241	60 L	220 L	A	12, 25
	*		*		*		*		*		*		*
	Aldol	6.1	UN2839	II	6.1	IB2, T7, TP2	153	202	243	5 L	60 L	A	12, 25
	*		*		*		*		*		*		*
	Alkali metal alloys, liquid, n.o.s.	4.3	UN1421	I	4.3	A2, A3, A7, B48, N34	None	201	244	Forbidden	1 L	D	13, 52, 148
	Alkali metal amalgam, liquid	4.3	UN1389	I	4.3	A2, A3, A7, N34	None	201	244	Forbidden	1 L	D	13, 40, 52, 148
	*		*		*		*		*		*		*

	Alkali metal amalgam, solid	4.3	UN3401	I	4.3	IB4, IP1, N40, T9, TP7, TP33	None	211	242	Forbidden	15 kg	D	13, 52, 148
	*		*		*		*		*		*		*
	Alkali metal amides	4.3	UN1390	II	4.3	A6, A7, A8, A19, A20, IB7, IP2, T3, TP33	151	212	241	15 kg	50 kg	E	13, 40, 52, 148
	*		*		*		*		*		*		*
	Alkali metal dispersions, flammable *or* Alkaline earth metal dispersions, flammable	4.3	UN3482	I	4.3, 3	A2, A3, A7	None	201	244	Forbidden	1 L	D	13, 52, 148
	Alkali metal dispersions, *or* Alkaline earth metal dispersions	4.3	UN1391	I	4.3	A2, A3, A7	None	201	244	Forbidden	1 L	D	13, 52, 148
	*		*		*		*		*		*		*
	Alkaline earth metal alloys, n.o.s.	4.3	UN1393	II	4.3	A19, IB7, IP2, T3, TP33	151	212	241	15 kg	50 kg	E	13, 52, 148
	Alkaline earth metal amalgams, liquid	4.3	UN1392	I	4.3	A19, N34, N40	None	201	244	Forbidden	1 L	E	13, 40, 52, 148
	Alkaline earth metal amalgams, solid	4.3	UN3402	I	4.3	A19, N34, N40, T9, TP7, TP33	None	211	242	Forbidden	15 kg	D	13, 52, 148
	*		*		*		*		*		*		*
	Allyl chloroformate	6.1	UN1722	I	6.1, 3, 8	2, B9, B14, B32, N41, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	D	21, 40, 100
	*		*		*		*		*		*		*
	Aluminum borohydride *or* Aluminum borohydride in devices	4.2	UN2870	I	4.2, 4.3	B11, T21, TP7, TP33	None	181	244	Forbidden	Forbidden	D	13, 148
	*		*		*		*		*		*		*
	Aluminum carbide	4.3	UN1394	II	4.3	A20, IB7, IP2, N41, T3, TP33	151	212	242	15 kg	50 kg	A	13, 52, 148
	*		*		*		*		*		*		*
	Aluminum ferrosilicon powder	4.3	UN1395	II	4.3, 6.1	A19, IB5, IP2, T3, TP33	151	212	242	15 kg	50 kg	A	13, 39, 40, 52, 53, 85, 103, 148
				III	4.3, 6.1	A19, A20, IB4	151	213	241	25 kg	100 kg	A	13, 39, 40, 52, 53, 85, 103
	Aluminum hydride	4.3	UN2463	I	4.3	A19, N40	None	211	242	Forbidden	15 kg	E	13, 148

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	Aluminum phosphide	4.3	UN1397	I	4.3, 6.1	A8, A19, N40	None	211	242	Forbidden	15 kg	E	13, 40, 52, 85, 148
	*		*		*		*		*		*		*
	Aluminum powder, coated	4.1	UN1309	II	4.1	IB8, IP2, IP4, T3, TP33	151	212	240	15 kg	50 kg	A	13, 39, 52, 53, 74, 101, 147, 148
				III	4.1	IB8, IP3, T1, TP33	151	213	240	25 kg	100 kg	A	13, 39, 52, 53, 74, 101, 147, 148
	Aluminum powder, uncoated	4.3	UN1396	II	4.3	A19, A20, IB7, IP2, T3, TP33	151	212	242	15 kg	50 kg	A	13, 39, 52, 53, 148
				III	4.3	A19, A20, IB8, IP4, T1, TP33	151	213	241	25 kg	100 kg	A	13, 39, 52, 53, 148
	*				*		*		*		*		*
	Aluminum silicon powder, uncoated	4.3	UN1398	III	4.3	A1, A19, IB8, IP4, T1, TP33	151	213	241	25 kg	100 kg	A	13, 39, 40, 52, 53, 85, 103, 148
	Aluminum smelting by-products *or* Aluminum remelting by-products	4.3	UN3170	II	4.3	128, B115, IB7, IP2, T3, TP33	None	212	242	15 kg	50 kg	B	13, 85, 103, 148
				III	4.3	128, B115, IB8, IP4, T1, TP33	None	213	241	25 kg	100 kg	B	13, 85, 103, 148
	*				*		*		*		*		*
	N-Aminoethylpiperazine	8	UN2815	III	8	IB3, T4, TP1	154	203	241	5 L	60 L	A	12, 25
	*				*		*		*		*		*
	Aminopyridines *(o-; m-; p-)*	6.1	UN2671	II	6.1	IB8, IP2, IP4, T3, TP33	153	212	242	25 kg	100 kg	B	12, 25, 40, 52
	*				*		*		*		*		*
	Ammonium nitrate based fertilizer	5.1	UN2067	III	5.1	52, 150, B120, IB8, IP3, T1, TP33	152	213	240	25 kg	100 kg	B	25, 59, 60, 66, 117, 124
	*				*		*		*		*		*
	Ammonium nitrate emulsion or Ammonium nitrate suspension or Ammonium nitrate gel, intermediate for blasting explosives	5.1	UN3375	II	5.1	147, 163, IB2, IP16, TP32	None	231	231	Forbidden	Forbidden	D	25, 59, 60, 66, 124
	*				*		*		*		*		*

	Ammonium nitrate, liquid (hot concentrated solution)	5.1	UN2426		5.1	B5, T7	None	None	243	Forbidden	Forbidden	D	59, 60, 124
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	Ammonium nitrate, with not more than 0.2% total combustible material, including any organic substance, calculated as carbon to the exclusion of any other added substance	5.1	UN1942	III	5.1	A1, A29, B120, IB8, IP3, T1, TP33	152	213	240	25 kg	100 kg	A	25, 59, 60, 66, 116, 124
	*				*		*		*		*		*
	Ammonium polysulfide, solution	8	UN2818	II	8, 6.1	IB2, T7, TP2, TP13	154	202	243	1 L	30 L	B	12, 25, 40, 52
				III	8, 6.1	IB3, T4, TP1, TP13	154	203	241	5 L	60 L	B	12, 25, 40, 52
	*				*		*		*		*		*
	Ammonium sulfide solution	8	UN2683	II	8, 6.1, 3	IB1, T7, TP2, TP13	154	202	243	1 L	30 L	B	12, 25, 22, 52, 100
	*				*		*		*		*		*
	Ammunition, tear-producing, non-explosive, without burster or expelling charge, non-fuzed	6.1	UN2017		6.1, 8		None	212	None	Forbidden	50 kg	E	13, 40
	*				*		*		*		*		*
	Ammunition, toxic, non-explosive, without burster or expelling charge, non-fuzed	6.1	UN2016		6.1		None	212	None	Forbidden	100 kg	E	13, 40
	*				*		*		*		*		*
	Anisoyl chloride	8	UN1729	II	8	B2, B4, IB8, IP2, IP4, T3, TP33	154	212	240	15 kg	50 kg	A	40
	*				*		*		*		*		*
	Antimony pentafluoride	8	UN1732	II	8, 6.1	A3, A6, A7, A10, IB2, N3, N36, T7, TP2	None	202	243	Forbidden	30 L	D	40, 44, 89, 100, 141
	*				*		*		*		*		*
	Arsenic bromide	6.1	UN1555	II	6.1	IB8, IP2, IP4, T3, TP33	153	212	242	25 kg	100 kg	A	12, 25, 40

	*				*		*		*		*		*
	Articles, pressurized pneumatic or hydraulic containing non-flammable gas	2.2	UN3164		2.2	371	306	302, 304	None	No limit	No limit	A	
	*				*		*		*		*		*
	Barium	4.3	UN1400	II	4.3	A19, IB7, IP2, T3, TP33	151	212	241	15 kg	50 kg	E	13, 52, 148
	Barium alloys, pyrophoric	4.2	UN1854	I	4.2	T21, TP7, TP33	None	181	None	Forbidden	Forbidden	D	13, 148
	*				*		*		*		*		*
	Barium azide, wetted with not less than 50 percent water, by mass	4.1	UN1571	I	4.1, 6.1	162, A2	None	182	None	Forbidden	0.5 kg	D	28, 36
	*				*		*		*		*		
	Barium peroxide	5.1	UN1449	II	5.1, 6.1	A9, IB6, IP2, T3, TP33	152	212	242	5 kg	25 kg	C	13, 52, 66, 75. 148
	*				*		*		*		*		*
	Batteries, containing sodium	4.3	UN3292		4.3		189	189	189	Forbidden	No limit	A	13, 148
	Batteries, dry, containing potassium hydroxide solid, electric storage	8	UN3028		8	237	None	213	None	25 kg	230 kg	A	
	*				*		*		*		*		*
	Batteries, wet, filled with acid, electric storage	8	UN2794		8	A51	159	159	159	30 kg	No limit	A	
	Batteries, wet, filled with alkali, electric storage	8	UN2795		8	A51	159	159	159	30 kg	No limit	A	
	Batteries, wet, non-spillable, electric storage	8	UN2800		8		159a	159	159	No limit	No limit	A	
	*				*		*		*		*		*
	Beryllium, powder	6.1	UN1567	II	6.1, 4.1	IB8, IP2, IP4, T3, TP33	153	212	242	15 kg	50 kg	A	13, 147, 148
	*				*		*		*		*		*
+	Boron tribromide	8	UN2692	I	8, 6.1	2, B9, B14, B32, N34, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	C	12, 25

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	Boron trifluoride dihydrate	8	UN2851	II	8	IB2, T7, TP2	154	212	240	15 kg	50 kg	B	12, 25, 40
	Boron trifluoride dimethyl etherate	4.3	UN2965	I	4.3, 8, 3	A19, T10, TP2, TP7, TP13	None	201	243	Forbidden	1 L	D	13, 21, 25, 28, 40, 49, 100, 147, 148
	*				*		*		*		*		*
	Bromoform	6.1	UN2515	III	6.1	IB3, T4, TP1	153	203	241	60 L	220 L	A	12, 25, 40
	*				*		*		*		*		*
+	Bromine	8	UN1744	I	8, 6.1	1, B9, B85, N34, N43, T22, TP2, TP10, TP13	None	226	249	Forbidden	Forbidden	D	12, 25, 40, 66, 74
	*				*		*		*		*		*
+	Bromine solutions	8	UN1744	I	8, 6.1	1, B9, B85, N34, N43, T22, TP2, TP10, TP13	None	226	249	Forbidden	Forbidden	D	12, 25, 40, 66, 74, 89, 90
+	Bromine solutions	8	UN1744	I	8, 6.1	2, B9, B85, N34, N43, T22, TP2, TP10, TP13	None	227	249	Forbidden	Forbidden	D	12, 25. 40, 66, 74, 89, 90
	*				*		*		*		*		*
	Bromobenzyl cyanides, liquid	6.1	UN1694	I	6.1	T14, TP2, TP13	None	201	243	Forbidden	30 L	D	12, 25, 40, 52
	Bromobenzyl cyanides, solid	6.1	UN3449	I	6.1	T6, TP33	None	211	242	5 kg	50 kg	D	12, 25, 40, 52
	*				*		*		*		*		*
	tert-Butyl hypochlorite	4.2	UN3255	I	4.2, 8		None	211	243	Forbidden	Forbidden	D	40
	*				*		*		*		*		*
	Butyl mercaptan	3	UN2347	II	3	A3, A6, IB2, T4, TP1	150	202	242	5 L	60 L	D	52, 95, 102
	*				*		*		*		*		*
	5-tert-Butyl-2,4,6-trinitro-m-xylene or Musk xylene	4.1	UN2956	III	4.1	159	None	223	None	Forbidden	Forbidden	D	12, 25, 40, 127
	*				*		*		*		*		*

	Butyric acid	8	UN2820	III	8	IB3, T4, TP1	154	203	241	5 L	60 L	A	12, 25
	*				*		*		*		*		*
	Calcium	4.3	UN1401	II	4.3	IB7, IP2, T3, TP33	151	212	241	15 kg	50kg	E	13, 52, 148
	*				*		*		*		*		*
	Calcium carbide	4.3	UN1402	I	4.3	A1, A8, B55, B59, IB4, IP1, N34, T9, TP7, TP33	None	211	242	Forbidden	15 kg	B	13, 52, 148
				II	4.3	A1, A8, B55, B59, IB7, IP2, N34, T3, TP33	151	212	241	15 kg	50 kg	B	13, 52, 148
	*				*		*		*		*		*
	Calcium cyanamide *with more than 0.1 percent of calcium carbide*	4.3	UN1403	III	4.3	A1, A19, IB8, IP4, T1, TP33	151	213	241	25 kg	100 kg	A	13, 52, 148
	*				*		*		*		*		*
	Calcium hydride	4.3	UN1404	I	4.3	A19, N40	None	211	242	Forbidden	15 kg	E	13, 52, 148
	*				*		*		*		*		*
	Calcium manganese silicon	4.3	UN2844	III	4.3	A1, A19, IB8, IP4, T1, TP33	151	213	241	25 kg	100 kg	A	13, 52, 85, 103, 148
	*				*		*		*		*		*
	Calcium peroxide	5.1	UN1457	II	5.1	IB6, IP2, T3, TP33	152	212	242	5 kg	25 kg	C	13, 52, 66, 75, 148
	Calcium phosphide	4.3	UN1360	I	4.3, 6.1	A8, A19, N40	None	211	242	Forbidden	15 kg	E	13, 40, 52, 85, 148
	Calcium, pyrophoric *or* Calcium alloys, pyrophoric	4.2	UN1855	I	4.2		None	187	None	Forbidden	Forbidden	D	13, 148
	*				*		*		*		*		*
	Calcium silicide	4.3	UN1405	II	4.3	A19, IB7, IP2, T3, TP33	151	212	241	15 kg	50 kg	B	13, 52, 85, 103, 148
				III	4.3	A1, A19, IB8, IP4, T1, TP33	151	213	241	25 kg	100 kg	B	13, 52, 85, 103, 148
	*		*		*		*		*		*		*

I	Carbon, activated	4.2	UN1362	III	4.2	IB8, IP3, T1, TP33	None	213	241	0.5 kg	0.5 kg	A	12, 25
I	Carbon, animal or vegetable origin	4.2	UN1361	II	4.2	IB6, T3, TP33	None	212	242	Forbidden	Forbidden	A	12, 25
				III	4.2	IB8, IP3, T1, TP33	None	213	241	Forbidden	Forbidden	A	12, 25
	*		*		*		*		*		*		*
A W	Castor beans *or* Castor meal *or* Castor pomace *or* Castor flake	9	UN2969	II	None	IB8, IP2, IP4, T3, TP33	155	204	240	No limit	No limit	E	34, 40, 44, 122
	*		*		*		*		*		*		*
	Cerium, *slabs, ingots, or rods*	4.1	UN1333	II	4.1	IB8, IP2, IP4, N34	None	212	240	15 kg	50 kg	A	13, 66, 74, 91, 147, 148
	Cerium, *turnings or gritty powder*	4.3	UN3078	II	4.3	A1, IB7, IP2, T3, TP33	151	212	242	15 kg	50 kg	E	13, 52, 148
	Cesium *or* Caesium	4.3	UN1407	I	4.3	A7, A19, IB4, IP1, N34, N40	None	211	242	Forbidden	15 kg	D	13, 52, 148
	*		*		*		*		*		*		*
+	Chloroacetonitrile	6.1	UN2668	I	6.1, 3	2, B9, B14, B32, IB9, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	A	12, 25, 40, 52
	*		*		*		*		*		*		*
	Chloroacetophenone, liquid, (CN)	6.1	UN3416	II	6.1	A3, IB2, N12, N32, N33, T7, TP2, TP13	None	202	243	Forbidden	60 L	D	12, 25, 40
	Chloroacetophenone, solid, (CN)	6.1	UN1697	II	6.1	A3, IB8, IP2, IP4, N12, N32, N33, N34, T3, TP2, TP13, TP33	None	212	None	Forbidden	100 kg	D	12, 25, 40
	*		*		*		*		*		*		*
	Chlorocresols solution	6.1	UN2669	II	6.1	IB2, T7, TP2	153	202	243	5 L	60 L	A	12, 25
				III	6.1	IB3, T7, TP2	153	203	241	60 L	220 L	A	12, 25
	Chlorocresols, solid	6.1	UN3437	II	6.1	IB8, IP2, IP4, T3, TP33	153	212	242	25 kg	100 kg	A	12, 25
	*		*		*		*		*		*		*
	Chloromethyl chloroformate	6.1	UN2745	II	6.1, 8	IB2, T7, TP2, TP13	153	202	243	1 L	30 L	A	12, 13, 25, 40

	*		*		*		*		*		*		*
	Chloronitrobenzenes, liquid	6.1	UN3409	II	6.1	IB2, T7, TP2	153	202	243	5 L	60 L	A	44, 89, 100, 141
	*		*		*		*		*		*		*
	Chlorosilanes, water-reactive, flammable, corrosive, n.o.s	4.3	UN2988	I	4.3, 3, 8	A2, T14, TP2, TP7, TP13	None	201	244	Forbidden	1 L	D	13, 21, 28, 40, 49, 100, 147, 148
	*		*		*		*		*		*		*
G	Corrosive liquids, water-reactive, n.o.s.	8	UN3094	I	8, 4.3	A6, A7	None	201	243	Forbidden	1 L	E	13, 148
				II	8, 4.3	A6, A7	None	202	243	1 L	5 L	E	13, 148
	*		*		*		*		*		*		*
G	Corrosive solids, toxic, n.o.s.	8	UN2923	I	8, 6.1	IB7, T6, TP33	None	211	242	1 kg	25 kg	B	40
				II	8, 6.1	IB8, IP2, IP4, T3, TP33	154	212	240	15 kg	50 kg	B	40
				III	8, 6.1	IB8, IP3, T1, TP33	154	213	240	25 kg	100 kg	B	40
G	Corrosive solids, water-reactive, n.o.s.	8	UN3096	I	8, 4.3	IB4, IP1, T6, TP33	None	211	243	1 kg	25 kg	D	13, 148
				II	8, 6.1	IB8, IP2, IP4, T3, TP33	154	212	240	15 kg	50 kg	B	13, 40, 148
				III	8, 6.1	IB8, IP3, T1, TP33	154	213	240	25 kg	100 kg	B	13, 40, 95, 148
	*		*		*		*		*		*		*
	Crotonic acid, liquid	8	UN3472	III	8	IB8, T1	154	203	241	5 L	60 L	A	12, 25
	Crotonic acid, solid	8	UN2823	III	8	IB8, IP3, T1, TP33	154	213	240	25 kg	100 kg	A	12, 25
	*		*		*		*		*		*		*
	Cyanogen bromide	6.1	UN1889	I	6.1, 8	A6, A8, T6, TP33	None	211	242	1 kg	15 kg	D	40, 52
	*		*		*		*		*		*		*
	Cyanuric chloride	8	UN2670	II	8	IB8, IP2, IP4, T3, TP33	None	212	240	15 kg	50 kg	A	12, 25, 40

	*		*		*		*		*		*		*
	Cyclohexyl mercaptan	3	UN3054	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	40, 95, 102
	*		*		*		*		*		*		*
	1,1-Dichloro-1-nitroethane	6.1	UN2650	II	6.1	IB2, T7, TP2	153	202	243	5 L	60 L	A	12, 25, 40, 74
	*		*		*		*		*		*		*
	1,3-Dichloroacetone	6.1	UN2649	II	6.1	IB8, IP2, IP4, T3, TP33	153	212	242	25 kg	100 kg	B	12, 25, 40
	*		*		*		*		*		*		*
	1,3-Dichloropropanol-2	6.1	UN2750	II	6.1	IB2, T7, TP2	153	202	243	5 L	60 L	A	12, 25, 40
	*		*		*		*		*		*		*
	Diethylthiophosphoryl chloride	8	UN2751	II	8	B2, IB2, T7, TP2	None	212	240	15 kg	50 kg	D	12,25, 40
	*		*		*		*		*		*		*
	Dipicryl sulfide, wetted with not less than 10 percent water, by mass	4.1	UN2852	I	4.1	162, A2, N41, N84	None	211	None	Forbidden	0.5 kg	D	28, 36
	2-Ethylhexyl chloroformate	6.1	UN2748	II	6.1, 8	IB2, T7, TP2, TP13	153	202	243	1 L	30 L	A	12, 13, 25, 40
	*		*		*		*		*		*		*
	Ferrocerium	4.1	UN1323	II	4.1	59, A19, IB8, IP2, IP4, T3, TP33	151	212	240	15 kg	50 kg	A	13, 147, 148
	Ferrosilicon *with 30 percent or more but less than 90 percent silicon*	4.3	UN1408	III	4.3, 6.1	A1, A19, B6, IB8, IP4, IP7, T1, TP33	151	213	240	25 kg	100 kg	A	13, 40, 52, 53, 85, 103, 148
	*		*		*		*		*		*		*
	Ferrous metal borings *or* Ferrous metal shavings *or* Ferrous metal turnings *or* Ferrous metal cuttings *in a form liable to self-heating*	4.2	UN2793	III	4.2	A1, A19, IB8, IP3, IP7	None	213	241	25 kg	100 kg	A	13, 148

	*		*		*		*		*		*		*
	Fuel cell cartridges *or* Fuel cell cartridges contained in equipment *or* Fuel cell cartridges packed with equipment, *containing water-reactive substances*	4.3	UN3476		4.3	328	230	230	230	5 kg	50 kg	A	13, 148
	*		*		*		*		*		*		*
	Hafnium powder, dry	4.2	UN2545	I	4.2		None	211	242	Forbidden	Forbidden	D	13, 148
				II	4.2	A19, A20, IB6, IP2, N34, T3, TP33	None	212	241	15 kg	50 kg	D	13, 148
				III	4.2	IB8, IP3, T1, TP33	None	213	241	25 kg	100 kg	D	13,148
	*		*		*		*		*		*		*
	Hexachlorocyclopentadiene	6.1	UN2646	I	6.1	2, B9, B14, B32, B77, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	D	25, 40
	*		*		*		*		*		*		*
	Hexamethylenediamine, solid	8	UN2280	III	8	IB8, IP3, T1, TP33	154	213	240	25 kg	100 kg	A	12, 25
	*		*		*		*		*		*		*
	Hydrofluoric acid, with more than 60 percent strength	8	UN1790	I	8, 6.1	A6, A7, B4, B15, B23, N5, N34, T10, TP2, TP13	None	201	243	0.5 L	2.5 L	D	12, 25, 40
	Hydrofluoric acid, with not more than 60 percent strength	8	UN1790	II	8, 6.1	A6, A7, B15, IB2, N5, N34, T8, TP2	154	202	243	1 L	30 L	D	12, 25, 40
	*		*		*		*		*		*		*
	Hydrogen, refrigerated liquid (cryogenic liquid)	2.1	UN1966		2.1	T75, TP5	None	316	318, 319	Forbidden	Forbidden	D	40, 57
	*		*		*		*		*		*		*
G	Hypochlorites, inorganic, n.o.s	5.1	UN3212	II	5.1	349, A9, IB8, IP2, IP4, T3, TP33	152	212	240	5 kg	25 kg	D	4, 25, 52, 56, 58, 69, 116, 118
	*		*		*		*		*		*		*
	Iron oxide, spent, *or* Iron sponge, spent *obtained from coal gas purification*	4.2	UN1376	III	4.2	B18, IB8, IP3, T1, TP33	None	213	240	Forbidden	Forbidden	E	13, 148

	*		*		*		*		*		*		*
	Isopropyl chloroformate	6.1	UN2407	I	6.1, 3, 8	2, B9, B14, B32, B77, T20, TP2, TP13, TP38, TP44	None	227	244	Forbidden	Forbidden	B	21, 40, 100
	*		*		*		*		*		*		*
	Krill meal	4.2	UN3497	II	4.2	155, IB6, IP2, T3, TP33	None	212	242	15 kg	50 kg	B	25, 88, 128
				III	4.2	155, IB8, IP3, T1, TP33	None	213	242	25 kg	100 kg	A	128
	*		*		*		*		*		*		*
	Life-saving appliances, not self inflating containing dangerous goods as equipment	9	UN3072		None	134	None	219	None	No limit	No limit	A	122
	Life-saving appliances, self inflating	9	UN2990		None		None	219	None	No limit	No limit	A	122
	*		*		*		*		*		*		*
	Lithium	4.3	UN1415	I	4.3	A7, A19, IB4, IP1, N45	None	211	244	Forbidden	15 kg	E	13, 52, 148
	*		*		*		*		*		*		*
	Lithium aluminum hydride	4.3	UN1410	I	4.3	A19	None	211	242	Forbidden	15 kg	E	13, 52, 148
	Lithium aluminum hydride, ethereal	4.3	UN1411	I	4.3, 3	A2, A3, A11, N34	None	201	244	Forbidden	1 L	D	13,40, 148
	*		*		*		*		*		*		*
	Lithium borohydride	4.3	UN1413	I	4.3	A19, N40	None	211	242	Forbidden	15 kg	E	13,52, 148
	Lithium ferrosilicon	4.3	UN2830	II	4.3	A19, IB7, IP2, T3, TP33	151	212	241	15 kg	50 kg	E	13, 40, 85, 103, 148
	Lithium ion batteries including lithium ion polymer batteries	9	UN3480		9	A51	185	185	185	5 kg	35 kg	A	
	Lithium ion batteries contained in equipment including lithium ion polymer batteries	9	UN3481		9	A54	185	185	185	5 kg	35 kg	A	
	Lithium ion batteries packed with equipment including lithium ion polymer batteries	9	UN3481		9	A54	185	185	185	5 kg	35 kg	A	

	Lithium metal batteries including lithium alloy batteries	9	UN3090		9		185	185	185	Forbidden	35 kg	A	
	Lithium metal batteries contained in equipment including lithium alloy batteries	9	UN3091		9	A54, A101	185	185	185	5 kg	35 kg	A	
	Lithium metal batteries packed with equipment including lithium alloy batteries	9	UN3091		9	A54	185	185	185	5 kg	35 kg	A	
	*		*		*		*		*		*		*
	Lithium hydride	4.3	UN1414	I	4.3	A19, N40	None	211	242	Forbidden	15 kg	E	13, 52, 148
	Lithium hydride, fused solid	4.3	UN2805	II	4.3	A8, A19, A20, IB4, T3, TP33	151	212	241	15 kg	50 kg	E	13, 52, 148
	*		*		*		*		*		*		*
	Lithium peroxide	5.1	UN1472	II	5.1	A9, IB6, IP2, N34, T3, TP33	152	212	None	5 kg	25 kg	C	13, 52, 66, 75, 148
	*		*		*		*		*		*		*
	Lithium silicon	4.3	UN1417	II	4.3	A19, A20, IB7, IP2, T3, TP33	151	212	241	15 kg	50 kg	A	13, 85, 103, 148
	*		*		*		*		*		*		*
	Magnesium aluminum phosphide	4.3	UN1419	I	4.3, 6.1	A19, N34, N40	None	211	242	Forbidden	15 kg	E	13, 40, 52, 85, 148
	*		*		*		*		*		*		*
	Magnesium diamide	4.2	UN2004	II	4.2	A8, A19, A20, IB6, T3, TP33	None	212	241	15 kg	50 kg	C	13, 148
	*		*		*		*		*		*		*
	Magnesium granules, coated, *particle size not less than 149 microns*	4.3	UN2950	III	4.3	A1, A19, IB8, IP4, T1, TP33	151	213	240	25 kg	100 kg	A	13, 52, 148
	Magnesium hydride	4.3	UN2010	I	4.3	A19, N40	None	211	242	Forbidden	15 kg	E	13, 52, 148
	Magnesium *or* Magnesium alloys *with more than 50 percent magnesium in pellets, turnings or ribbons*	4.1	UN1869	III	4.1	A1, IB8, IP3, T1, TP33	151	213	240	25 kg	100 kg	A	13, 39, 52, 53, 74, 101, 147, 148

	*		*		*		*		*		*		*
	Magnesium peroxide	5.1	UN1476	II	5.1	IB6, IP2, T3, TP33	152	212	242	5 kg	25 kg	C	13, 52, 66, 75, 148
	Magnesium phosphide	4.3	UN2011	I	4.3, 6.1	A19, N40	None	211	None	Forbidden	15 kg	E	13,40, 52, 85, 148
	Magnesium, powder *or* Magnesium alloys, powder	4.3	UN1418	I	4.3, 4.2	A19, B56	None	211	244	Forbidden	15 kg	A	13, 39, 52, 148
				II	4.3, 4.2	A19, B56, IB5, IP2, T3, TP33	None	212	241	15 kg	50 kg	A	13, 39, 52, 148
				III	4.3, 4.2	A19, B56, IB8, IP4, T1, TP33	None	213	241	25 kg	100 kg	A	13, 39, 52, 148
	*		*		*		*		*		*		*
	Magnesium silicide	4.3	UN2624	II	4.3	A19, A20, IB7, IP2, T3, TP33	151	212	241	15 kg	50 kg	B	13, 85, 103, 148
	*		*		*		*		*		*		*
	Maleic anhydride	8	UN2215	III	8	IB8, IP3, T1, TP33	154	213	240	25 kg	100 kg	A	95, 102
	Maleic anhydride, molten	8	UN2215	III	8	T4, TP3	None	213	240	Forbidden	Forbidden	A	95, 102
	Malononitrile	6.1	UN2647	II	6.1	IB8, IP2, IP4, T3, TP33	153	212	242	25 kg	100 kg	A	12, 25
	Maneb *or* Maneb preparations *with not less than 60 percent maneb*	4.2	UN2210	III	4.2, 4.3	57, A1, A19, IB6, T1, TP33	None	213	242	25 kg	100 kg	A	13, 34, 148
	Maneb stabilized *or* Maneb preparations, stabilized *against self-heating*	4.3	UN2968	III	4.3	54, A1, A19, IB8, IP4, T1, TP33	151	213	242	25 kg	100 kg	B	13, 34, 52, 148
	*		*		*		*		*		*		*
	*		*		*		*		*		*		*
	Mercaptans, liquid, flammable, n.o.s. or Mercaptan mixture, liquid, flammable, n.o.s.	3	UN3336	I	3	T11, TP2	150	201	243	1 L	30 L	E	95, 102
				II	3	IB2, T7, TP1, TP8, TP28	150	202	242	5 L	60 L	B	95, 102
				III	3	B1, B52, IB3, T4, TP1, TP29	150	203	241	60 L	220 L	B	95, 102
	Mercaptans, liquid, flammable, toxic, n.o.s. or Mercaptan mixtures, liquid,	3	UN1228	II	3, 6.1	IB2, T11, TP2, TP27	None	202	243	Forbidden	60 L	B	40, 95, 102

	flammable, toxic, n.o.s.												
				III	3, 6.1	A6, B1, IB3, T7, TP1, TP28	150	203	242	5 L	220 L	A	40, 95, 102
	Mercaptans, liquid, toxic, flammable, n.o.s. *or* Mercaptan mixtures, liquid, toxic, flammable, n.o.s., *flash point not less than 23 degrees C*	6.1	UN3071	II	6.1, 3	A6, IB2, T11, TP2, TP13, TP27	153	202	243	5 L	60 L	C	40, 102, 121
	*		*		*		*		*		*		*
A W	Mercury contained in manufactured articles	8	UN3506		8, 6.1	A191	164	None	None	No limit	No limit	B	40, 97
	*		*		*		*		*		*		*
G	Metal catalyst, dry	4.2	UN2881	I	4.2	N34, T21, TP7, TP33	None	187	None	Forbidden	Forbidden	C	13, 147, 148
				II	4.2	IB6, IP2, N34, T3, TP33	None	187	242	Forbidden	50 kg	C	13, 147, 148
				III	4.2	IB8, IP3, N34, T1, TP33	None	187	241	25 kg	100 kg	C	13, 147, 148
	*		*		*		*		*		*		*
	Metal hydrides, water reactive, n.o.s.	4.3	UN1409	I	4.3	A19, N34, N40	None	211	242	Forbidden	15 kg	D	13, 52, 148
				II	4.3	A19, IB4, N34, N40, T3, TP33	151	212	242	15 kg	50 kg	D	13, 52, 148
	*		*		*		*		*		*		*
	Metal powder, self-heating, n.o.s.	4.2	UN3189	II	4.2	IB6, IP2, T3, TP33	None	212	241	15 kg	50 kg	C	13, 148
				III	4.2	IB8, IP3, T1, TP33	None	213	241	25 kg	100 kg	C	13, 148
	Metal powders, flammable, n.o.s.	4.1	UN3089	II	4.1	IB8, IP2, IP4, T3, TP33	151	212	240	15 kg	50 kg	B	13, 74, 147, 148
				III	4.1	IB8, IP2, IP4, T1, TP33	151	213	240	25 kg	100 kg	B	13, 74, 147, 148
G	Metallic substance, water-reactive, n.o.s.	4.3	UN3208	I	4.3	A7, IB4	None	211	242	Forbidden	15 kg	E	13, 40, 148
				II	4.3	A7, IB7, IP2, T3, TP33	151	212	242	15 kg	50 kg	E	13, 40, 148
				III	4.3	A7, IB8, IP4, T1, TP33	151	213	241	25 kg	100 kg	E	13, 40, 148

G	Metallic substance, water-reactive, self-heating, n.o.s.	4.3	UN3209	I	4.3, 4.2	A7	None	211	242	Forbidden	15 kg	E	13, 40, 148
				II	4.3, 4.2	A7, IB5, IP2, T3, TP33	None	212	242	15 kg	50 kg	E	13, 40, 148
				III	4.3, 4.2	A7, IB8, IP4, T1, TP33	None	213	242	25 kg	100 kg	E	13, 40, 148
	*		*		*		*		*		*		*
	Methyl iodide	6.1	UN2644	I	6.1	2, B9, B14, B32, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	D	12, 25, 40
	*		*		*		*		*		*		*
	Methyl magnesium bromide, in ethyl ether	4.3	UN1928	I	4.3, 3		None	201	243	Forbidden	1 L	D	13, 148
	*		*		*		*		*		*		*
	Methyl vinyl ketone, stabilized	6.1	UN1251	I	6.1, 3, 8	1, B9, B14, B30, T22, TP2, TP13, TP38, TP44	None	226	244	Forbidden	Forbidden	B	21, 40, 100
	*		*		*		*		*		*		*
G	Organic peroxide type B, liquid	5.2	UN3101	II	5.2, 1	53	152	225	None	Forbidden	Forbidden	D	12, 25, 52, 53
G	Organic peroxide type B, liquid, temperature controlled	5.2	UN3111	II	5.2, 1	53	None	225	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Organic peroxide type B, solid	5.2	UN3102	II	5.2, 1	53	152	225	None	Forbidden	Forbidden	D	12, 25, 52, 53
G	Organic peroxide type B, solid, temperature controlled	5.2	UN3112	II	5.2, 1	53	None	225	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Organic peroxide type C, liquid	5.2	UN3103	II	5.2		152	225	None	5 L	10 L	D	12, 25, 52, 53
G	Organic peroxide type C, liquid, temperature controlled	5.2	UN3113	II	5.2		None	225	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Organic peroxide type C, solid	5.2	UN3104	II	5.2		152	225	None	5 kg	10 kg	D	12, 25, 52, 53
G	Organic peroxide type C, solid, temperature controlled	5.2	UN3114	II	5.2		None	225	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Organic peroxide type D, liquid	5.2	UN3105	II	5.2		152	225	None	5 L	10 L	D	12, 25, 52, 53
G	Organic peroxide type D, liquid, temperature controlled	5.2	UN3115	II	5.2		None	225	None	Forbidden	Forbidden	D	2, 25, 52, 53

G	Organic peroxide type D, solid	5.2	UN3106	II	5.2		152	225	None	5 kg	10 kg	D	12, 25, 52, 53
G	Organic peroxide type D, solid, temperature controlled	5.2	UN3116	II	5.2		None	225	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Organic peroxide type E, liquid	5.2	UN3107	II	5.2	A61	152	225	None	10 L	25 L	D	12, 40, 52, 53
G	Organic peroxide type E, liquid, temperature controlled	5.2	UN3117	II	5.2		None	225	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Organic peroxide type E, solid	5.2	UN3108	II	5.2		152	225	None	10 kg	25 kg	D	12, 25, 52, 53
G	Organic peroxide type E, solid, temperature controlled	5.2	UN3118	II	5.2		None	225	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Organic peroxide type F, liquid	5.2	UN3109	II	5.2	A61, IP5	152	225	225	10 L	25 L	D	12, 25, 52, 53
G	Organic peroxide type F, liquid, temperature controlled	5.2	UN3119	II	5.2	IP5	None	225	225	Forbidden	Forbidden	D	2, 25, 52, 53
G	Organic peroxide type F, solid	5.2	UN3110	II	5.2	TP33	152	225	225	10 kg	25 kg	D	12, 25, 52, 53
G	Organic peroxide type F, solid, temperature controlled	5.2	UN3120	II	5.2	TP33	None	225	225	Forbidden	Forbidden	D	2, 25, 52, 53
	*		*		*		*		*		*		*
G	Organometallic substance, liquid, pyrophoric	4.2	UN3392	I	4.2	B11, T21, TP2, TP7, TP36	None	181	244	Forbidden	Forbidden	D	13, 78, 148
G	Organometallic substance, liquid, pyrophoric, water-reactive	4.2	UN3394	I	4.2, 4.3	B11, T21, TP2, TP7, TP36, TP47	None	181	244	Forbidden	Forbidden	D	13, 52, 78, 148
G	Organometallic substance, liquid, water-reactive	4.3	UN3398	I	4.3	T13, TP2, TP7, TP36, TP47	None	201	244	Forbidden	1 L	E	13, 40, 52, 148
				II	4.3, 3	IB1, IP2, T7, TP2, TP7, TP36, TP47	None	202	243	1 L	5 L	D	13, 40, 52, 148
				III	4.3, 3	IB2, IP4, T7, TP2, TP7, TP36, TP47	None	203	242	5 L	60 L	E	13, 40, 52, 148
G	Organometallic substance, liquid, water-reactive, flammable	4.3	UN3399	I	4.3, 3	T13, TP2, TP7, TP36, TP47	None	201	244	Forbidden	1 L	D	13, 40, 52, 148
				II	4.3, 3	IB1, IP2, T7, TP2, TP7, TP36, TP47	None	202	243	1 L	5 L	D	13, 40, 52, 148
				III	4.3, 3	IB2, IP4, T7, TP2, TP7, TP36, TP47	None	203	242	5 L	60 L	E	13, 40, 52, 148
G	Organometallic substance, solid, pyrophoric	4.2	UN3391	I	4.2	T21, TP7, TP33, TP36	None	187	244	Forbidden	Forbidden	D	13, 148
G	Organometallic substance, solid, pyrophoric, water-	4.2	UN3393	I	4.2, 4.3	B11, T21, TP7, TP33, TP36, TP47	None	187	244	Forbidden	Forbidden	D	13, 52, 148

	reactive												
	*		*		*		*		*		*		*
G	Organometallic substance, solid, water-reactive	4.3	UN3395	I	4.3	N40, T9, TP7, TP33, TP36, TP47	None	211	242	Forbidden	15 kg	E	13, 40, 52, 148
				II	4.3	IB4, T3, TP33, TP36, TP47	151	212	242	15 kg	50 kg	E	13, 40, 52, 148
				III	4.3	IB6, T1, TP33, TP36, TP47	151	213	241	25 kg	100 kg	E	13, 40, 52, 148
G	Organometallic substance, solid, water-reactive, flammable	4.3	UN3396	I	4.3, 4.1	N40, T9, TP7, TP33, TP36, TP47	None	211	242	Forbidden	15 kg	E	13, 40, 52, 148
				II	4.3, 4.1	IB4, T3, TP33, TP36, TP47	151	212	242	15 kg	50 kg	E	13, 40, 52, 148
				III	4.3, 4.1	IB6, T1, TP33, TP36, TP47	151	213	241	25 kg	100 kg	E	13, 40, 52, 148
G	Organometallic substance, solid, water-reactive, self-heating	4.3	UN3397	I	4.3, 4.2	N40, T9, TP7, TP33, TP36, TP47	None	211	242	Forbidden	15 kg	E	13, 40, 52, 148
				II	4.3, 4.2	IB4, T3, TP33, TP36, TP47	None	212	242	15 kg	50 kg	E	13, 40, 52, 148
				III	4.3, 4.2	IB6, T1, TP33, TP36, TP47	None	213	241	25 kg	100 kg	E	13, 40, 52, 148
	*		*		*		*		*		*		*
G	Oxidizing liquid, corrosive, n.o.s.	5.1	UN3098	I	5.1, 8	62, A6	None	201	244	Forbidden	2.5 L	D	13, 56, 58, 138
				II	5.1, 8	62, IB1	None	202	243	1 L	5 L	B	13, 56, 58, 138
				III	5.1, 8	62, IB2	152	203	242	2.5 L	30 L	B	13, 56, 58, 138
G	Oxidizing liquid, n.o.s.	5.1	UN3139	I	5.1	62, 127, A2, A6	None	201	243	Forbidden	2.5 L	D	56, 58, 138
				II	5.1	62, 127, A2, IB2	152	202	242	1 L	5 L	B	56, 58, 138
				III	5.1	62, 127, A2, IB2	152	203	241	2.5 L	30 L	B	56, 58, 138
G	Oxidizing liquid, toxic, n.o.s.	5.1	UN3099	I	5.1, 6.1	62, A6	None	201	244	Forbidden	2.5 L	D	56, 58, 138
				II	5.1, 6.1	62, IB1	152	202	243	1 L	5 L	B	56, 58, 138
				III	5.1, 6.1	62, IB2	152	203	242	2.5 L	30 L	B	56, 58, 138

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G	Oxidizing solid, corrosive, n.o.s.	5.1	UN3085	I	5.1, 8	62	None	211	242	1 kg	15 kg	D	13, 56, 58, 138
				II	5.1, 8	62, IB6, IP2, T3, TP33	None	212	242	5 kg	25 kg	B	13, 56, 58, 138
				III	5.1, 8	62, IB8, IP3, T1, TP33	152	213	240	25 kg	100 kg	B	13, 56, 58, 138
G	Oxidizing solid, flammable, n.o.s.	5.1	UN3137	I	5.1, 4.1	62	None	214	214	Forbidden	Forbidden		13, 147, 148
	*		*		*		*		*		*		*
G	Oxidizing solid, toxic, n.o.s.	5.1	UN3087	I	5.1, 6.1	62	None	211	242	1 kg	15 kg	D	56, 58, 138
				II	5.1, 6.1	62, IB6, IP2, T3, TP33	152	212	242	5 kg	25 kg	B	56, 58, 138
				III	5.1, 6.1	62, IB8, IP3, T1, TP33	152	213	240	25 kg	100 kg	B	56, 58, 138
G	Oxidizing solid, water reactive, n.o.s.	5.1	UN3121		5.1, 4.3	62	None	214	214	Forbidden	Forbidden		13, 148
	*		*		*		*		*		*		*
	Oxygen generator, chemical (including when contained in associated equipment, e.g., passenger service units (PSUs), portable breathing equipment (PBE), etc).	5.1	UN3356		5.1		None	168	None	Forbidden	25 kg	D	56, 58, 69, 106
	*		*		*		*		*		*		*
	Paint including paint, lacquer, enamel, stain, shellac solutions, varnish, polish, liquid filler, and liquid lacquer base	3	UN1263	I	3	367, T11, TP1, TP8, TP27	150	201	243	1 L	30 L	E	
				II	3	149, 367, B52, IB2, T4, TP1, TP8, TP28	150	173	242	5 L	60 L	B	
				III	3	367, B1, B52, IB3, T2, TP1, TP29	150	173	242	60 L	220 L	A	
	Paint or Paint related material	8	UN3066	II	8	367, B2, IB2, T7, TP2, TP28	154	173	242	1 L	30 L	A	40
				III	8	367, B52, IB3, T4, TP1, TP29	154	173	241	5 L	60 L	A	40
	Paint, corrosive, flammable (including paint, lacquer,	8	UN3470	II	8, 3	367, IB2, T7, TP2, TP8, TP28	154	202	243	1 L	30 L	B	40

	enamel, stain, shellac solutions, varnish, polish, liquid filler, and liquid lacquer base)												
	Paint, flammable, corrosive, (including paint , lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base)	3	UN3469	I	3, 8	367, T11, TP2, TP27	None	201	243	0.5 L	2.5 L	E	40
				II	3, 8	367, IB2, T7, TP2, TP8, TP28	150	202	243	1 L	5 L	B	40
				III	3, 8	367, IB3, T4, TP1, TP29	150	203	242	5 L	60 L	A	40
	Paint related material including paint thinning, drying, removing, or reducing compound	3	UN1263	I	3	367, T11, TP1, TP8, TP27	150	201	243	1 L	30 L	E	
				II	3	149,367, B52, IB2, T4, TP1, TP8, TP28	150	173	242	5 L	60 L	B	
				III	3	367, B1, B52, IB3, T2, TP1, TP29	150	173	242	60 L	220 L	A	
	Paint related material corrosive, flammable (including paint thinning or reducing compound)	8	UN3470	II	8, 3	367, IB2, T7, TP2, TP8, TP28	154	202	243	1 L	30 L	B	40
	Paint related material, flammable, corrosive (including paint thinning or reducing compound)	3	UN3469	I	3, 8	367, T11, TP2, TP27	None	201	243	0.5 L	2.5 L	E	40
				II	3, 8	367, IB2, T7, TP2, TP8, TP28	150	202	243	1 L	5 L	B	40
				III	3, 8	367, IB3, T4, TP1, TP29	150	203	242	5 L	60 L	A	40
	*		*		*		*		*		*		*
+	Pentaborane	4.2	UN1380	I	4.2, 6.1	1	None	205	245	Forbidden	Forbidden	D	13, 148
	*		*		*		*		*		*		*
	Peroxides, inorganic, n.o.s.	5.1	UN1483	II	5.1	A7, A20, IB6, IP2, N34, T3, TP33	None	212	242	5 kg	25 kg	C	13, 52, 66, 75, 148
				III	5.1	A7, A20, IB8, IP3, N34, T1, TP33	152	213	240	25 kg	100 kg	C	13, 52, 66, 75, 148
	*		*		*		*		*		*		*

	Persulfates, inorganic, aqueous solution, n.o.s.	5.1	UN3216	III	5.1	IB2, T4, TP1, TP29	152	203	241	2.5 L	30 L	A	56, 58, 133
	*		*		*		*		*		*		*
G	Pesticides, liquid, flammable, toxic, flash point less than 23 degrees C	3	UN3021	I	3, 6.1	B5, T14, TP2, TP13, TP27	None	201	243	Forbidden	30 L	B	40
				II	3, 6.1	IB2, T11, TP2, TP13, TP27	150	202	243	1 L	60 L	B	40
	*		*		*		*		*		*		*
	Phenyl chloroformate	6.1	UN2746	II	6.1, 8	IB2, T7, TP2, TP13	153	202	243	1 L	30 L	A	12, 13, 25, 40
	*		*		*		*		*		*		*
	Phosphorus heptasulfide, *free from yellow or white phosphorus*	4.1	UN1339	II	4.1	A20, IB4, N34, T3, TP33	None	212	240	15 kg	50 kg	B	13, 74, 147, 148
	*		*		*		*		*		*		*
	Phosphorus oxybromide	8	UN1939	II	8	B8, IB8, IP2, IP4, N41, N43, T3, TP33	None	212	240	Forbidden	50 kg	C	12, 25, 40
	*		*		*		*		*		*		*
	Phosphorus pentabromide	8	UN2691	II	8	A7, IB8, IP2, IP4, N34, T3, TP33	154	212	240	Forbidden	50 kg	B	12, 25, 40, 53, 55
	*		*		*		*		*		*		*
	Phosphorus pentasulfide, *free from yellow or white phosphorus*	4.3	UN1340	II	4.3, 4.1	A20, B59, IB4, T3, TP33	151	212	242	15 kg	50 kg	B	13, 74, 148
	*		*		*		*		*		*		*
	Phosphorus trioxide	8	UN2578	III	8	IB8, IP3, T1, TP33	154	213	240	25 kg	100 kg	A	12, 25
	Phosphorus trisulfide, *free from yellow or white phosphorus*	4.1	UN1343	II	4.1	A20, IB4, N34, T3, TP33	None	212	240	15 kg	50 kg	B	13, 74, 147, 148
	*		*		*		*		*		*		*
	Piperazine	8	UN2579	III	8	IB8, IP3, T1, TP33	154	213	240	25 kg	100 kg	A	12, 25, 52
	*		*		*		*		*		*		*

	Potassium	4.3	UN2257	I	4.3	A7, A19, A20, B27, IB4, IP1, N6, N34, T9, TP7, TP33	None	211	244	Forbidden	15 kg	D	13, 52, 148
	*		*		*		*		*		*		*
	Potassium borohydride	4.3	UN1870	I	4.3	A19, N40	None	211	242	Forbidden	15 kg	E	13, 52, 148
	*		*		*		*		*		*		*
	Potassium, metal alloys, liquid	4.3	UN1420	I	4.3	A7, A19, A20, B27	None	201	244	Forbidden	1 L	E	13, 40, 52, 148
	Potassium, metal alloys, solid	4.3	UN3403	I	4.3	A19, A20, B27, IB4, IP1, T9, TP7, TP33	None	211	244	Forbidden	15 kg	D	13, 52, 148
	*		*		*		*		*		*		*
	Potassium peroxide	5.1	UN1491	I	5.1	A20, IB6, IP1, N34	None	211	None	Forbidden	15 kg	C	13, 52, 66, 75, 148
	*		*		*		*		*		*		*
	Potassium phosphide	4.3	UN2012	I	4.3, 6.1	A19, N40	None	211	None	Forbidden	15 kg	E	13, 40, 52, 85, 148
	*		*		*		*		*		*		*
	Potassium sodium alloys, liquid	4.3	UN1422	I	4.3	A7, A19, B27, N34, N40, T9, TP3, TP7, TP31	None	201	244	Forbidden	1 L	E	13, 40, 52, 148
	Potassium sodium alloys, solid	4.3	UN3404	I	4.3	A19, B27, N34, N40, T9, TP7, TP33	None	211	244	Forbidden	15 kg	D	13, 52, 148
	*		*		*		*		*		*		*
	Potassium superoxide	5.1	UN2466	I	5.1	A20, IB6, IP1	None	211	None	Forbidden	15 kg	D	13, 52, 66, 75, 148
	*		*		*		*		*		*		*
	Printing ink, flammable or Printing ink related material (including printing ink thinning or reducing compound), flammable	3	UN1210	I	3	367, T11, TP1, TP8	150	173	243	1 L	30 L	E	
				II	3	367, 149, IB2, T4, TP1, TP8	150	173	242	5 L	60 L	B	
				III	3	367, B1, IB3, T2, TP1	150	173	242	60 L	220 L	A	

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G	Pyrophoric liquid, inorganic, n.o.s	4.2	UN3194	I	4.2		None	181	244	Forbidden	Forbidden	D	13, 78, 148
G	Pyrophoric liquids, organic, n.o.s	4.2	UN2845	I	4.2	B11, T22, TP2, TP7	None	181	244	Forbidden	Forbidden	D	13, 78, 148
G	Pyrophoric metals, n.o.s., *or* Pyrophoric alloys, n.o.s.	4.2	UN1383	I	4.2	B11, T21, TP7, TP33	None	187	242	Forbidden	Forbidden	D	13, 148
G	Pyrophoric solid, inorganic, n.o.s.	4.2	UN3200	I	4.2	T21, TP7, TP33	None	187	242	Forbidden	Forbidden	D	13, 148
G	Pyrophoric solids, organic, n.o.s.	4.2	UN2846	I	4.2		None	187	242	Forbidden	Forbidden	D	13, 148
	*		*		*		*		*		*		*
	Quinoline	6.1	UN2656	III	6.1	IB3, T4, TP1	153	203	241	60 L	220 L	A	12, 25
	*		*		*		*		*		*		*
	Radioactive material, excepted package-limited quantity of material	7	UN2910		None	368	421, 422	421, 422	421, 422			A	
	*		*		*		*		*		*		*
	Rubidium	4.3	UN1423	I	4.3	22, A7, A19, IB4, IP1, N34, N40, N45	None	211	242	Forbidden	15 kg	D	13,52, 148
	*		*		*		*		*		*		*
I	Seed cake with not more than 1.5 percent oil and not more than 11 percent moisture	4.2	UN2217	III	None	IB8, IP3, IP7, N7	None	213	241	Forbidden	Forbidden	A	13, 25, 120
	*		*		*		*		*		*		*
G	Self-reactive liquid type B	4.1	UN3221	II	4.1	53	151	224	None	Forbidden	Forbidden	D	25, 52, 53, 127
G	Self-reactive liquid type C	4.1	UN3223	II	4.1		151	224	None	5 L	10 L	D	25, 52, 53
G	Self-reactive liquid type C, temperature controlled	4.1	UN3233	II	4.1		None	224	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Self-reactive liquid type D	4.1	UN3225	II	4.1		151	224	None	5 L	10 L	D	25, 52, 53
G	Self-reactive liquid type D, temperature controlled	4.1	UN3235	II	4.1		None	224	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Self-reactive liquid type E	4.1	UN3227	II	4.1		151	224	None	10 L	25 L	D	25, 52, 53

G	Self-reactive liquid type E, temperature controlled	4.1	UN3237	II	4.1		None	224	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Self-reactive liquid type F	4.1	UN3229	II	4.1		151	224	None	10 L	25 L	D	25, 52, 53
G	Self-reactive liquid type F, temperature controlled	4.1	UN3239	II	4.1		None	224	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Self-reactive solid type B	4.1	UN3222	II	4.1	53	151	224	None	(1)	(2)	D	25, 52, 53, 127
G	Self-reactive solid type B, temperature controlled	4.1	UN3232	II	4.1	53	None	224	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Self-reactive solid type C	4.1	UN3224	II	4.1		151	224	None	5 kg	10 kg	D	25, 52, 53
G	Self-reactive solid type C, temperature controlled	4.1	UN3234	II	4.1		None	224	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Self-reactive solid type D	4.1	UN3226	II	4.1		151	224	None	5 kg	10 kg	D	25, 52, 53
G	Self-reactive solid type D, temperature controlled	4.1	UN3236	II	4.1		None	224	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Self-reactive solid type E	4.1	UN3228	II	4.1		151	224	None	10 kg	25 kg	D	25, 52, 53
G	Self-reactive solid type E, temperature controlled	4.1	UN3238	II	4.1		None	224	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Self-reactive solid type F	4.1	UN3230	II	4.1		151	224	None	10 kg	25 kg	D	25, 52, 53
G	Self-reactive solid type F, temperature controlled	4.1	UN3240	II	4.1		None	224	None	Forbidden	Forbidden	D	2, 25, 52, 53
	*		*		*		*		*		*		*
	Sodium	4.3	UN1428	I	4.3	A7, A8, A19, A20, B9, B48, B68, IB4, IP1, N34, T9, TP7, TP33, TP46	None	211	244	Forbidden	15 kg	D	13, 52, 148
	*		*		*		*		*		*		*
	Sodium aluminum hydride	4.3	UN2835	II	4.3	A8, A19, A20, IB4, T3, TP33	151	212	242	Forbidden	50 kg	E	13, 52, 148
	*		*		*		*		*		*		*
	Sodium borohydride	4.3	UN1426	I	4.3	N40	None	211	242	Forbidden	15 kg	E	13, 52, 148
	*		*		*		*		*		*		*
	Sodium dinitro-o-cresolate, wetted with not less than 10%	4.1	UN3369	I	4.1	162, A8, A19, N41, N84	None	211	None	0.5 kg	0.5 kg	E	28, 36

	water, by mass												
	*		*		*		*		*		*		*
	Sodium hydride	4.3	UN1427	I	4.3	A19, N40	None	211	242	Forbidden	15 kg	E	13, 52, 148
	*		*		*		*		*		*		*
	Sodium peroxide	5.1	UN1504	I	5.1	A20, IB5, IP1, N34	None	211	None	Forbidden	15 kg	C	13, 52, 66, 75, 148
	*		*		*		*		*		*		*
	Sodium phosphide	4.3	UN1432	I	4.3, 6.1	A19, N40	None	211	None	Forbidden	15 kg	E	13, 40, 52, 85, 148
	*		*		*		*		*		*		*
	Sodium superoxide	5.1	UN2547	I	5.1	A20, IB6, IP1, N34	None	211	None	Forbidden	15 kg	D	13, 52, 66, 75, 148
	*		*		*		*		*		*		*
	Stannic phosphide	4.3	UN1433	I	4.3, 6.1	A19, N40	None	211	242	Forbidden	15 kg	E	13, 40, 52, 85, 148
	*		*		*		*		*		*		*
	Strontium peroxide	5.1	UN1509	II	5.1	IB6, IP2, T3, TP33	152	212	242	5 kg	25 kg	C	13, 52, 66, 75, 148
	Strontium phosphide	4.3	UN2013	I	4.3, 6.1	A19, N40	None	211	None	Forbidden	15 kg	E	13, 40, 52, 85, 148
	*		*		*		*		*		*		*
	Tear gas candles	6.1	UN1700		6.1, 4.1		None	340	None	Forbidden	50 kg	D	40
	*		*		*		*		*		*		*
	Titanium powder, dry	4.2	UN2546	I	4.2		None	211	242	Forbidden	Forbidden	D	13, 148
				II	4.2	A19, A20, IB6, IP2, N5, N34, T3, TP33	None	212	241	15 kg	50 kg	D	13, 148
				III	4.2	IB8, IP3, T1, TP33	None	213	241	25 kg	100 kg	D	13, 148
	*		*		*		*		*		*		*

	Titanium sponge granules *or* Titanium sponge powders	4.1	UN2878	III	4.1	A1, IB8, IP3, T1, TP33	None	213	240	25 kg	100 kg	D	13, 74, 147, 148
	*		*		*		*		*		*		*
	Titanium trichloride, pyrophoric *or* Titanium trichloride mixtures, pyrophoric	4.2	UN2441	I	4.2, 8	N34	None	181	244	Forbidden	Forbidden	D	13, 40, 148
	*		*		*		*		*		*		*
G	Toxic by inhalation liquid, water-reactive, n.o.s. *with an LC50 lower than or equal to 200 ml/m^3 and saturated vapor concentration greater than or equal to 500 LC50*	6.1	UN3385	I	6.1, 4.3	1, B9, B14, B30, T22, TP2, TP13, TP38, TP44	None	226	244	Forbidden	Forbidden	D	13, 40, 148
G	Toxic by inhalation liquid, water-reactive, n.o.s. *with an LC50 lower than or equal to 1000 ml/m^3 and saturated vapor concentration greater than or equal to 10 LC50*	6.1	UN3386	I	6.1, 4.3	2, B9, B14, B32, T20, TP2, TP13, TP38, TP44	None	227	244	Forbidden	Forbidden	D	13, 40, 148
G	Toxic by inhalation liquid, water-reactive, flammable, n.o.s. *with an LC50 lower than or equal to 200 ml/m3 and saturated vapor concentration greater than or equal to 500 LC50*	6.1	UN3490	I	6.1, 4.3, 3	1, B9, B14, B30, T22, TP2, TP13, TP27, TP38, TP44	None	226	244	Forbidden	Forbidden	D	13, 21, 28, 40, 49, 148
G	Toxic by inhalation liquid, water-reactive, flammable, n.o.s. *with an LC50 lower or equal to 1000 ml/m3 and saturated vapor concentration greater than or equal to 10 LC50*	6.1	UN3491	I	6.1, 4.3, 3	2, B9, B14, B32, T20, TP2, TP13, TP27, TP38, TP45	None	227	244	Forbidden	Forbidden	D	13, 21, 28, 40, 49, 148
	*		*		*		*		*		*		*
G	Toxic liquid, corrosive, inorganic, n.o.s.	6.1	UN3289	I	6.1, 8	T14, TP2, TP13, TP27	None	201	243	0.5 L	2.5 L	A	40
				II	6.1, 8	IB2, T11, TP2, TP27	153	202	243	1 L	30 L	A	40
	*		*		*		*		*		*		*
G	Toxic liquid, inorganic, n.o.s.	6.1	UN3287	I	6.1	T14, TP2, TP13, TP27	None	201	243	1 L	30 L	A	40

				II	6.1	IB2, T11, TP2, TP27	153	202	243	5 L	60 L	A	40
				III	6.1	IB3, T7, TP1, TP28	153	203	241	60 L	220 L	A	40
	*		*		*		*		*		*		*
G	Toxic liquids, water-reactive, n.o.s.	6.1	UN3123	I	6.1, 4.3	A4	None	201	243	Forbidden	1 L	E	13,40, 148
				II	6.1, 4.3	IB2	None	202	243	1 L	5 L	E	13, 40, 148
	*		*		*		*		*		*		*
G	Toxic solid, corrosive, inorganic, n.o.s.	6.1	UN3290	I	6.1, 8	IB7, T6, TP33	None	211	242	1 kg	25 kg	A	40
				II	6.1, 8	IB6, IP2, T3, TP33	153	212	242	15 kg	50 kg	A	40
G	Toxic solid, inorganic, n.o.s.	6.1	UN3288	I	6.1	IB7, T6, TP33	None	211	242	5 kg	50 kg	A	40
				II	6.1	IB8, IP2, IP4, T3, TP33	153	212	242	25 kg	100 kg	A	40
				III	6.1	IB8, IP3, T1, TP33	153	213	240	100 kg	200 kg	A	40
	*		*		*		*		*		*		*
G	Toxic solids, water-reactive, n.o.s.	6.1	UN3125	I	6.1, 4.3	A5, T6, TP33	None	211	242	5 kg	15 kg	D	13, 40, 148
				II	6.1, 4.3	IB6, IP2, T3, TP33	153	212	242	15 kg	50 kg	D	13, 40, 148
	*		*		*		*		*		*		*
	Trifluoroacetic acid	8	UN2699	I	8	A3, A6, A7, B4, N3, N34, N36, T10, TP2	None	201	243	0.5 L	2.5 L	B	12, 25, 40
	*		*		*		*		*		*		*
	Trimethylacetyl chloride	6.1	UN2438	I	6.1, 8, 3	2, B3, B9, B14, B32, N34, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	D	21, 25, 40, 100
	*		*		*		*		*		*		*
	Trinitrobenzene, wetted, *with not less than 10% water, by mass*	4.1	UN3367	I	4.1	162, A8, A19, N41, N84	None	211	None	0.5 kg	0.5 kg	E	28, 36
	*		*		*		*		*		*		*

	Trinitrobenzoic acid, wetted *with not less than 10% water by mass*	4.1	UN3368	I	4.1	162, A8, A19, N41, N84	None	211	None	0.5 kg	0.5 kg	E	28, 36
	Trinitrobenzoic acid, wetted with not less than 30 percent water, by mass	4.1	UN1355	I	4.1	23, A2, A8, A19, N41	None	211	None	0.5 kg	0.5 kg	E	28, 36
	*		*		*		*		*		*		*
	Trinitrochlorobenzene (picryl chloride), wetted, *with not less than 10% water by mass*	4.1	UN3365	I	4.1	162, A8, A19, N41, N84	None	211	None	0.5 kg	0.5 kg	E	28, 36
	*		*		*		*		*		*		*
	Trinitrophenol (picric acid), wetted, *with not less than 10 percent water by mass*	4.1	UN3364	I	4.1	162, A8, A19, N41, N84	None	211	None	0.5 kg	0.5 kg	E	28, 36
	*		*		*		*		*		*		*
	Trinitrotoluene (TNT), wetted, *with not less than 10 percent water by mass*	4.1	UN3366	I	4.1	162, A8, A19, N41, N84	None	211	None	0.5 kg	0.5 kg	E	28, 36
	*		*		*		*		*		*		*
	Urea nitrate, wetted, *with not less than 10 percent water by mass*	4.1	UN3370	I	4.1	162, A8, A19, N41, N84	None	211	None	0.5 kg	0.5 kg	E	28, 36
	*		*		*		*		*		*		*
	Vinylpyridines, stabilized	6.1	UN3073	II	6.1, 3, 8	IB1, T7, TP2, TP13	153	202	243	1 L	30 L	B	21, 40, 52, 100
	*		*		*		*		*		*		*
G	Water-reactive liquid, corrosive, n.o.s	4.3	UN3129	I	4.3, 8	T14, TP2, TP7, TP13	None	201	243	Forbidden	1 L	D	13, 148
				II	4.3, 8	IB1, T11, TP2, TP7	None	202	243	1 L	5 L	E	13, 85, 148
				III	4.3, 8	IB2, T7, TP2, TP7	None	203	242	5 L	60 L	E	13, 148
G	Water-reactive liquid, n.o.s	4.3	UN3148	I	4.3	T13, TP2, TP7, TP41	None	201	244	Forbidden	1 L	E	13, 40, 148
				II	4.3	IB1, T7, TP2, TP7	None	202	243	1 L	5 L	E	13, 40, 148
				III	4.3	IB2, T7, TP2, TP7	None	203	242	5 L	60 L	E	13, 40, 148

G	Water-reactive liquid, toxic, n.o.s.	4.3	UN3130	I	4.3, 6.1	A4	None	201	243	Forbidden	1 L	D	13, 148
				II	4.3, 6.1	IB1	None	202	243	1 L	5 L	E	13, 85, 148
				III	4.3, 6.1	IB2	None	203	242	5 L	60 L	E	13, 85, 148
G	Water-reactive solid, corrosive, n.o.s	4.3	UN3131	I	4.3, 8	IB4, IP1, N40, T9, TP7, TP33	None	211	242	Forbidden	15 kg	D	13, 148
				II	4.3, 8	IB6, IP2, T3, TP33	151	212	242	15 kg	50 kg	E	13, 85, 148
				III	4.3, 8	IB8, IP4, T1, TP33	151	213	241	25 kg	100 kg	E	13, 85, 148
G	Water-reactive solid, flammable, n.o.s.	4.3	UN3132	I	4.3, 4.1	IB4, N40	None	211	242	Forbidden	15 kg	D	13, 148
				II	4.3, 4.1	IB4, T3, TP33	151	212	242	15 kg	50 kg	E	13, 148
				III	4.3, 4.1	IB6, T1, TP33	151	213	241	25 kg	100 kg	E	13, 148
G	Water-reactive solid, n.o.s.	4.3	UN2813	I	4.3	IB4, N40, T9, TP7, TP33	None	211	242	Forbidden	15 kg	E	13, 40, 148
				II	4.3	IB7, IP2, T3, TP33	151	212	242	15 kg	50 kg	E	13, 40, 148
				III	4.3	IB8, IP4, T1, TP33	151	213	241	25 kg	100 kg	E	13, 40, 148
G	Water-reactive, solid, oxidizing, n.o.s.	4.3	UN3133	II	4.3, 5.1		None	214	214	Forbidden	Forbidden	E	13, 40, 148
				III	4.3, 5.1		None	214	214	Forbidden	Forbidden	E	13, 40, 148
G	Water-reactive solid, self-heating, n.o.s.	4.3	UN3135	I	4.3, 4.2	N40	None	211	242	Forbidden	15 kg	E	13, 148
				II	4.3, 4.2	IB5, IP2, T3, TP33	None	212	242	15 kg	50 kg	E	13, 148
				III	4.3, 4.2	IB8, IP4, T1, TP33	None	213	241	25 kg	100 kg	E	13, 148
G	Water-reactive solid, toxic, n.o.s.	4.3	UN3134	I	4.3, 6.1	A8, IB4, IP1, N40	None	211	242	Forbidden	15 kg	D	13, 148
				II	4.3, 6.1	IB5, IP2, T3, TP33	151	212	242	15 kg	50 kg	E	13, 85, 148
				III	4.3, 6.1	IB8, IP4, T1, TP33	151	213	241	25 kg	100 kg	E	13, 85, 148
	*		*		*		*		*		*		*

	Zinc ashes	4.3	UN1435	III	4.3	A1, A19, IB8, IP4, T1, TP33	151	213	241	25 kg	100 kg	A	13, 148
	*		*		*		*		*		*		*
	Zinc dithionite *or* Zinc hydrosulfite	9	UN1931	III	None	IB8, IP3, T1, TP33	155	204	240	100 kg	200 kg	A	13, 26, 123
	*		*		*		*		*		*		*
	Zinc peroxide	5.1	UN1516	II	5.1	IB6, IP2, T3, TP33	152	212	242	5 kg	25 kg	C	13, 52, 66, 75, 148
	Zinc phosphide	4.3	UN1714	I	4.3, 6.1	A19, N40	None	211	None	Forbidden	15 kg	E	13, 40, 52, 85, 148
	*		*		*		*		*		*		*
	Zinc powder *or* Zinc dust	4.3	UN1436	I	4.3, 4.2	A19, IB4, IP1, N40	None	211	242	Forbidden	15 kg	A	13, 52, 53, 148
				II	4.3, 4.2	A19, IB7, IP2, T3, TP33	None	212	242	15 kg	50 kg	A	13, 52, 53, 148
				III	4.3, 4.2	IB8, IP4, T1, TP33	None	213	242	25 kg	100 kg	A	13, 52, 53, 148
	*		*		*		*		*		*		*
	Zirconium, dry, *coiled wire, finished metal sheets, strip (thinner than 254 microns but not thinner than 18 microns)*	4.1	UN2858	III	4.1	A1	151	213	240	25 kg	100 kg	A	13, 147, 148
	Zirconium, dry, *finished sheets, strip or coiled wire*	4.2	UN2009	III	4.2	A1, A19	None	213	240	25 kg	100 kg	D	13, 148
	*		*		*		*		*		*		*
	Zirconium powder, dry	4.2	UN2008	I	4.2	T21, TP7, TP33	None	211	242	Forbidden	Forbidden	D	13, 148
				II	4.2	A19, A20, IB6, IP2, N5, N34, T3, TP33	None	212	241	15 kg	50 kg	D	13, 148
				III	4.2	IB8, IP3, T1, TP33	None	213	241	25 kg	100 kg	D	13, 148
	Zirconium powder, wetted *with not less than 25 percent water (a visible excess of water must be present) (a) mechanically produced, particle size less than 53 microns; (b) chemically produced, particle size less than 840 microns*	4.1	UN1358	II	4.1	A19, A20, IB6, IP2, N34, T3, TP33	None	212	241	15 kg	50 kg	E	13, 74, 147, 148

	Zirconium scrap	4.2	UN1932	III	4.2	IB8, IP3, N34, T1, TP33	None	213	240	Forbidden	Forbidden	D	13, 148
	*		*		*		*		*		*		*

* * * * *

Appendix B to § 172.101--List of Marine Pollutants.

* * * * *

List of Marine Pollutants	
S, M, P (1)	Marine Pollutant (2)
[Remove:]	Chlorotoluenes (meta-;para-)
* *	* * * * *
[Add:] * *	* * * * *
	Acroleic acid, stabilized
* *	* * * * *
	Acrylic Acid, Stabilized
* *	* * * * *
	Allyl alcohol
* *	* * * * *
	Aminobenzene
* *	* * * * *
	Ammonia, anhydrous (I)
	Ammonia solution, relative density less than 0.880 at 15 degrees C in water, with more than 50 percent ammonia
	Ammonia Solution relative density less than 0.880 at 15 degrees C in water, with more than 35% but not more than 50% ammonia
	Ammonia solution, relative density between 0.880 and 0.957 at 15 degrees C in water, with more than 10 percent but not more than 35 percent ammonia, by mass
* *	* * * * *
	Aniline
	Aniline oil
* *	* * * * *
	Bleaching powder
* *	* * * * *
	Butylbenzenes
* *	* * * * *
	Calcium hypochlorite , dry with more than 39% available chlorine (8.8% available oxygen)
	Calcium hypochlorite mixture, dry with more than 10% but not more than 39% available chlorine

	Calcium hypochlorite mixture, dry with more than 39% available chlorine (8.8% available oxygen)
	Calcium hypochlorite mixture, dry, corrosive with more than 10% but not more than 39% available chlorine
	Calcium hypochlorite mixture, dry, corrosive with more than 39% available chlorine (8.8% available oxygen)
	Calcium hypochlorite, hydrated with not less than 5.5% but not more than 16% water
	Calcium hypochlorite, hydrated, corrosive with not less than 5.5% but not more than 16% water
	Calcium hypochlorite, hydrated mixture with not less than 5.5% but not more than 16% water
	Calcium hypochlorite, hydrated mixture, corrosive with not less than 5.5% but not more than 16% water
* *	* * * * *
	ortho-Chlorotoluene
* *	* * * * *
	Creosote salts
* *	* * * * *
	Cycloheptane
* *	* * * * *
	2,4-Dichlorophenol
* *	* * * * *
	1,3-Dichloropropene
* *	* * * * *
	Dimethyl Disulphide
* *	* * * * *
	Dinitrotoluenes, Liquid
	Dinitrotoluenes, Molton
	Dintrotoluenes, Solid
* *	* * * * *
	Dodecene
* *	* * * * *
	Heptanes
* *	* * * * *
	Hexane
* *	* * * * *
	Isooctane
* *	* * * * *
	Mesitylene
* *	* * * * *
	Methyl disulphide
* *	* * * * *

	2-Methyl-2-phenylpropane
* *	* * * * *
	Methyldinitrobenzenes, liquid
	Methyldinitrobenzenes, molten
	Methyldinitrobenzenes, solid
	Methyldithiomethane
	2-Methylheptane
* *	* * * * *
	2-Methylpentane
* *	* * * * *
	Naphthalene, crude or Naphthalene, refined
	Napthalene, molten
* *	* * * * *
	Nonanes
* *	* * * * *
	Octanes
* *	* * * * *
	Phenylamine
* *	* * * * *
	Pine Oil
	alpha-Pinene
* *	* * * * *
	Propenoic acid, stabilized
	Propenyl alcohol
* *	* * * * *
	Propylene Tetramer
* *	* * * * *
	Sodium hypochlorite solution
* *	* * * * *
	Tetrapropylene
* *	* * * * *
	Toluidines, liquid
	Toluidines, Solid
* *	* * * * *
	1,3,5- Trimethylbenzene
* *	* * * * *
	2,2,4-Trimethylpentane

* *	* * * * *
	Turpentine
* *	* * * * *
	Zinc Chloride, Anhydrous
	Zinc Chloride Solution
* *	* * * * *

10. In § 172.102:

a. In paragraph (c)(1), special provisions 28, 52, 147, 160, 238, 342 and 362 are revised, special provisions 367, 368, 369, 370, 371, and 372 are added, and special provision 161 is removed.

b. In paragraph (c)(2), special provision A60 is revised and A61 is added.

c. Paragraph (c)(4) introductory text, (c)(4) Table 1 and (c)(4) Table 2 are revised.

d. In paragraph (c)(8)(ii), TP47 is added in numerical sequence.

The additions and revisions read as follows:

§ 172.102 Special provisions.

* * * * *

(c) * * *

(1) * * *

28 The dihydrated sodium salt of dichloroisocyanuric acid does not meet the criteria for inclusion in Division 5.1 (Oxidizer) and is not subject to the requirements of this subchapter unless meeting the criteria for inclusion in another class or division.

* * * * *

52 This entry may only be used for substances that are too insensitive for acceptance into Class 1 (explosive) when tested in accordance with Test Series 2

in the UN Manual of Tests and Criteria, Part I (incorporated by reference; see §171.7 of this subchapter).

* * * * *

147 This entry applies to non-sensitized emulsions, suspensions, and gels consisting primarily of a mixture of ammonium nitrate and fuel, intended to produce a Type E blasting explosive only after further processing prior to use. The mixture for emulsions typically has the following composition: 60-85% ammonium nitrate; 5-30% water; 2-8% fuel; 0.5-4% emulsifier or thickening agent; 0-10% soluble flame suppressants; and trace additives. Other inorganic nitrate salts may replace part of the ammonium nitrate. The mixture for suspensions and gels typically has the following composition: 60-85% ammonium nitrate; 0-5% sodium or potassium perchlorate; 0-17% hexamine nitrate or monomethylamine nitrate; 5-30% water; 2-15% fuel; 0.5-4% thickening agent; 0-10% soluble flame suppressants; and trace additives. Other inorganic nitrate salts may replace part of the ammonium nitrate. These substances must satisfactorily pass Tests 8(a), (b) and (c) of Test Series 8 of the UN Manual of Tests and Criteria, Part I, Section 18 (IBR, see §171.7 of this subchapter), and may not be classified and transported unless approved by the Associate Administrator.

* * * * *

160 This entry applies to safety devices for vehicles, vessels or aircraft, e.g. air bag inflators, air bag modules, seat-belt pretensioners, and pyromechanical devices containing Class 1 (explosive) materials or materials of other hazard classes. These articles must be tested in accordance with Test series 6(c) of Part I

of the UN Manual of Tests and Criteria (incorporated by reference; see §171.7 of this subchapter), with no explosion of the device, no fragmentation of device casing or pressure vessel, and no projection hazard nor thermal effect that would significantly hinder fire-fighting or other emergency response efforts in the immediate vicinity. If the air bag inflator unit satisfactorily passes the series 6(c) test, it is not necessary to repeat the test on the air bag module. This entry does not apply to life saving appliances described in § 173.219 (UN2990 and UN3072).

* * * * *

238 Neutron radiation detectors:

a. Neutron radiation detectors containing non-pressurized boron trifluoride gas in excess of 1 gram and radiation detection systems containing such neutron radiation detectors as components may be transported by highway, rail, vessel, or cargo aircraft in accordance with the following:

(1) Each radiation detector must meet the following conditions:

(i) The pressure in each neutron radiation detector must not exceed 105 kPa absolute at 20 °C;

(ii) The amount of gas must not exceed 13 grams per detector;

(iii) Each neutron radiation detector must be of welded metal construction with brazed metal to ceramic feed through assemblies. These detectors must have a minimum burst pressure of 1800 kPa as demonstrated by design type qualification testing; and

(iv) Each detector must be tested to a 1 x 10^{-10} cm^3/s leaktightness standard before

filling.

(2) Radiation detectors transported as individual components must be transported as follows:

(i) They must be packed in a sealed intermediate plastic liner with sufficient absorbent material to absorb the entire gas contents.

(ii) They must be packed in strong outer packagings and the completed package must be capable of withstanding a 1.8 meter (6-foot) drop without leakage of gas contents from detectors.

(iii) The total amount of gas from all detectors per outer packaging must not exceed 52 grams.

(3) Completed neutron radiation detection systems containing detectors meeting the conditions of paragraph (a)(1) of this special provision must be transported as follows:

(i) The detectors must be contained in a strong sealed outer casing;

(ii) The casing must contain include sufficient absorbent material to absorb the entire gas contents;

(iii) The completed system must be packed in strong outer packagings capable of withstanding a 1.8 meter (6-foot) drop test without leakage unless a system's outer casing affords equivalent protection.

b. Except for transportation by aircraft, neutron radiation detectors and radiation detection systems containing such detectors transported in accordance with paragraph (a) of this special provision are not subject to the labeling and placarding requirements of part 172 of this subchapter.

c. When transported by highway, rail, vessel, or as cargo on an aircraft, neutron radiation detectors containing not more than 1 gram of boron trifluoride, including those with solder glass joints are not subject to any other requirements of this subchapter provided they meet the requirements in paragraph (a)(1) of this special provision and are packed in accordance with paragraph (a)(2) of this special provision. Radiation detection systems containing such detectors are not subject to any other requirements of this subchapter provided they are packed in accordance with paragraph (a)(3) of this special provision.

* * * * *

342 Glass inner packagings (such as ampoules or capsules) intended only for use in sterilization devices, when containing less than 30 mL of ethylene oxide per inner packaging with not more than 300 mL per outer packaging, may be transported in accordance with §173.4a of this subchapter, irrespective of the restriction of §173.4a(b) and the indication of "forbidden" in columns (9A) and (9B) of the § 172.101 table provided that:

a. After filling, each glass inner packaging must be determined to be leak-tight by placing the glass inner packaging in a hot water bath at a temperature and for a period of time sufficient to ensure that an internal pressure equal to the vapor pressure of ethylene oxide at 55 °C is achieved. Any glass inner packaging showing evidence of leakage, distortion or other defect under this test must not be transported under the terms of this special provision;

b. In addition to the packaging required in §173.4a, each glass inner packaging must be placed in a sealed plastic bag compatible with ethylene oxide and capable

of containing the contents in the event of breakage or leakage of the glass inner packaging; and

c. Each glass inner packaging is protected by a means of preventing puncture of the plastic bag (e.g., sleeves or cushioning) in the event of damage to the packaging (e.g., by crushing).

* * * * *

362 This entry applies to liquids, pastes or powders, pressurized with a propellant that meets the definition of a gas in §173.115. A chemical under pressure packaged in an aerosol dispenser must be transported under UN1950. The chemical under pressure must be classed based on the hazard characteristics of the components in the propellant; the liquid; or the solid. The following provisions also apply:

a. If one of the components, which can be a pure substance or a mixture, is classed as flammable, the chemical under pressure must be classed as flammable in Division 2.1. Flammable components are flammable liquids and liquid mixtures, flammable solids and solid mixtures or flammable gases and gas mixtures meeting the following criteria:

(1) A flammable liquid is a liquid having a flashpoint of not more than 93 °C (200 °F);

(2) A flammable solid is a solid that meets the criteria in §173.124 of this subchapter; or

(3) A flammable gas is a gas that meets the criteria in §173.115 of this subchapter.

b. Gases of Division 2.3 and gases with a subsidiary risk of 5.1 must not be used

as a propellant in a chemical under pressure.

c. Where the liquid or solid components are classed as Division 6.1, Packing Group II or III, or Class 8, Packing Group II or III, the chemical under pressure must be assigned a subsidiary risk of Division 6.1 or Class 8 and the appropriate identification number must be assigned. Components classed as Division 6.1, Packing Group I, or Class 8, Packing Group I, must not be offered for transportation and transported under this description.

d. A chemical under pressure with components meeting the properties of : Class 1 (explosives); Class 3 (liquid desensitized explosives); Division 4.1 (self-reactive substances and solid desensitized explosives); Division 4.2 (substances liable to spontaneous combustion); Division 4.3 (substances which, in contact with water, emit flammable gases or toxic gases); Division 5.1 (oxidizing substances); Division 5.2 (organic peroxides); Division 6.2 (Infectious substances); or, Class 7 (Radioactive material), must not be offered for transportation under this description.

d. A description to which special provision 170 or TP7 is assigned in Column 7 of the §172.101 Hazardous Materials Table, and therefore requires air to be eliminated from the package vapor space by nitrogen or other means, must not be offered for transportation under this description.

(f) Chemicals under pressure containing components forbidden for transport on both passenger and cargo aircraft in Columns (9A) and (9B) of 13 of the §172.101 Hazardous Materials Table, must not be transported by air.

* * * * *

367 For the purposes of documentation and package marking:

a. The proper shipping name “Paint related material” may be used for consignments of packages containing “Paint” and “Paint related material” in the same package;

b. The proper shipping name “Paint related material, corrosive, flammable” may be used for consignments of packages containing “Paint, corrosive, flammable” and “Paint related material, corrosive, flammable” in the same package;

c. The proper shipping name “Paint related material, flammable, corrosive” may be used for consignments of packages containing “Paint, flammable, corrosive” and “Paint related material, flammable, corrosive” in the same package; and

d. The proper shipping name “Printing ink related material” may be used for consignments of packages containing “Printing ink” and “Printing ink related material” in the same package.

368 In the case of non-fissile or fissile-excepted uranium hexafluoride, the material must be classified under UN3507 or UN2978.

369 In accordance with § 173.2a, this radioactive material in an excepted package possessing corrosive properties is classified in Class 8 with a radioactive material subsidiary risk. Uranium hexafluoride may be classified under this entry only if the conditions of §§ 173.420(a)(4) and (a)(6), 173.420 (d), 173.421(a)(2) and (a)(4), and, for fissile-excepted material, the conditions of 173.453 are met. In addition to the provisions applicable to the transport of Class 8 substances, the provisions of §§ 173.421(a)(3), and 173.443(a) apply. In addition, packages shall be legibly and durably marked with an identification of the consignor, the

consignee, or both. No Class 7 label is required to be displayed. The consignor shall be in possession of a copy of each applicable certificate when packages include fissile material excepted by competent authority approval. When a consignment is undeliverable, the consignment shall be placed in a safe location and the appropriate competent authority shall be informed as soon as possible and a request made for instructions on further action. If it is evident that a package of radioactive material, or conveyance carrying unpackaged radioactive material, is leaking, or if it is suspected that the package, or conveyance carrying unpackaged material, may have leaked, access to the package or conveyance must be restricted and, as soon as possible, the extent of contamination and the resultant radiation level of the package or conveyance must be assessed. The scope of the assessment must include, as applicable, the package, the conveyance, the adjacent loading and unloading areas, and, if necessary, all other material which has been carried in the conveyance. When necessary, additional steps for the protection of persons, property, and the environment must be taken to overcome and minimize the consequences of such leakage. Packages, and conveyances carrying unpackaged material, which are leaking radioactive contents in excess of limits for normal conditions of transport may be removed to an interim location under supervision, but must not be forwarded until repaired or reconditioned and decontaminated, or as approved by the Associate Administrator.

370 This entry applies to:

a. Ammonium nitrate with more than 0.2% combustible substances, including any organic substance calculated as carbon, to the exclusion of any added substance;

and

b. Ammonium nitrate with not more than 0.2% combustible substances, including any organic substance calculated as carbon, to the exclusion of any added substance, that gives a positive result when tested in accordance with Test Series 2 of the UN Manual of Tests and Criteria, Part I (incorporated by reference; see §171.7 of this subchapter). See also UN No. 1942

371 a. This entry also applies to articles, containing a small pressure receptacle with a release device. Such articles must comply with the following requirements:

(1) The water capacity of the pressure receptacle must not exceed 0.5 L and the working pressure must not exceed 25 bar at 15°C;

(2) The minimum burst pressure of the pressure receptacle must be at least four times the pressure of the gas at 15 °C;

(3) Each article must be manufactured in such a way that unintentional firing or release is avoided under normal conditions of handling, packing, transport and use. This may be fulfilled by an additional locking device linked to the activator;

(4) Each article must be manufactured in such a way as to prevent hazardous projections of the pressure receptacle or parts of the pressure receptacle;

(5) Each pressure receptacle must be manufactured from material which will not fragment upon rupture;

(6) The design type of the article must be subjected to a fire test. For this test, the provisions of paragraphs 16.6.1.2 except letter g, 16.6.1.3.1 to 16.6.1.3.6, 16.6.1.3.7(b) and 16.6.1.3.8 of the UN Manual of Tests and Criteria must be applied. It must be demonstrated that the article relieves its pressure by means of

a fire degradable seal or other pressure relief device, in such a way that the pressure receptacle will not fragment and that the article or fragments of the article do not rocket more than 10 meters; and

(7) The design type of the article must be subjected to the following test. A stimulating mechanism must be used to initiate one article in the middle of the packaging. There must be no hazardous effects outside the package such as disruption of the package, metal fragments or a receptacle which passes through the packaging.

b. The manufacturer must produce technical documentation of the design type, manufacture as well as the tests and their results. The manufacturer must apply procedures to ensure that articles produced in series are made of good quality, conform to the design type and are able to meet the requirements in (a).

The manufacturer must provide such information to a representative of the Department upon request.

372 This entry applies to asymmetric capacitors with an energy storage capacity greater than 0.3 Wh. Capacitors with an energy storage capacity of 0.3 Wh or less are not subject to the requirements of this subchapter.

Energy storage capacity means the energy stored in a capacitor, as calculated according to the following equation,

$$Wh=1/2C_N(U_R^2-U_L^2) \times (1/3600)$$

Using the nominal capacitance (C_N), rated voltage (U_R) and the rated lower limit voltage (U_L).

Nickel-carbon asymmetric capacitors containing Class 8 alkaline electrolytes

must be transported as UN2795, Batteries, wet, filled with alkali, electric storage.

* * * * *

(2) * * *

A60 Sterilization devices, when containing less than 30 mL per inner packaging with not more than 150 mL per outer packaging, may be transported in accordance with the provisions in §173.4a, irrespective of §173.4a(b), provided such packagings were first subjected to comparative fire testing. Comparative fire testing between a package as prepared for transport (including the substance to be transported) and an identical package filled with water must show that the maximum temperature measured inside the packages during testing does not differ by more than 200 °C (392 °F). Packagings may include a vent to permit the slow escape of gas (i.e. not more than 0.1 mL/hour per 30 mL inner packaging at 20 °C (68 °F) produced from gradual decomposition. The requirements of §§ 173.24(g)(1) and 173.27(c) do not apply.

A61 a. When used for purposes such as sterilization, inner packagings of peroxyacetic acid, stabilized, classified as UN 3107 Organic peroxide type E, liquid or UN 3109 Organic peroxide type F, liquid may be fitted with a vent consisting of hydrophobic membrane, provided:

(1) Each inner packaging contains not more than 70 mL;

(2) The inner packaging is designed so that the vent is not immersed in liquid in any orientation;

(3) Each inner packaging is enclosed in an intermediate rigid plastic packaging

with a small opening to permit release of gas and contains a buffer that neutralizes the contents of the inner packaging in the event of leakage;

(4) Intermediate packagings are packed in a fiberboard box (4G) outer packaging;

(5) Each outer packaging contains not more than 1.4 L of liquid; and

(6) The rate of oxygen release from the outer packaging does not exceed 15 mL per hour.

b. Such packages must be transported on cargo aircraft only. The requirements of §§ 173.24(g)(1) and 173.27(c) do not apply.

* * * * *

(4) IB Codes and IP Codes. These provisions apply only to transportation in IBCs and Large Packagings. Table 1 authorizes IBCs for specific proper shipping names through the use of IB Codes assigned in the §172.101 table of this subchapter. Table 2 defines IP Codes on the use of IBCs that are assigned to specific commodities in the §172.101 Table of this subchapter. Table 3 authorizes Large Packagings for specific proper shipping names through the use of IB Codes assigned in the §172.101 table of this subchapter. Large Packagings are authorized for the Packing Group III entries of specific proper shipping names when either special provision IB3 or IB8 is assigned to that entry in the §172.101 Table. When no IB code is assigned in the §172.101 Table for a specific proper shipping name, or in § 173.185 or § 173.225(e) Organic Peroxide Table for Type F organic peroxides, use of an IBC or Large Packaging for the material may be authorized when approved by the Associate Administrator. The letter "Z" shown

in the marking code for composite IBCs must be replaced with a capital code letter designation found in §178.702(a)(2) of this subchapter to specify the material used for the other packaging. Tables 1, 2, and 3 follow:

TABLE 1—IB CODES (IBC CODES)

IBC code	Authorized IBCs
IB1	Authorized IBCs: Metal (31A, 31B and 31N).
	Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 °C (1.1 bar at 122 °F), or 130 kPa at 55 °C (1.3 bar at 131 °F) are authorized.
IB2	Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1).
	Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 °C (1.1 bar at 122 °F), or 130 kPa at 55 °C (1.3 bar at 131 °F) are authorized.
IB3	Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2).
	Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 °C (1.1 bar at 122 °F), or 130 kPa at 55 °C (1.3 bar at 131 °F) are authorized, except for UN2672 (also see special provision IP8 in Table 2 for UN2672).
IB4	Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N).
IB5	Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 21HZ1 and 31HZ1).
IB6	Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2 and 31HZ1).
	Additional Requirement: Composite IBCs 11HZ2 and 21HZ2 may not be used when the hazardous materials being transported may become liquid during transport.
IB7	Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2 and 31HZ1); Wooden (11C, 11D and 11F).
	Additional Requirement: Liners of wooden IBCs must be sift-proof.
IB8	Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2 and 31HZ1); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).
IB9	IBCs are only authorized if approved by the Associate Administrator.

TABLE 2—IP CODES

IP Code	
IP1	IBCs must be packed in closed freight containers or a closed transport vehicle.
IP2	When IBCs other than metal or rigid plastics IBCs are used, they must be offered for transportation in a closed freight container or a closed transport vehicle.
IP3	Flexible IBCs must be sift-proof and water-resistant or must be fitted with a sift-proof and water-resistant liner.
IP4	Flexible, fiberboard or wooden IBCs must be sift-proof and water-resistant or be fitted with a sift-proof and water-resistant liner.
IP5	IBCs must have a device to allow venting. The inlet to the venting device must be located in the vapor space of the IBC under maximum filling conditions.
IP6	Non-specification bulk bins are authorized.
IP7	For UN identification numbers 1327, 1363, 1364, 1365, 1386, 1841, 2211, 2217, 2793 and 3314, IBCs are not required to meet the IBC performance tests specified in part 178, subpart N of this subchapter.
IP8	Ammonia solutions may be transported in rigid or composite plastic IBCs (31H1, 31H2 and 31HZ1) that have successfully passed, without leakage or permanent deformation, the hydrostatic test specified in §178.814 of this subchapter at a test pressure that is not less than 1.5 times the vapor pressure of the contents at 55 °C (131 °F).
IP13	Transportation by vessel in IBCs is prohibited.
IP14	Air must be eliminated from the vapor space by nitrogen or other means.
IP15	For UN2031 with more than 55% nitric acid, rigid plastic IBCs and composite IBCs with a rigid plastic inner receptacle are authorized for two years from the date of IBC manufacture.
IP16	IBCs of type 31A and 31N are only authorized if approved by the Associate Administrator.
IP20	Dry sodium cyanide or potassium cyanide is also permitted in siftproof, water-resistant, fiberboard IBCs when transported in closed freight containers or transport vehicles.

* * * * *

(8) * * *

(ii) * * *

TP47 The 2.5 year internal examination may be waived or substituted by other test methods or inspection procedures specified by the competent authority or its authorized body, provided that the portable tank is dedicated to the transport of the organometallic substances to which this tank special provision is assigned. However this examination is required when the conditions of § 180.605(f) are

met.

* * * * *

11. In § 172.315, paragraphs (a)(2) and (b)(2) are revised to read as follows:

§ 172.315 Limited quantities.

(a) * * *

(2) The square-on-point must be durable, legible and of a size relative to the packaging, readily visible, and must be applied on at least one side or one end of the outer packaging. The width of the border forming the square-on-point must be at least 2 mm and the minimum dimension of each side, as measured from the outside of the lines forming the border, must be 100 mm unless the packaging size requires a reduced size marking that must be no less than 50 mm on each side and the width of the border forming the square on point may be reduced to a minimum of 1 mm. Where dimensions are not specified, all features shall be in approximate proportion to those shown. When intended for transportation by vessel, a cargo transport unit (see §176.2 of this subchapter) containing packages of hazardous materials in only limited quantities must be marked once on each side and once on each end of the exterior of the unit with an identical mark which must have minimum dimensions of 250 mm on each side.

(i) Transitional exception – A marking in conformance with the requirements of this paragraph in effect on October 1, 2012, may continue to be used until December 31, 2016.

(ii) [Reserved]

(b) * * *

(2) The square-on-point must be durable, legible and of a size relative to the package as to be readily visible. The square-on-point must be applied on at least one side or one end of the outer packaging. The width of the border forming the square-on-point must be at least 2 mm and the minimum dimension of each side, as measured from the outside of the lines forming the border, must be 100 mm unless the package size requires a reduced size marking that must be no less than 50 mm on each side and the width of the border forming the square on point may be reduced to a minimum of 1 mm. Where dimensions are not specified, all features shall be in approximate proportion to those shown.

(i) Transitional exception – A marking in conformance with the requirements of this paragraph in effect on October 1, 2012, may continue to be used until December 31, 2016.

(ii) [Reserved]

* * * * *

12. In § 172.317, paragraph (b) is revised to read as follows:

§ 172.317 KEEP AWAY FROM HEAT handling mark.

* * * * *

(b) Location and design. The marking must be a rectangle measuring at least 105 mm (4.1 inches) in height by 74 mm (2.9 inches) in width as measured from the outside of the lines forming the border. Markings with not less than half this dimension are permissible where the dimensions of the package can only bear a smaller mark.

(1) Transitional exception – A marking in conformance with the requirements of this paragraph in effect on October 1, 2012, may continue to be used until December 31, 2016.

(2) [Reserved]

* * * * *

13. In § 172.322, paragraphs (a)(2), (b) introductory text, (e) introductory text, (e)(2) introductory text, (e)(2)(i) introductory text, and (e)(2)(i)(A) are revised and adding paragraph (e)(3) to read as follows:

§ 172.322 Marine pollutants.

* * * * *

(a) * * *

(2) Except as otherwise provided in this subchapter, the MARINE POLLUTANT mark shall be placed in association with the hazard warning labels required by subpart E of this part or, in the absence of any labels, in association with the marked proper shipping name.

(b) Except as otherwise provided in this subchapter, a bulk packaging that contains a marine pollutant must—

* * * * *

(e) MARINE POLLUTANT mark. The MARINE POLLUTANT mark must conform to the following:

* * * * *

(2) The marking must be in the form of a square-on-point. The symbol and border must be black on a white or suitable contrasting background. The width of the border forming the square-on-point marking must be at least 2 mm. Each side of the mark must be—

(i) At least 100 mm (4 inches) as measured from the outside of the lines forming the border for marks applied to:

(A) Non-bulk packages, except in the case of packages which, because of their size, can only bear smaller marks. If the size of the package so requires, the dimensions/line thickness may be reduced, provided the marking remains clearly visible. Where dimensions are not specified, all features shall be in approximate proportion to those shown.

* * * * *

(3) Transitional exception – A marking in conformance with the requirements of this paragraph in effect on October 1, 2012, may continue to be used until December 31, 2016.

* * * * *

14. In § 172.327, paragraph (a) is revised to read as follows:

§ 172.327 Petroleum sour crude oil in bulk packaging.

* * * * *

(a) The marking must be durable, legible and of a size relative to the package as to be readily visible and similar to the illustration shown in this paragraph with the minimum dimension of each side of the marking at least 100 mm (3.9 inches) as measured from the outside of the lines forming the border. The width of the border forming the square-on-point marking must be at least 5 mm. The marking must be displayed at each location (*e.g.,* manhole, loading head) where exposure to hydrogen sulfide vapors may occur.

(1) Transitional exception – A marking in conformance with the requirements of this paragraph in effect on October 1, 2012, may continue to be used until December 31, 2016.

(2) [Reserved]

* * * * *

15. In § 172.407, paragraphs (c)(1) and (d)(2)(iii) are revised and paragraph (d)(2)(iv) is added to read as follows:

§ 172.407 Label specifications.

* * * * *

(c) Size. (1) Each diamond (square-on-point) label prescribed in this subpart must be at least 100 mm (3.9 inches) on each side with each side having a solid line inner border 5 mm inside and parallel to the edge. The 5 mm measurement is from the outside edge of the label to the outside of the solid line forming the inner border. The width of the solid line forming the inner border must be at least 2 mm.

(i) If the size of the package so requires, the dimensions of the label and its features may be reduced provided the symbol and other elements of the label remain clearly visible. The solid line forming the inner border must remain 5 mm from the outside edge of the label and the minimum width of the line must remain 2 mm.

(ii) Where dimensions are not specified, all features shall be in approximate proportion to those shown in §§ 172.411 through 172.448 of this subpart, as appropriate.

(iii) Transitional exception – A label in conformance with the requirements of this paragraph in effect on October 1, 2012, may continue to be used until December 31, 2016.

* * * * *

(d) * * *

(2) * * *

(iii) White may be used for the symbol for the ORGANIC PEROXIDE label.

(A) Inner border color -- If white is used for the symbol for the ORGANIC PEROXIDE label then the solid line forming the inner border on the upper half of the label must also be white.

(B) Transitional exception – A label in conformance with the requirements of this paragraph in effect on October 1, 2012, may continue to be used until December 31, 2016.

(iv) The FLAMMABLE GAS label displayed on cylinders and gas cartridges for liquefied petroleum gases, where they may be shown in the background color of the receptacle if adequate contrast is provided.

* * * * *

16. In § 172.512, paragraph (a)(3) is revised to read as follows:

§ 172.512 Freight containers and aircraft unit load devices.

(a) * * *

(3) Placarding is not required on a freight container or aircraft unit load device if it is only transported by air and is identified as containing a hazardous material in the manner provided in part 7, chapter 2, section 2.8, of the ICAO Technical Instructions (IBR, see §171.7 of this subchapter).

* * * * *

17. In § 172.519, paragraph (c)(1) is revised to read as follows:

§ 172.519 General specifications for placards.

* * * * *

(c) Size. (1) Each diamond (square-on-point) placard prescribed in this subpart must measure at least 250 mm (9.84 inches) on each side and must have a solid line inner border 12.5 mm inside and parallel to the edge. The 12.5 mm measurement is from the outside edge of the placard to the outside of the solid line forming the inner border.

(i) Transitional exceptions – (A) A placard in conformance with the requirements of this paragraph in effect on October 1, 2012, may continue to be used until December 31, 2016.

(B) For domestic transportation, a placard manufactured prior to January 1, 2017 in conformance with the requirements of this paragraph in effect on October 1, 2012, may continue in service until the end of its useful life provided the color tolerances are maintained and are in accordance with the display requirements of this subchapter.

(ii) [Reserved]

* * * * *

PART 173--SHIPPERS--GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

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

Authority: 49 U.S.C. 5101–5128, 44701; 49 CFR 1.81, 1.96 and 1.97.

19. In § 173.2a, paragraph (a)(1) is revised to read as follows:

§ 173.2a Classification of a material having more than one hazard.

(a) * * *

(1) Class 7 (radioactive materials, other than limited quantities; and shipments of Uranium hexafluoride, radioactive material, excepted package, UN 3507).

* * * * *

20. In § 173.3, paragraphs (c)(3) and (d)(3)(iv) are revised and paragraph (f) 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". The lettering of the marking must be at least 12 mm (0.5 inches) high.

(i) Transitional exception – A marking in conformance with the requirements of this paragraph in effect on October 1, 2012, may continue to be used until December 31, 2016.

(ii) Exception for permanently marked packagings. For domestic transportation, a packaging manufactured prior to January 1, 2017 and permanently marked (e.g., by embossing or through a heat stamp process) in conformance with the requirements of this paragraph in effect on October 1, 2012, may continue in service until the end of its useful life.

* * * * *

(d) * * *

(3) * * *

(iv) The word "SALVAGE" in letters at least 12 mm (0.5 inches) high on opposite sides near the middle of the cylinder; stamping on the sidewall is not authorized.

(A) Transitional exception – A marking in conformance with the requirements of this paragraph in effect on October 1, 2012, may continue to be used until December 31, 2016.

(B) Exception for permanently marked packagings. For domestic transportation, a packaging manufactured prior to January 1, 2017 and permanently marked in conformance with the requirements of this paragraph in effect on October 1, 2012, may continue in service until the end of its useful life.

* * * * *

(f) Large salvage packagings. Except for transportation by air, packages of hazardous materials that are damaged, defective, or leaking; packages found to be not conforming to the requirements of this subchapter after having been placed in transportation; and, hazardous materials that have spilled or leaked may be placed in a large salvage packaging that is compatible with the lading and shipped for repackaging or disposal under the following conditions:

(1) Large salvage packagings must be tested and marked for Packing Group II or higher performance standards for large packagings intended for the transport of solids or inner packagings, except as follows:

(i) The test substance used in performing the tests shall be water, and the large salvage packagings must be filled to not less than 98 percent of their maximum capacity; and

(ii) Large salvage packagings must have been successfully subjected to a leakproofness test of 30 kPA (4.4 psig).

(2) Each large salvage packaging shall be provided when necessary with sufficient cushioning and absorption material to prevent excessive shifting of the contents and to eliminate the presence of any free liquid at the time the packaging is closed. All cushioning and absorbent material used in the large salvage packaging must be compatible with the hazardous material.

(3) Each large 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". The lettering of the marking must be at least 12 mm (0.5 inches) high.

(4) Each large salvage packaging shall be labeled as prescribed for the respective material.

(5) The shipper shall prepare shipping papers in accordance with subpart C of part 172 of this subchapter.

(6) The overpack requirements of §173.25 do not apply to large salvage packagings used in accordance with this paragraph.

21. In § 173.4a, paragraph (g)(2) is revised to read as follows:

§ 173.4a Excepted quantities.

* * * * *

(g) * * *

(2) The marking must be durable and clearly visible and in the form of a square. The hatching must be of the same color, black or red on white or a suitable contrasting background. The minimum dimensions must not be less than 100 mm (3.9 inches) by 100 mm (3.9 inches) as measured from the outside of the hatching forming the border.

Where dimensions are not specified, all features shall be in approximate proportion to those shown.

(i) Transitional exception – A marking in conformance with the requirements of this paragraph in effect on October 1, 2012, may continue to be used until December 31, 2016.

(ii) [Reserved]

* * * * *

22. In § 173.9, paragraph (e)(1) is revised to read as follows:

§ 173.9 Transport vehicles or freight containers containing lading which has been fumigated.

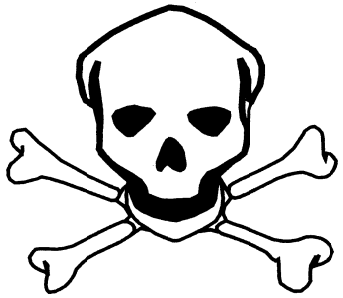
* * * * *

(e) FUMIGANT marking. (1) The FUMIGANT marking must consist of black letters on a white background that is a rectangle at least 400 mm (15.75 inches) wide and at least 300 mm (11.8 inches) high as measured to the outside of the lines forming the border of the marking. The minimum width of the line forming the forming the border must be 2 mm and the text on the marking must not be less than 25 mm high. Except for size and color, the FUMIGANT marking must be as shown in the following figure. Where dimensions are not specified, all features shall be in approximate proportion to those shown.

(i) Transitional exception – A marking in conformance with the requirements of this paragraph in effect on October 1, 2012, may continue to be used until December 31, 2016.

(ii) [Reserved]

DANGER



THIS UNIT IS UNDER FUMIGATION

WITH *_____ APPLIED ON

Date_____

Time_____

Ventilated on _____

DO NOT ENTER

* * * * *

23. Section 173.11 is added to read as follows:

§ 173.11 Exceptions for shipment of lamps containing hazardous materials.

The following lamps are not subject to any other requirements of this subchapter provided they do not contain Class 7 (radioactive) material:

(a) Lamps that are collected directly from individuals and households when transported to a collection or recycling facility.

(b) Lamps each containing not more than 1 g of hazardous materials and packaged so that there is not more than 30 g of hazardous materials per package. Each lamp must be packed in inner packagings separated by dividers, or surrounded by cushioning material to protect the lamps and packed into strong outer packagings meeting the requirements of § 173.24(b) of this part and capable of passing a 1.2 m (4 feet) drop test.

(c) Used, damaged, defective lamps each containing not more than 1 g of hazardous materials and packaged so that there is not more than 30 g of hazardous materials per package when transported from a collection or recycling facility. The lamps must be packed in strong outer packagings meeting the requirements of § 173.24(b) of this part and capable of passing a 1.2 m (4 feet) drop test.

(d) Lamps containing only gases of Division 2.2 provided they are packaged so that the projectile effects of any rupture of the bulb will be contained within the package.

24. In § 173.24, paragraph (c) is revised to read as follows:

§ 173.24 General requirements for packaging and packages.

* * * * *

(c) Authorized packagings. (1) A packaging is authorized for a hazardous material only if—

(i) The packaging is prescribed or permitted for the hazardous material in a packaging section specified for that material in Column 8 of the §172.101 Hazardous Materials Table and conforms to applicable requirements in the special provisions of Column 7 of the §172.101 Hazardous Materials Table and, for specification packagings (but not including UN standard packagings manufactured outside the United States), the specification requirements in parts 178 and 179 of this subchapter; or

(ii) The packaging is permitted under, and conforms to, provisions contained in subparts B or C of part 171 of this subchapter or §§173.3, 173.4, 173.4a, 173.4b, 173.5, 173.5a, 173.6, 173.7, 173.8, 173.27, or §176.11 of this subchapter.

(2) The use of supplementary packagings within an outer packaging (e.g., an intermediate packaging or a receptacle inside a required inner packaging) additional to what is required by this subchapter is authorized provided all applicable requirements of this subchapter are met and, if appropriate suitable cushioning is used to prevent movement within the packaging.

* * * * *

25. In § 173.25, paragraph (a)(4) is revised to read as follows:

§ 173.25 Authorized packagings and overpacks.

(a) * * *

(4) The overpack is marked with the word "OVERPACK" when specification packagings are required, unless specification markings on the inside packages are visible. The lettering on the "OVERPACK" marking must be at least 12 mm (0.5 inches) high.

(i) Transitional exception – A marking in conformance with the requirements of this paragraph in effect on October 1, 2012, may continue to be used until December 31, 2016.

(ii) [Reserved]

* * * * *

26. In § 173.62:

a. In paragraph (b), in the Explosives Table, the entry for UN0222 is revised; and

b. In paragraph (c), in the Table of Packing Methods, Packing Instructions 116, 117, 131, and 137 are revised.

The revisions and addition read as follows:

§ 173.62 Specific packaging requirements for explosives.

* * * * *

(b) * * *

Explosives Table

ID #	PI
* * * * * * *	
UN0222	112(b), 112(c) or 117
* * * * * * *	

(c) * * *

Table of Packing Methods

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
* * * * * * *			
116	Bags	Not necessary	Bags.

PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 1. For UN 0082, 0241, 0331 and 0332, inner packagings are not necessary if leakproof removable head drums are used as the outer packaging. 2. For UN 0082, 0241, 0331 and 0332, inner packagings are not required when the explosive is contained in a material impervious to liquid. 3. For UN0081, inner packagings are not required when contained in rigid plastic that is impervious to nitric esters. 4. For UN0331, inner packagings are not required when bags (5H2), (5H3) or (5H4) are used as outer packagings. 5. *Deleted* 6. For UN0081, bags must not be used as outer packagings.	paper, water and oil resistant plastics textile, plastic coated or lined woven plastics, sift-proof Receptacles fiberboard, water resistant metal plastics wood, sift-proof Sheets paper, water resistant paper, waxed plastics		woven plastics (5H1/2/3). paper, multiwall, water resistant (5M2). plastics, film (5H4). textile, sift-proof (5L2). textile, water resistant (5L3). Boxes. steel (4A). aluminum (4B). other metal (4N). wood, natural, ordinary (4C1). natural wood, sift proof walls (4C2). plywood (4D). reconstituted wood (4F). fiberboard (4G). plastics, solid (4H2). Drums. steel (1A1 or 1A2). aluminum (1B1 or 1B2). other metal (1N1 or 1N2). plywood (1D). fiber (1G). plastics (1H1 or 1H2). Jerricans. steel (3A1 or 3A2). plastics (3H1 or 3H2).
117	Not necessary	Not necessary	IBCs.
PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 1. This packing instruction may only be used for explosives of UN0082 when they are mixtures of			metal (11A), (11B), (11N), (21A), (21B), (21N), (31A), (31B), (31N). flexible (13H2), (13H3), (13H4), (13L2), (13L3),

ammonium nitrate or other inorganic nitrates with other combustible substances that are not explosive ingredients. Such explosives must not contain nitroglycerin, similar liquid organic nitrates, liquid or solid nitrocarbons, or chlorates. 2. This packing instruction may only be used for explosives of UN0241 that 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 aluminum powder, but must not include nitro-derivatives such as trinitrotoluene. 3. Metal IBCs must not be used for UN0082, UN0222 and UN0241. 4. Flexible IBCs may only be used for solids. 5. For UN0222, when other than metal or rigid plastics IBCs are used, they must be offered for transportation in a closed freight container or a closed transport vehicle. 6. For UN0222, flexible IBCs must be sift-proof and water-resistant or must be fitted with a sift-proof and water-resistant liner.			(13L4), (13M2). rigid plastics (11H1), (11H2), (21H1), (21H2), (31H1), (31H2). composite (11HZ1), (11HZ2), (21HZ1), (21HZ2), (31HZ1), (31HZ2).
* * * * * * *			
131	Bags	Not necessary	Boxes
PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 1. For UN 0029, 0267 and	paper plastics Receptacles fiberboard		steel (4A). aluminum (4B). other metal (4N). wood, natural,

0455, bags and reels may not be used as inner packagings. 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 free moving of the caps and to protect them from impact forces. 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 free moving of the caps and protects them from impact forces.	metal plastics wood Reels		ordinary (4C1). natural wood, sift proof walls (4C2). plastics, solid (4H2). plywood (4D). reconstituted wood (4F). fiberboard (4G). Drums. steel (1A1 or 1A2). Aluminum (1B1 or 1B2). other metal (1N1 or 1N2). Plywood (1D). fiber (1G). plastics (1H1 or 1H2).
* * * * * * *			
137	Bags	Not necessary	Boxes
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 fiberboard wood Tubes fiberboard metal plastics Dividing partitions in the outer packagings		steel (4A). aluminum (4B). other metal (4N). wood, natural, ordinary (4C1). wood, natural, sift proof walls (4C2). plastics, solid (4H2). plywood (4D). reconstituted wood (4F). fiberboard (4G). Drums. steel (1A1 or 1A2). aluminum (1B1 or 1B2).

			other metal (1N1 or 1N2). plywood (1D). fiber (1G). plastics (1H1 or 1H2).
* * * * * * *			

* * * * *

27. In § 173.115, paragraph (m) is added to read as follows:

§ 173.115 Class 2, Divisions 2.1, 2.2, and 2.3—Definitions.

* * * * *

(m) Adsorbed gas. A gas which when packaged for transport is adsorbed onto a solid porous material resulting in an internal receptacle pressure of less than 101.3 kPa at 20 °C and less than 300 kPa at 50 °C.

28. In § 173.121, paragraph (b)(1)(ii) is revised to read as follows:

§ 173.121 Class 3—Assignment of packing group.

* * * * *

(b) * * *

(1) * * *

(ii) The mixture or any separated solvent does not contain any substances with a primary or a subsidiary risk of Division 6.1 or Class 8;

* * * * *

29. In § 173.127, paragraphs (a)(1) and (b) are revised to read as follows.

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

(a) * * *

(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 (IBR, see §171.7 of this

subchapter):

(i) If test O.1 is used (UN Manual of Tests and Criteria, sub-section 34.4.1), the mean burning time is less than or equal to the burning time of a 3:7 potassium bromate/cellulose mixture; or

(ii) If test O.3 is used (UN Manual of Tests and Criteria, sub-section 34.4.3), the mean burning rate is greater than or equal to the burning rate of a 1:2 calcium peroxide/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:

(A) If test O.1 is used (UN Manual of Tests and Criteria, sub-section 34.4.1), the mean burning time is less than the mean burning time of a 3:2 potassium bromate/cellulose mixture; or

(B) If test O.3 is used (UN Manual of Tests and Criteria, sub-section 34.4.3), the mean burning rate is greater than the mean burning rate of a 3:1 calcium peroxide/cellulose mixture.

(ii) Packing Group II, for any material which, in either concentration tested:

(A) If test O.1 is used (UN Manual of Tests and Criteria, sub-section 34.4.1), the mean burning time is less than the mean burning time of a 2:3 potassium bromate/cellulose mixture and the criteria for Packing Group I are not met; or

(B) If test O.3 is used (UN Manual of Tests and Criteria, sub-section 34.4.3), the mean burning rate is greater than the mean burning rate of a 1:1 calcium

peroxide/cellulose mixture and the criteria for Packing Group I are not met.

(iii) Packing Group III for any material which, in either concentration tested:

(A) If test O.1 is used (UN Manual of Tests and Criteria, sub-section 34.4.1), the mean burning time is less than the mean burning time of a 3:7 potassium bromate/cellulose mixture and the criteria for Packing Groups I and II are not met; or

(B) If test O.3 is used (UN Manual of Tests and Criteria, sub-section 34.4.3), the mean burning rate is greater than the mean burning rate of a 1:2 calcium peroxide/cellulose mixture and the criteria for Packing Groups I and II are not met.

(iv) The materials is not classified as a Division 5.1 material if, in either concentration tested:

(A) If test O.1 is used (UN Manual of Tests and Criteria, sub-section 34.4.1), the sample tested does not ignite and exhibit burn, or exhibits a mean burning time of greater than or equal to the mean burning time of a 3:7 potassium bromate/cellulose mixture.

(B) If test O.3 is used (UN Manual of Tests and Criteria, sub-section 34.4.3), the sample tested does not ignite and exhibit burn, or exhibits a mean burning rate less than or equal to the mean burning rate of a 1:2 calcium peroxide/cellulose mixture.

* * * * *

30. In § 173.151, revise paragraph (b) to read as follows:

§ 173.151 Exceptions for Class 4.

* * * * *

(b) Limited quantities of Division 4.1. (1) Limited quantities of flammable solids (Division 4.1) in Packing Groups II and III and, where authorized by this section, charcoal briquettes (Division 4.2) in Packing Group III, are excepted from labeling

requirements unless the material is offered for transportation or transported by aircraft, and are excepted from the specification packaging requirements of this subchapter when packaged in combination packagings according to this paragraph. If authorized for transportation by aircraft, the package must also conform to applicable requirements of §173.27 of this part (*e.g.*, authorized materials, inner packaging quantity limits and closure securement) and only hazardous material authorized aboard passenger-carrying aircraft may be transported as a limited quantity. A limited quantity package that conforms to the provisions of this section is not subject to the shipping paper requirements of subpart C of part 172 of this subchapter, unless the material meets the definition of a hazardous substance, hazardous waste, marine pollutant, or is offered for transportation and transported by aircraft or vessel, and is eligible for the exceptions provided in §173.156 of this part. In addition, shipments of limited quantities are not subject to subpart F (Placarding) of part 172 of this subchapter. Each package must conform to the packaging requirements of subpart B of this part and may not exceed 30 kg (66 pounds) gross weight. Except for transportation by aircraft, the following combination packagings are authorized:

(i) For flammable solids in Packing Group II, inner packagings not over 1.0 kg (2.2 pounds) net capacity each, packed in a strong outer packaging.

(ii) For flammable solids in Packing Group III, inner packagings not over 5.0 kg (11 pounds) net capacity each, packed in a strong outer packaging.

(2) For transportation by highway or rail, Charcoal briquettes (NA1361) may be packaged as a limited quantity in accordance with paragraph (b) of this section in packagings not exceeding 30 kg gross weight and are eligible for the exceptions provided

in § 173.156.

* * * * *

31. In § 173.161, paragraph (b)(2) is revised to read as follows:

§ 173.161 Chemical kits and first aid kits.

* * * * *

(b) * * *

(2) The packing group assigned to the chemical kit and first aid kit as a whole must be the most stringent packing group assigned to any individual substance in the kit. Where the kit contains only hazardous materials to which no packing group is assigned, the packagings shall meet the Packing Group II performance level. The packing group must be shown on the shipping paper. Where the kit contains only hazardous materials to which no packing group is assigned, the packing group does not have to be indicated on the shipping paper.

* * * * *

§173.164 [Amended]

32. In § 173.164, paragraph (a)(5) is removed and reserved:

33. Section 173.166 is revised to read as follows:

§ 173.166 Safety devices.

For the purpose of this section, safety devices are articles which contain pyrotechnic substances or hazardous materials of other classes and are used in vehicles, vessels or aircraft to enhance safety to persons. Examples are: air bag inflators, air bag modules, seat-belt pretensioners and pyromechanical devices. Pyromechanical devices are assembled components for tasks such as but not limited to separation, locking, or

release-and-drive or occupant restraint. The term includes “Safety devices, pyrotechnic”.

(a) Definitions. An air bag inflator (consisting of a casing containing an igniter, a booster material, a gas generant and, in some cases, a pressure receptacle (cylinder)) is a gas generator used to inflate an air bag in a supplemental restraint system in a motor vehicle. An air bag module is the air bag inflator plus an inflatable bag assembly. A seat-belt pretensioner contains similar hazardous materials and is used in the operation of a seat-belt restraining system in a motor vehicle.

(b) Classification. (1) Safety devices, excluding those which contain flammable or toxic gases or mixtures thereof, may be classed as Class 9 (UN3268) if the safety device, or if more than a single safety device is involved then the representative of the maximum parameters of each design type, is examined and successfully tested by a person or agency who is authorized by the Associate Administrator to perform examination and testing of explosives under §173.56(b)(1), and who:

(i) Does not manufacture or market explosives or safety devices, is not owned in whole or in part, or is not financially dependent upon any entity that manufactures or markets explosives or safety devices;

(ii) Performs all examination and testing in accordance with the applicable requirements as specified in special provision 160 (see §172.102 of this subchapter); and

(iii) Maintains records in accordance with paragraph (g) of this section.

(iv) By adhering to all the provisions specified in paragraph (b)(1) of this section, a Class 9 (UN3268) air bag inflator, air bag module or seat-belt pretensioner design is not required to be submitted to the Associate Administrator for approval or assigned an EX

number. All other Class 9 (UN3268) safety device designs are required to be submitted to the Associate Administrator for approval and assigned an EX number;

(2) A safety device may be classed as Division 1.4G if the maximum parameters of each design type has been examined and successfully tested by a person or agency who is authorized by the Associate Administrator to perform such examination and testing of explosives under §173.56(b)(1). As a Class 1 explosive, the manufacturer must submit to the Associate Administrator a report of the examination and assignment of a recommended shipping description, division, and compatibility group, and if the Associate Administrator finds the approval request meets the regulatory criteria, the explosive may be approved in writing and assigned an EX number; or

(3) The manufacturer has submitted an application, including a classification issued by the competent authority of a foreign government to the Associate Administrator, and received written notification from the Associate Administrator that the device has been approved for transportation and assigned an EX number.

(c) EX numbers. (1) When a safety device is offered for transportation, the shipping paper must contain the EX number or product code for each approved device in association with the basic description required by §172.202(a) of this subchapter. Product codes must be traceable to the specific EX number assigned to the device by the Associate Administrator. Further, if the EX number or product code is contained on the shipping paper then it is not required to be marked on the outside package.

(2) An air bag inflator, air bag module or seat-belt pretensioner, when classed as a Class 9 (UN3268) under the terms of paragraph (b)(1) of this section, is excepted from the EX number requirements of this paragraph (c).

(d) Exceptions. (1) A safety device that is classed as a Class 9 (UN3268) under the terms of paragraph (b)(1) of this section and is installed in a motor vehicle, aircraft, boat or other transport conveyance or its completed components, such as steering columns or door panels, is not subject to the requirements of this subchapter. A safety device that has been classed as a Division 1.4G and approved by the Associate Administrator and is installed in a motor vehicle, aircraft, boat or other transport conveyance or its completed components, such as steering columns or door panels, is not subject to the requirements of this subchapter.

(2) An air bag module containing an inflator that has been previously approved by the Associate Administrator for transportation is not required to be submitted for further examination or approval. For classifications granted after July 30, 2013, if the Class 9 designation for the inflator is contingent upon packaging or other special means specified by the authorized testing agency, the modules must be tested and certified separately to determine if they can be shipped as "UN3268, Safety Devices, 9, PG III".

(3) An air bag module containing an inflator that has previously been approved by the Associate Administrator as a Division 2.2 material is not required to be submitted for further examination to be reclassed as a Class 9 material.

(4) Shipments to recycling or waste disposal facilities. When offered for domestic transportation by highway, rail freight, cargo vessel or cargo aircraft, a serviceable safety device classed as either Class 9 (UN3268) or Division 1.4G removed from a motor vehicle that was manufactured as required for use in the United States may be offered for transportation and transported without compliance with the shipping paper requirement prescribed in paragraph (c) of this section. However, when these articles are shipped to a

recycling facility, the word “Recycled” must be entered on the shipping paper immediately after the basic description prescribed in §172.202 of this subchapter. No more than one device is authorized in the packaging prescribed in paragraph (e)(1), (2), or (3) of this section. The device must be cushioned and secured within the package to prevent movement during transportation.

(5) An air bag inflator, air bag module, or seat-belt pretensioner that was classed and approved for transportation prior to January 1, 2015 may continue to be transported under the terms of the existing approval, using the appropriate proper shipping name “Safety Devices” or “Safety Devices, Pyrotechnic” based on the classification of the device as assigned by PHMSA or the authorized person or agency that examined and tested the design type.

(e) Packagings. Rigid, outer packagings, meeting the general packaging requirements of part 173 are authorized as follows. Additionally, the UN specification packagings listed in paragraphs (e)(1) through (3) of this section must meet the packaging specification and performance requirements of part 178 of this subchapter at the Packing Group III performance level. The packagings must be designed and constructed to prevent movement of the articles and inadvertent activation. Further, if the Class 9 designation is contingent upon packaging specified by the authorized testing agency, shipments of the safety device must be in compliance with the prescribed packaging.

(1) 1A2, 1B2, 1N2, 1D, 1G, or 1H2 drums.

(2) 3A2, 3B2, or 3H2 jerricans.

(3) 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, or 4H2 boxes.

(4) Reusable high-strength containers or dedicated handling devices. (i) Reusable containers manufactured from high-strength plastic, metal, or other suitable material, or other dedicated handling devices are authorized for shipment of safety devices from a manufacturing facility to the assembly facility, subject to the following conditions:

(A) The gross weight of the containers or handling devices may not exceed 1000 kg (2205 pounds). Containers or handling devices must provide adequate support to allow stacking at least three units high with no resultant damage;

(B) If not completely enclosed by design, the container or handling device must be covered with plastic, fiberboard, metal, or other suitable material. The covering must be secured to the container by banding or other comparable methods; and

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

(ii) Reusable containers manufactured from high-strength plastic, metal, or other suitable material, or other dedicated handling devices are authorized for shipment of safety devices only to, between, and from, intermediate handling locations, provided they meet the conditions specified in paragraphs (e)(4)(i)(A) through (C) of this section and:

(A) The packages may be opened and re-packed by an intermediate handler as long as no modifications or changes are made to the packagings; and

(B) Transportation must be made by private or contract carrier.

(5) Packagings which were previously authorized in an approval issued by the Associate Administrator may continue to be used, provided a copy of the approval is maintained while such packaging is being used.

(6) Safety Devices removed from a vehicle. When removed from, or were intended to be used in, a motor vehicle that was manufactured as required for use in the United States and offered for domestic transportation by highway to Recycling or Waste Disposal facilities, a serviceable safety device classed as Class 9 UN3268 may be offered for transportation and transported in the following additional packaging:

(i) Specification and non-specification steel drums with a wall and lid thickness not less than 20 gauge. The lid must be securely affixed with a lever-locking or bolted-ring assembly. The lid of the drum must provide ventilation of the drum contents in a fire. The drum may be filled with any combination of safety devices to a capacity not greater than fifty (50) percent of the drum's total volume. In addition, inner packagings or cushioning may not be used to fill the void space; or

(ii) Outer packaging consisting of 4H2 solid plastic boxes or non-specification rugged reusable plastic outer packaging and inner static-resistant plastic bags or trays. If not completely enclosed by design, the container or handling device must be covered with plastic, fiberboard, metal or other suitable material. The covering must be secured to the container by banding or other comparable methods. The articles must be packed to prevent movement within the container during transportation.

(f) Labeling. Notwithstanding the provisions of §172.402 of this subchapter, each package or handling device must display a CLASS 9 label. Additional labeling is not required when the package contains no hazardous materials other than the devices.

(g) Recordkeeping requirements. (1) Following the examination of each new design type classed as a Class 9 in accordance with paragraph (b)(1) of this section, the person that conducted the examination must prepare a test report and provide the test

report to the manufacturer of the safety device. At a minimum, the test report must contain the following information:

(i) Name and address of the test facility;

(ii) Name and address of the applicant;

(iii) Manufacturer of the device. For a foreign manufacturer, the U.S. agent or importer must be identified;

(iv) A test report number, drawing of the device, and description of the safety device in sufficient detail to ensure that the test report is traceable (e.g. a unique product identifier) to a specific design;

(v) The tests conducted and the results; and

(vi) A certification that the safety device is classed as a Class 9 (UN3268).

(2) For at least fifteen (15) years after testing, a copy of each test report must be maintained by the authorizing testing agency. For as long as any safety device design is being manufactured, and for at least fifteen (15) years thereafter, a copy of each test report must be maintained by the manufacturer of the product.

(3) Test reports must be made available to a representative of the Department upon request.

34. In section 173.167, paragraph (a)(4) is revised to read as follows:

§ 173.167 Consumer commodities.

(a) * * *

(4) Drop test capability. Breakable inner packagings (e.g., glass, earthenware, or brittle plastic) must be packaged to prevent failure under conditions normally incident to transport. Packages of consumer commodities as prepared for transport

must be capable of withstanding a 1.2 m drop on solid concrete in the position most likely to cause damage. The criteria for passing the test are that the outer packaging must not exhibit any damage liable to affect safety during transport and there must be no leakage from the inner packaging(s).

* * * * *

35. Section § 173.176 is revised to read as follows:

§173.176 Capacitors.

(a) Capacitors, including capacitors containing an electrolyte that does not meet the definition of any hazard class or division as defined in this part, must conform to the following requirements:

(1) Except for asymmetric capacitors, capacitors not installed in equipment must be transported in an uncharged state.

(2) Each capacitor or module must be protected against a potential short circuit hazard in transport as follows:

(i) Except for asymmetric capacitors, when a capacitor's energy storage capacity is less than or equal to 10 Wh or when the energy storage capacity of each capacitor in a module is less than or equal to 10 Wh, the capacitor or module must be protected against short circuit or be fitted with a metal strap connecting the terminals; or

(ii) Except for asymmetric capacitors, when the energy storage capacity of a capacitor or a capacitor in a module is more than 10 Wh, the capacitor or module must be fitted with a metal strap connecting the terminals.

(iii) When an asymmetric capacitor’s energy storage capacity is greater than 0.3 Wh, or when the energy storage capacity of each capacitor in a module is greater than 0.3

Wh, the capacitor or module must be protected against short circuit.

(3) Capacitors containing an electrolyte that meets the definition of one or more hazard class or division as defined in this part, must be designed to withstand a 95 kPa (0.95 bar, 14 psi) pressure differential.

(4) Capacitors must be designed and constructed to safely relieve pressure that may build up in use, through a vent or a weak point in the capacitor casing. Any liquid that is released upon venting must be contained by the packaging or by the equipment in which a capacitor is installed.

(5) Capacitors must be marked with the energy storage capacity in Wh as follows:

(i) Except for asymmetric capacitors, capacitors manufactured after December 31, 2013; or

(ii) Asymmetric capacitors manufactured after December 31, 2015.

(b) Capacitors must be packed in strong outer packagings. For transport by air, capacitors must be securely cushioned within the outer packagings. Capacitors installed in equipment may be offered for transport unpackaged or on pallets, when the capacitors are afforded equivalent protection by the equipment in which they are contained.

(c) Capacitors containing an electrolyte not meeting the definition of any hazard class or division as defined in this part, including when configured in a module or when installed in equipment, are not subject to any other requirements of this subchapter.

(d) Except for asymmetric capacitors, capacitors containing an electrolyte that meets the definition of one or more hazard class or division as defined in this part, with an energy storage capacity of 10 Wh or less are not subject to any other requirements of this subchapter, when they are capable of withstanding a 1.2 m (3.9 feet) drop test

unpackaged onto a rigid, non-resilient, flat and horizontal surface without loss of contents.

(e) Asymmetric capacitors containing an electrolyte that meets the definition of one or more hazard class or division as defined in this part, with an energy storage capacity of 20 Wh or less, including when configured in a module, are not subject to other provisions of this subchapter when the capacitors are capable of withstanding a 1.2 meter (3.9 feet) drop test unpackaged onto a rigid, non-resilient, flat and horizontal surface without loss of contents.

(f) Except for asymmetric capacitors, capacitors containing an electrolyte meeting the definition of one or more hazard class or division as defined in this part, that are not installed in equipment, and with an energy storage capacity of more than 10 Wh are subject to the requirements of this subchapter.

(g) Asymmetric capacitors containing an electrolyte meeting the definition of one or more hazard class or division as defined in this part, that are not installed in equipment, and with an energy storage capacity of more than 20 Wh are to the requirements of this subchapter.

(h) Capacitors installed in equipment and containing an electrolyte meeting the definition of one or more hazard class or division as defined in this part, are not subject to any other requirements of this subchapter, provided the equipment is packaged in a strong outer packaging and in such a manner as to prevent accidental functioning of the capacitors during transport. Large, robust equipment containing capacitors may be offered for transport unpackaged or on pallets when the capacitors are afforded equivalent protection by the equipment in which they are contained.

36. In § 173.181, paragraph (c) is revised to read as follows:

§ 173.181 Pyrophoric materials (liquids).

* * * * *

(c) Steel drums (1A1 or 1A2), aluminum drums (1B1 or 1B2), metal drums, other than steel or aluminum (1N1 or 1N2) or fiber drums (1G); steel jerricans (3A1 or 3A2) or aluminum jerricans (3B1 or 3B2); or steel boxes (4A), aluminum boxes (4B) or metal boxes, other than steel or aluminum (4N) not exceeding 220 L (58 gallons) capacity each with strong, tight inner metal cans not over 4.0 L (1 gallon) capacity each. The strong, tight metal cans must be closed by positive means, not friction.

(1) Inner packagings must have no opening exceeding 25 mm (1 inch) diameter and must be surrounded with noncombustible cushioning material.

(2) Net quantity of pyrophoric liquids may not exceed two-thirds of the rated capacity of the outer drum. For example, a 220 L (58 gallons) outer drum may contain no more than 147 L (39 gallons) of pyrophoric liquids.

(3) Each layer of inner containers must be separated by a metal plate separator in addition to cushioning material.

37. In § 173.185,

a. Paragraph (b)(6) is added;

b. Paragraphs (c)(1)(iii) and (c)(4)(v) are revised; and

d. Paragraph (f)(3) is revised.

The revisions and addition read as follows:

§ 173.185 Lithium cells and batteries.

* * * * *

(b) * * *

(6) Except for transportation by aircraft, the following rigid large packagings are authorized for a single battery, including for a battery contained in equipment, meeting provisions (b)(1) and (2) of this section and the requirements of part 178, subparts P and Q, of this subchapter at the Packing Group II level:

(i) Metal (50A, 50B, 50N);

(ii) Rigid plastic (50H);

(iii) Wooden (50C, 50D, 50F);

(iv) Rigid fiberboard (50G).

(c) * * *

(1) * * *

(iii) Except when lithium metal cells or batteries are packed with or contained in equipment in quantities less than 5 kg net weight, the outer package that contains lithium metal cells or batteries must be marked: "PRIMARY LITHIUM BATTERIES—FORBIDDEN FOR TRANSPORT ABOARD PASSENGER AIRCRAFT" or "LITHIUM METAL BATTERIES—FORBIDDEN FOR TRANSPORT ABOARD PASSENGER AIRCRAFT, or labeled with a CARGO AIRCRAFT ONLY label specified in § 172.448 of this subchapter.

* * * * *

(4)* * *

(v) A package that exceeds the number or quantity (mass) limits in the table shown in (c)(4) is subject to all applicable requirements of this subchapter, except that a package containing no more than 2.5 kg lithium metal cells or batteries or 10 kg lithium

ion cells or batteries is not subject to the UN performance packaging requirements in paragraphs (b)(3)(ii) of this section when the package displays both the lithium battery handling marking and the Class 9 label.

* * * * *

(f)* * *

(3) Each inner packaging must be individually placed in one of the following packagings meeting the applicable requirements of part 178, subparts L, M, P and Q of this subchapter at the Packing Group I level:

(i) Metal (4A, 4B, 4N), wooden (4C1, 4C2, 4D, 4F), or solid plastic (4H2) box;

(ii) Metal (1A2, 1B2, 1N2), plywood (1D), or plastic (1H2) drum; or

(iii) Except for transportation by aircraft, for a single large battery or for a single battery contained in equipment, the following rigid large packagings are authorized:

(A) Metal (50A, 50B, 50N);

(B) Rigid plastic (50H);

(C) Plywood (50D); and

* * * * *

38. In § 173.199, paragraph (a)(5) introductory text is revised, paragraph (a)(5)(i) and reserved paragraph (a)(5)(ii) are added to read as follows:

§ 173.199 Category B infectious substances.

* * * * *

(a) * * *

(5) The following square-on-point mark must be displayed on the outer packaging on a background of contrasting color. The width of the line forming the border must be at

least 2 mm (0.08 inches) and the letters and numbers must be at least 6 mm (0.24 inches) high. The size of the mark must be such that no side of the diamond is less than 50 mm (1.97 inches) in length as measured from the outside of the lines forming the border. The proper shipping name "Biological substances, Category B" must be marked on the outer packaging adjacent to the diamond-shaped mark in letters that are at least 6 mm (0.24 inches) high.

(i) Transitional exception – A marking in conformance with the requirements of this paragraph in effect on October 1, 2012, may continue to be used until December 31, 2016.

(ii) [Reserved]

* * * * *

39. In § 173.225, in the paragraph (g) Organic Peroxide Portable Tank Table, the last entry in the table is revised to read as follows:

§ 173.225 Packaging requirements and other provisions for organic peroxides.

* * * * *

(g) * * *

Organic Peroxide Portable Tank Table

UN No.	Hazardous material	Minimum test pressure (bar)	Minimum shell thickness (mm-reference steel) See…	Bottom opening requirements See…	Pressure relief requirements See…	Filling limits	Control temperature	Emergency temperature
	[REVISE]							
*	* *	*	*	*	*	*	*	*
	Peroxyacetic acid,	4	§178.274	§178.275	§178.275	Not more	+30 °C	+35 °C

	distilled, stabilized, not more than 41% [1]		(d)(2)	(d)(3)	(g)(1)	than 90% at 59 °F (15 °C)		

[1] "Corrosive" subsidiary risk placard is required.

* * * * *

40. Section 173.231 is added to subpart E to read as follows

§ 173.231 Ammonium nitrate emulsion, suspension or gel.

(a) Packagings for non-bulk shipments of Ammonium nitrate emulsions, suspensions and gels must conform to the general packaging requirements of subpart B of part 173, to the requirements of part 178 of this subchapter at the Packing Group I or II performance level, and the requirements of the special provisions of column 7 of the §172.101 table.

(1) The following combination packagings are authorized:

(i) Outer packagings:

Drums: 1B2, 1G, 1N2, 1H2 or 1D

Boxes: 4B, 4C1, 4C2, 4D, 4G or 4H2

Jerricans: 3B2 of 3H2

(ii) Inner Packagings:

Glass, plastic or metal inner receptacles

(2) For combination packagings, the capacity of each inner packaging must not exceed 5 liters (1.3 gallons) and the maximum authorized net weight of each outer packaging is 125 kg (275 pounds).

(3) The following single packagings are authorized:

(i) Drums: 1B1, 1B2, 1H1 or 1H2 with a maximum capacity of 250 liters (66 gallons)

(ii) Jerricans: 3B1, 3B2, 3H1 or 3H2 with a maximum capacity if 60 liters (15.9 gallons)

(iii) Plastic receptacle in aluminum, fiber, plastic or plywood drum: 6HB1, 6HG1, 6HH1 or 6HD1with the outer drum having a maximum capacity of 250 liters (66 gallons).

(iv) Plastic receptacle in aluminum wood, plywood, fiberboard, or solid plastic box: 6HB2, 6HC, 6HD2, 6HG2, or 6HH2 with the outer box having a maximum capacity of 60 liters (15.9 gallons).

(v) Glass receptacle in aluminum, fiber, or plywood drum: 6PB1, 6PF1 or 6PD1 with the outer drum having a maximum capacity of 60 liters (15.9 gallons).

(vi) Glass receptacle in expanded plastic or solid plastic packaging: 6PH1 or 6PH2 with the outer packaging having a maximum capacity of 60 liters (15.9 gallons).

(vii) Glass receptacle in aluminum, wood, or fiberboard box, or wickerwork hamper: 6PB2, 6PC, 6PG2 or 6PD2 with the outer box or hamper having a maximum capacity of 60 liters (15.9 gallons).

41. In § 173.301b, paragraphs (c)(1) and (c)(2)(ii) and (iii) are revised to read as follows:

§173.301b Additional general requirements for shipment of UN pressure receptacles.

* * * * *

(c) Pressure receptacle valve requirements. (1) When the use of a valve is prescribed, the valve must conform to the requirements in ISO 10297:2006 (IBR, see §171.7 of this subchapter). Until December 31, 2008, the manufacture of a valve conforming to the requirements in ISO 10297:1999 (IBR, see §171.7 of this subchapter) is authorized

(2) * * *

(ii) By equipping the UN pressure receptacle with a valve cap conforming to the requirements in ISO 11117:2008 and Technical Corrigendum 1 (IBR, see §171.7 of this subchapter). Until December 31, 2014, the manufacture of a valve cap conforming to the requirements in ISO 11117:1998 (IBR, see §171.7 of this subchapter) is authorized. The cap must have vent-holes of sufficient cross-sectional area to evacuate the gas if leakage occurs at the valve;

(iii) By protecting the valves by shrouds or guards conforming to the requirements in ISO 11117:2008 and Technical Corrigendum 1 (IBR; *see* §171.7 of this subchapter). Until December 31, 2014, the manufacture of a shroud or guard conforming to the requirements in ISO 11117:1998 (IBR, see §171.7 of this subchapter) is authorized. For metal hydride storage systems, by protecting the valves in accordance with the requirements in ISO 16111 (IBR; *see* §171.7 of this subchapter).

* * * * *

42. In § 173.302, the section heading and paragraph (a) are revised to read as follows:

§173.302 Filling of cylinders with nonliquefied (permanent) compressed gases or adsorbed gases.

(a) General requirements. (1) A cylinder filled with a non-liquefied compressed gas (except gas in solution) must be offered for transportation in accordance with the requirements of this section and §173.301. In addition, a DOT specification cylinder must meet the requirements in §§173.301a, 173.302a and 173.305, as applicable. UN pressure receptacles must meet the requirements in §§173.301b and 173.302b, as applicable.

Where more than one section applies to a cylinder, the most restrictive requirements must be followed.

(2) Adsorbed gas. A cylinder filled with an adsorbed gas must be offered for transportation in accordance with the requirements of subsection (d) this section, §173.301, and § 173.302c. UN pressure receptacles must meet the requirements in §§173.301b and 173.302b, as applicable. Where more than one section applies to a cylinder, the most restrictive requirements must be followed.

* * * * *

43. Section 173.302c is added to read as follows:

§ 173.302c Additional requirements for the shipment of adsorbed gases in UN pressure receptacles.

(a) General. A cylinder filled with an adsorbed gas must be offered for transportation in UN pressure receptacles subject to the requirements in this section and §173.302. In addition, the requirements in §§173.301 and 173.301b must be met.

(b) The pressure of each filled cylinder must be less than 101.3 kPa at 20°C and must not exceed 300 kPa at 50°C.

(c) The minimum test pressure of the cylinder must be 21 bar.

(d) The minimum burst pressure of the cylinder must be 94.5 bar.

(e) The internal pressure at 65°C of the filled cylinder must not exceed the test pressure of the cylinder.

(f) The adsorbent material must be compatible with the cylinder and must not form harmful or dangerous compounds with the gas to be adsorbed. The gas in

combination with the adsorbent material must not affect or weaken the cylinder or cause a dangerous reaction (e.g., a catalyzing reaction).

(g) The quality of the adsorbent must be verified at the time of each fill to assure the pressure and chemical stability requirements of this packing instruction are met each time an adsorbed gas package is offered for transport.

(h) The adsorbent material must not meet the definition of any other hazard class.

(i) Requirements for cylinders and closures containing toxic gases with an LC50 less than or equal to 200 ml/m3 (ppm) (see the following Adsorbed Gases Table) must be as follows:

(1) Valve outlets must be fitted with pressure retaining gas-tight plugs or caps having threads matching those of the valve outlets.

(2) Each valve must either be of the packless type with non-perforated diaphragm, or be of a type which prevents leakage through or past the packing.

(3) Each cylinder and closure must be tested for leakage after filling.

(4) Each valve must be capable of withstanding the test pressure of the cylinder and be directly connected to the cylinder by either a taper-thread or other means which meets the requirements of ISO 10692-2 (IBR, see § 171.7 of this subchapter)

(5) Cylinders and valves must not be fitted with a pressure relief device.

(j) Valve outlets for cylinders containing pyrophoric gases must be fitted with gas-tight plugs or caps having threads matching those of the valve outlets.

(k) The filling procedure must be in accordance with Annex A of ISO 11513 (IBR, see § 171.7 of this subchapter).

(l) The maximum period for periodic requalification must be in accordance with § 180.207(c) of this subchapter.

Adsorbed Gases Table

ID number	Hazardous material	LC_{50} ml/m^3	Notes
3510	Adsorbed gas, flammable, n.o.s.		z
3511	Adsorbed gas, n.o.s.		z
3512	Adsorbed gas, toxic, n.o.s.	≤ 5000	z
3513	Adsorbed gas, oxidizing, n.o.s.		z
3514	Adsorbed gas, toxic, flammable, n.o.s.	≤ 5000	z
3515	Adsorbed gas, toxic, oxidizing, n.o.s.	≤ 5000	z
3516	Adsorbed gas, toxic, corrosive, n.o.s.	≤ 5000	z
3517	Adsorbed gas, toxic, flammable, corrosive, n.o.s.	≤ 5000	z
3518	Adsorbed gas, toxic, oxidizing, corrosive, n.o.s.	≤ 5000	z
3519	Boron trifluoride, adsorbed	387	a
3520	Chlorine, adsorbed	293	a
3521	Silicon tetrafluoride, adsorbed	450	a
3522	Arsine, adsorbed	20	d
3523	Germane, adsorbed	620	d, r
3524	Phosphorus pentafluoride, adsorbed	190	
3525	Phosphine, adsorbed	20	d
3526	Hydrogen selenide, adsorbed	2	

Notes: a: Aluminum alloy cylinders must not be used.

d: When steel cylinders are used, only those bearing the "H" mark in accordance with § 173.302b(f) are authorized.

r: The filling of this gas must be limited such that, if complete decomposition occurs, the pressure does not exceed two thirds of the test pressure of the cylinder.

z: The construction materials of the cylinders and their accessories must be compatible with the contents and must not react to form harmful or dangerous compounds therewith.

44. In § 173.307, paragraphs (a)(5) and (6) are revised to read as follows:

§ 173.307 Exceptions for compressed gases.

(a) * * *

(5) Manufactured articles or apparatuses, other than lamps, each containing not more than 100 mg (0.0035 ounce) of inert gas and packaged so that the quantity of inert gas per package does not exceed 1 g (0.35 ounce).

(6) Light bulbs, provided they are packaged so that the projectile effects of any rupture of the bulb will be contained within the package. This exception does not apply to lamps as described in § 173.11 of this part.

* * * * *

45. In § 173.309, introductory text and paragraph (e) are added to read as follows:

§ 173.309 Fire extinguishers.

This section applies to portable fire extinguishers for manual handling and operation, fire extinguishers for installation in aircraft, and large fire extinguishers. Large fire extinguishers include fire extinguishers mounted on wheels for manual handling; fire extinguishing equipment or machinery mounted on wheels or wheeled platforms or units transported similar to (small) trailers; and fire extinguishers composed of a non-rollable pressure drum and equipment, and handled e.g. by fork lift or crane when loaded or unloaded.

* * * * *

(e) Large fire extinguishers may be transported unpackaged provided the requirements of § 173.24(b) of this part are met, the valves are protected in accordance with § 173.301(c)(2)(i), (ii), (iii), or (v) and other equipment mounted on the fire

extinguisher is protected to prevent accidental activation.

46. In § 173.403, the definition of Exclusive use and Freight container are revised to read as follows:

§ 173.403 Definitions.

* * *

Exclusive use means sole use by a single consignor of a conveyance for which all initial, intermediate, and final loading and unloading and shipment are carried out in accordance with the direction of the consignor or consignee where required by this subchapter. The consignor and the carrier must ensure that any loading or unloading is performed by personnel having radiological training and resources appropriate for safe handling of the consignment. The consignor must provide to the initial carrier specific written instructions for maintenance of exclusive use shipment controls, including the vehicle survey requirement of §173.443 (c) as applicable, and include these instructions with the shipping paper information provided to the carrier by the consignor.

* * * * *

Freight container means a reusable container having a volume of 1.81 cubic meters (64 cubic feet) or more, designed and constructed to permit it being lifted with its contents intact and intended primarily for containment of packages in unit form during transportation. A "small freight container" is one which has an internal volume of not more than 3.0 cubic meters (106 cubic feet). All other freight containers are designated as "large freight containers."

* * *

47. In § 173.420 paragraph (d) is revised to read as follows:

§ 173.420 Uranium hexafluoride (fissile, fissile excepted and non-fissile).

* * * * *

(d) Uranium hexafluoride not exceeding the limits specified in the limited quantity package limits column of table 4 in § 173.425 may be classified under UN 3507 Uranium hexafluoride, radioactive material, excepted package, less than 0.1 kg (0.22 pounds) per package, non-fissile or fissile-excepted provided that:

(1) The mass of uranium hexafluoride in the package is less than 0.1 kg (0.22 pounds); and

(2) The conditions of §§ 173.24, 173.24a, and 173.421(a)(1) and (4) are met.

PART 175—CARRIAGE BY AIRCRAFT

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

Authority: 49 U.S.C. 5101–5128, 44701; 49 CFR 1.81 and 1.97.

49. In § 175.9, paragraphs (b)(6) introductory text and (b)(6)(v) are revised to read as follows:

§ 175.9 Special aircraft operations.

***** ***** ***** ***** *****

(b) * * *

(6) Hazardous materials that are loaded and carried on or in cargo only aircraft, and that are to be dispensed or expended during flight for weather control, environmental restoration or protection, forest preservation and protection, fire fighting and prevention, flood control, avalanche control, landslide clearance, or ice jam control purposes, when the following requirements are met:

* * * * *

(v) When Division 1.1, 1.2, and 1.3 materials (except detonators and detonator assemblies) and detonators or detonator assemblies are carried for avalanche control, landslide clearance, or ice jam control flights, the explosives must be handled by, and at all times be under the control of, a qualified blaster. When required by a State or local authority, the blaster must be licensed and the State or local authority must be identified in writing to the FAA Principal Operations Inspector assigned to the operator.

50. In § 175.10, paragraphs (a)(11) and (24) are revised and (a)(18)(iii) is added to read as follows:

§ 175.10 Exceptions for passengers, crewmembers, and air operators.

(a) * * *

(11) A single self-inflating personal safety device such as a life jacket or vest fitted with no more than two small gas cartridges (containing no hazardous material other than a Div. 2.2 gas) for inflation purposes plus no more than two spare cartridges. The personal safety device and spare cartridges may be carried in carry-on or checked baggage, with the approval of the aircraft operator, and must be packed in such a manner that it cannot be accidently activated.

* * * * *

(18) * * *

(iii) Articles containing lithium metal or lithium ion cells or batteries the primary purpose of which is to provide power to another device must be carried as spare batteries in accordance with the provisions of this paragraph.

* * * * *

(24) Small cartridges fitted into devices with no more than four small cartridges of carbon dioxide or other suitable gas in Division 2.2, without subsidiary risk with the approval of the operator. The water capacity of each cartridge must not exceed 50 mL (equivalent to a 28 g cartridge).

* * * * *

51. In § 175.25, paragraphs (b) and (c) are revised to read as follows:

§175.25 Notification at air passenger facilities of hazardous materials restrictions.

(a) * * *

(b) Ticket purchase. An aircraft operator must ensure that information on the types of hazardous materials which a passenger is forbidden to transport aboard an aircraft is presented at the point of ticket purchase or, if this is not practical, made available in another manner to passengers prior to the check-in process. Information provided via the Internet may be in text or pictorial form but must be such that ticket purchase cannot be completed until the passenger, or a person acting on their behalf, has been presented with this information and indicated that they have understood the restrictions on hazardous materials in baggage.

(c) Check-in. When the flight check-in process is conducted remotely (e.g., via the Internet) or when completed at the airport, without assistance from another person (e.g., automated check-in kiosk), the aircraft operator must ensure that information on the types of hazardous materials a passenger is forbidden to transport aboard an aircraft is presented to passengers. Information may be in text or in pictorial form but must be such that the check-in process cannot be completed until the passenger, or a person acting on their behalf, has been presented with this information and indicated that they have

understood the restrictions on hazardous materials in baggage.

* * * * *

§ 175.30 [Amended]

52. In § 175.30, paragraphs (a)(5) and paragraph (e)(1) are removed and paragraphs (e)(2) and (3) are redesignated as (e)(1) and (2), respectively.

53. In § 175.33, paragraph (a)(1)(i) is revised and paragraphs (a)(12) and (c)(5) are removed.

The revision reads as follows:

§ 175.33 Shipping paper and notification of pilot-in-command.

(a) * * *

(1) * * *

(i) Section 172.101 of this subchapter. Except for the requirement to indicate the type of package or technical name, any additional description requirements provided in §§172.202, and 172.203 of this subchapter must also be shown on the notification.

***** ***** ***** ***** *****

§ 175.630 [Amended]

54. In § 175.630, paragraph (a) is removed and reserved.

55. In § 175.705, paragraph (c) is revised to read as follows:

§ 175.705 Radioactive contamination.

***** ***** ***** ***** *****

(c) An aircraft in which Class 7 (radioactive) material has been released must be taken out of service and may not be returned to service or routinely occupied until the

aircraft is checked for radioactive substances and it is determined that any radioactive substances present do not meet the definition of radioactive material, as defined in §173.403 of this subchapter, and it is determined in accordance with §173.443 of this subchapter that the dose rate at every accessible surface must not exceed 0.005 mSv per hour (0.5 mrem per hour) and there is no significant removable surface contamination.

*** * * * ***

PART 176—CARRIAGE BY VESSEL

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

Authority: 49 U.S.C. 5101–5128; 49 CFR 1.81 and 1.97.

57. In § 176.80, paragraph (b) is revised to read as follows:

§ 176.80 Applicability.

* * * * *

(b) Hazardous materials in limited quantities when loaded in transport vehicles and freight containers, are excepted from the segregation requirements of this subpart and any additional segregation specified in this subchapter for transportation by vessel; except that articles of division 1.4, compatibility group S, shall not be stowed in the same compartment or hold, or cargo transport unit with hazardous materials of Class 1 of compatibility groups A and L.

58. In § 176.83, table 176.83b is revised to read as follows:

§ 176.83 Segregation.

*** * * * ***

Table 176.83(b)—General Segregation Requirements for Hazardous Materials

[Segregation must also take account of a single secondary hazard label, as required by

paragraph (a)(6) of this section.]

Class	**1.1 1.2 1.5**	**1.3**	**1.4 1.6**	**2.1**	**2.2**	**2.3**	**3**	**4.1**	**4.2**	**4.3**	**5.1**	**5.2**	**6.1**	**6.2**	**7**	**8**	**9**
Explosives, 1.1, 1.2, 1.5	(*)	(*)	(*)	4	2	2	4	4	4	4	4	4	2	4	2	4	X
Explosives, 1.3	(*)	(*)	(*)	4	2	2	4	3	3	4	4	4	2	4	2	2	X
Explosives, 1.4, 1.6	(*)	(*)	(*)	2	1	1	2	2	2	2	2	2	X	4	2	2	X
Flammable gases 2.1	4	4	2	X	X	X	2	1	2	2	2	2	X	4	2	1	X
Non-toxic, non-flammable gases 2.2	2	2	1	X	X	X	1	X	1	X	X	1	X	2	1	X	X
Poisonous gases 2.3	2	2	1	X	X	X	2	X	2	X	X	2	X	2	1	X	X
Flammable liquids 3	4	4	2	2	1	2	X	X	2	2	2	2	X	3	2	X	X
Flammable solids 4.1	4	3	2	1	X	X	X	X	1	X	1	2	X	3	2	1	X
Spontaneously combustible substances 4.2	4	3	2	2	1	2	2	1	X	1	2	2	1	3	2	1	X
Substances which are dangerous when wet 4.3	4	4	2	2	X	X	2	X	1	X	2	2	X	2	2	1	X

Oxidizing substances 5.1	4	4	2	2	X	X	2	1	2	2	X	2	1	3	1	2	X
Organic peroxides 5.2	4	4	2	2	1	2	2	2	2	2	2	X	1	3	2	2	X
Poisons 6.1	2	2	X	X	X	X	X	X	1	X	1	1	X	1	X	X	X
Infectious substances 6.2	4	4	4	4	2	2	3	3	3	2	3	3	1	X	3	3	X
Radioactive materials 7	2	2	2	2	1	1	2	2	2	2	1	2	X	3	X	2	X
Corrosives 8	4	2	2	1	X	X	X	1	1	1	2	2	X	3	2	X	X
Miscellaneous dangerous substances 9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Numbers and symbols relate to the following terms as defined in this section:

1—"Away from."

2—"Separated from."

3—"Separated by a complete compartment or hold from."

4—"Separated longitudinally by an intervening complete compartment or hold from."

X—The segregation, if any, is shown in the §172.101 table.

*—See §176.144 of this part for segregation within Class 1.

* * * * *

59. In § 176.84, the section heading is revised and in the table in paragraph (b), footnote 3 is added to stowage codes 12 and 13 and provisions 147 and 148 are added to read as follows:

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

* * * * *

(b) * * *

Code	Provisions
* * *	* * * *
12	Keep as cool as reasonably practicable.[3]
13	Keep as dry as reasonably practicable.[3]
* * *	* * * *
147	Stow “separated from" flammable gases and flammable liquids.
148	In addition: from flammable gases and flammable liquids when stowed on deck of a containership a minimum distance of two container spaces athwartship shall be maintained, when stowed on ro-ro ships a distance of 6 m athwartship shall be maintained.
* * *	* * * *

* * * * *

[3] These requirements apply to the loading of hazardous materials in cargo transport units as well as the stowage of cargo transport units.

* * * * *

60. In § 176.905, paragraphs (i)(1) through (5) are revised and paragraph (i)(6) is added to read as follows:

§ 176.905 Stowage of motor vehicles or mechanical equipment.

* * * * *

(i) * * *

(1) The 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, installed batteries are protected from short circuit, and the engine is run until it stalls for lack of fuel;

(2) The 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 450 L (119 gallons) of fuel or less, installed batteries are protected from short circuit, and there are no fuel leaks in any portion of the fuel system;

(3) The vehicle or mechanical equipment is stowed in a hold or compartment designated by the administration of the country in which the vessel is registered as specially designed and approved for vehicles and mechanical equipment and there are no signs of leakage from the battery, engine, fuel cell, compressed gas cylinder or accumulator, or fuel tank, as appropriate. For vehicles with batteries connected and fuel tanks containing gasoline transported by U.S. vessels, *see* 46 CFR 70.10-1 and 90.10-38;

(4) The vehicle or mechanical equipment is electrically powered solely by wet electric storage batteries (including non-spillable batteries) or sodium batteries and the installed batteries are protected from short circuit;

(5) The vehicle or mechanical equipment is equipped with liquefied petroleum gas or other compressed gas fuel tanks, the tanks are completely emptied of liquefied or compressed gas and the positive pressure in the tank does not exceed 2 bar (29 psig), the fuel shut-off or isolation valve is closed and secured, and installed batteries are protected from short circuit; or

(6) The vehicle or mechanical equipment is powered by a fuel cell engine, the engine is protected from inadvertent operation by closing fuel supply lines or by other means, and the fuel supply reservoir has been drained and sealed.

* * * * *

PART 178--SPECIFICATIONS FOR PACKAGINGS

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

Authority: 49 U.S.C. 5101–5128; 49 CFR 1.81 and 1.97.

62. In § 178.71:

a. Paragraphs (a), (d)(2), (g)(1) through (3), and (k)(1)(i) and (ii) are revised;

b. Paragraphs (n) through (s) are redesignated as paragraphs (o) through (t), respectively;

c. New paragraph (n) is added;

d. Newly redesignated paragraph (o) is revised; and

e. Paragraphs (u) and (v) are added.

The revisions and additions read as follows:

§ 178.71 Specifications for UN pressure receptacles.

* * * * *

(a) General. Each UN pressure receptacle must meet the requirements of this section. UN pressure receptacles and service equipment constructed according to the standards applicable at the date of manufacture may continue in use subject to the continuing qualification and maintenance provisions of part 180 of this subchapter. Requirements for approval, qualification, maintenance, and testing are contained in §178.70, and subpart C of part 180 of this subchapter.

* * * * *

(d) * * *

(2) Service equipment must be configured or designed to prevent damage that could result in the release of the pressure receptacle contents during normal conditions of handling and transport. Manifold piping leading to shut-off valves must be sufficiently flexible to protect the valves and the piping from shearing or releasing the pressure receptacle contents. The filling and discharge valves and any protective caps must be secured against unintended opening. The valves must conform to ISO 10297:2006 (IBR, *see* §171.7 of this subchapter), or ISO 13340 (IBR, *see* §171.7 of this subchapter) for non-refillable pressure receptacles, and be protected as specified in §173.301b(f) of this subchapter. Until December 31, 2008, the manufacture of a valve conforming to the requirements in ISO 10297:1999 (IBR, see §171.7 of this subchapter) is authorized.

* * * * *

(g) * * *

(1) ISO 9809-1: Gas cylinders—Refillable seamless steel gas cylinders—Design, construction and testing—Part 1: Quenched and tempered steel cylinders with tensile strength less than 1100 MPa. (IBR, see §171.7 of this subchapter). Until December 31,

2018, the manufacture of a cylinder conforming to the requirements in ISO 9809-1:1999 (IBR, see §171.7 of this subchapter) is authorized.

(2) ISO 9809-2: Gas cylinders—Refillable seamless steel gas cylinders—Design, construction and testing—Part 2: Quenched and tempered steel cylinders with tensile strength greater than or equal to 1100 MPa. (IBR, see §171.7 of this subchapter). Until December 31, 2018, the manufacture of a cylinder conforming to the requirements in ISO 9809-2:2000 (IBR, see §171.7 of this subchapter) is authorized.

(3) ISO 9809-3: Gas cylinders—Refillable seamless steel gas cylinders—Design, construction and testing—Part 3: Normalized steel cylinders. (IBR, *see* §171.7 of this subchapter). Until December 31, 2018, the manufacture of a cylinder conforming to the requirements in ISO 9809-3:2000 (IBR, see §171.7 of this subchapter) is authorized.

* * * * *

(k) * * *

(1) * * *

(i) ISO 9809-1: Gas cylinders—Refillable seamless steel gas cylinders—Design, construction and testing—Part 1: Quenched and tempered steel cylinders with tensile strength less than 1100 MPa. Until December 31, 2018, the manufacture of a cylinder conforming to the requirements in ISO 9809-1:1999 (IBR, see §171.7 of this subchapter) is authorized.

(ii) ISO 9809-3: Gas cylinders—Refillable seamless steel gas cylinders—Design, construction and testing—Part 3: Normalized steel cylinders. Until December 31, 2018, the manufacture of a cylinder conforming to the requirements in ISO 9809-3:2000 (IBR, see §171.7 of this subchapter) is authorized.

* * * * *

(n) Design and construction requirements for UN cylinders for the transportation of adsorbed gases. In addition to the general requirements of this section, UN cylinders for the transportation of adsorbed gases must conform to the following ISO standards, as applicable: ISO 11513:2011, Gas cylinders—Refillable welded steel cylinders containing materials for sub-atmospheric gas packaging (excluding acetylene) - Design, construction, testing, use and periodic inspection., or ISO 9809-1:2010: Gas cylinders—Refillable seamless steel gas cylinders—Design, construction and testing—Part 1: Quenched and tempered steel cylinders with tensile strength less than 1100 MPa. (IBR, see § 171.7 of this subchapter.)

(o) Material compatibility. In addition to the material requirements specified in the UN pressure receptacle design and construction ISO standards, and any restrictions specified in part 173 for the gases to be transported, the requirements of the following standards must be applied with respect to material compatibility:

(1) ISO 11114-1:2012: Gas cylinders—Compatibility of cylinder and valve materials with gas contents—Part 1: Metallic materials. (IBR, *see* §171.7 of this subchapter).

(2) ISO 11114-2: Transportable gas cylinders—Compatibility of cylinder and valve materials with gas contents—Part 2: Non-metallic materials. (IBR, *see* §171.7 of this subchapter).

* * * * *

(u) Marking of bundles of cylinders. (1) Individual cylinders in a bundle of cylinders must be marked in accordance with paragraphs (q), (r), (s), and (t) of this

section as appropriate.

(2) Refillable UN bundles of cylinders must be marked clearly and legibly with certification, operational, and manufacturing marks. These marks must be permanently affixed (e.g., stamped, engraved, or etched) on a plate permanently attached to the frame of the bundle of cylinders. Except for the "UN" mark, the minimum size of the marks must be 5 mm. The minimum size of the "UN" mark must be 10 mm. A refillable UN bundle of cylinders must be marked as follows:

(i) The UN packaging symbol.

(ii) The ISO standard, for example ISO 9809-1, used for design, construction and testing. Acetylene cylinders must be marked to indicate the porous mass and the steel shell, for example: "ISO 3807-2/ISO 9809-1."

(iii) The mark of the country where the approval is granted. The letters "USA" must be marked on UN pressure receptacles approved by the United States. The manufacturer must obtain an approval number from the Associate Administrator. The manufacturer approval number must follow the country of approval mark, separated by a slash (for example, USA/MXXXX). Pressure receptacles approved by more than one national authority may contain the mark of each country of approval, separated by a comma.

(iv) The identity mark or stamp of the IIA.

(v) The date of the initial inspection, the year (four digits) followed by the month (two digits) separated by a slash, for example “2006/04”.

(vi) The test pressure in bar, preceded by the letters “PH” and followed by the letters “BAR”.

(vii) For pressure receptacles intended for the transport of compressed gases and UN 1001 acetylene, dissolved, the working pressure in bar, proceeded by the letters “PW”.

(viii) For liquefied gases, the water capacity in liters expressed to three significant digits rounded down to the last digit, followed by the letter “L”. If the value of the minimum or nominal water capacity is an integer, the digits after the decimal point may be omitted.

(ix) The total mass of the frame of the bundle and all permanently attached parts (cylinders, manifolds, fittings and valves). Bundles intended for the carriage of UN 1001 acetylene, dissolved must bear the tare mass as specified in clause N.4.2 of ISO 10961:2010.

(x) The country of manufacture. The letters “USA” must be marked on cylinders manufactured in the United States.

(xi) The serial number assigned by the manufacturer.

(xii) For steel pressure receptacles, the letter “H” showing compatibility of the steel, as specified in 1SO 11114-1.

(v) Marking sequence. The marking required by paragraph (u) of this section must be placed in three groups as follows:

(1) The top grouping contains manufacturing marks and must appear consecutively in the sequence given in paragraphs (u)(2)(x) through (xii) of this section as applicable.

(2) The middle grouping contains operational marks described in paragraphs (u)(2)(vi) through (ix) of this section as applicable. When the operational mark specified in paragraph (u)(2)(vii) is required, it must immediately precede the operational mark specified in paragraph (u)(2)(vi).

(3) The bottom grouping contains certification marks and must appear consecutively in the sequence given in paragraphs (u)(2)(i) through (v) of this section as applicable.

63. In § 178.75, paragraphs (d)(3)(i) through (iii) and are revised to read as follows:

§ 178.75 Specifications for MEGCs.

* * * * *

(d) * * *

(3) * * *

(i) ISO 9809-1: Gas cylinders—Refillable seamless steel gas cylinders—Design, construction and testing—Part 1: Quenched and tempered steel cylinders with tensile strength less than 1100 MPa. (IBR, see §171.7 of this subchapter). Until December 31, 2018, the manufacture of a cylinder conforming to the requirements in ISO 9809-1:1999 (IBR, see §171.7 of this subchapter) is authorized;

(ii) ISO 9809-2: Gas cylinders—Refillable seamless steel gas cylinders—Design, construction and testing—Part 2: Quenched and tempered steel cylinders with tensile

strength greater than or equal to 1100 MPa. (IBR, see §171.7 of this subchapter). Until December 31, 2018, the manufacture of a cylinder conforming to the requirements in ISO 9809-2:2000 (IBR, see §171.7 of this subchapter) is authorized;

(iii) ISO 9809-3: Gas cylinders—Refillable seamless steel gas cylinders—Design, construction and testing—Part 3: Normalized steel cylinders. (IBR, see §171.7 of this subchapter). Until December 31, 2018, the manufacture of a cylinder conforming to the requirements in ISO 9809-3:2000 (IBR, see §171.7 of this subchapter) is authorized; or

* * * * *

64. In § 178.703, paragraph (b)(7)(iii) is revised to read as follows:

§ 178.703 Marking of IBCs.

* * * * *

(b) * * *

(7) * * *

(iii) The symbol must be a square with each side being not less than 100 mm (3.9 inches) by 100 mm (3.9 inches) as measured from the corner printer marks shown on the figures in paragraph (b)(7)(i) of this section. Where dimensions are not specified, all features must be in approximate proportion to those shown.

(A) Transitional exception –A marking in conformance with the requirements of this paragraph in effect on October 1, 2012, may continue to be applied to all IBCs manufactured, repaired or remanufactured between January 1, 2011 and December 31, 2016.

(B) [Reserved]

* * * * *

65. In § 178.910, paragraphs (a)(1)(ii) is revised, paragraph (a)(2)(iv) is added, paragraph (b) introductory text is revised, and paragraphs (b)(1) and reserved (b)(2) are added to read as follows:

§ 178.910 Marking of Large Packagings.

* * * * *

(a) * * *

(1) * * *

(ii) The code number designating the Large Packaging design type according to §178.905. The letters "T" or "W" may follow the Large Packaging design type identification code on a Large Packaging. Large Salvage Packagings conforming to the requirements of subpart P of this part must be marked with the letter "T". Large Packagings must be marked with the letter "W" when the Large Packaging differs from the requirements in subpart P of this part, or is tested using methods other than those specified in this subpart, and is approved by the Associate Administrator in accordance with the provisions in §178.955;

(iii) * * *

(2) * * *

(iv) For a steel Large Salvage Packaging suitable for stacking; stacking load: 2,500 kg; maximum gross mass: 1,000 kg.

50AT/Y/05 05/USA/M9399/2500/1000

(b) All Large Packages manufactured, repaired or remanufactured after January 1, 2015 must be marked with the symbol applicable to a Large Package designed for

stacking or not designed for stacking, as appropriate. The symbol must be a square with each side being not less than 100 mm (3.9 inches) by 100 mm (3.9 inches) as measured from the corner printer marks shown on the following figures. Where dimensions are not specified, all features must be in approximate proportion to those shown.

* * * * *

(1) Transitional exception –A marking in conformance with the requirements of this paragraph in effect on October 1, 2012, may continue to be applied to all IBCs manufactured, repaired or remanufactured between January 1, 2015 and December 31, 2016.

(2) [Reserved]

* * * * *

PART 180—CONTINUING QUALIFICATION AND MAINTENANCE OF PACKAGINGS

66. The authority citation for part 180 continues to read as follows:

Authority: 49 U.S.C. 5101-5128; 49 CFR 1.81 and 1.97.

67. In § 180.207, in paragraph (c), an entry is added to the end of Table 1 and paragraph (d)(5) is added to read as follows:

§ 180.207 Requirements for requalification of UN pressure receptacles.

* * * * *

(c) * * *

Table 1—Requalification Intervals of UN Pressure Receptacles

Interval (years)	UN pressure receptacles/hazardous materials
* * * * * * *	
5	Pressure receptacles used for adsorbed gases.

(d) * * *

(5) UN cylinders for adsorbed gases: Each UN cylinder for adsorbed gases must be inspected and tested in accordance with § 173.302c and ISO 11513:2011 (IBR, see §171.7 of this subchapter).

Issued in Washington, DC, under authority delegated in 49 CFR part 106.

William S. Schoonover
Deputy Associate Administrator

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