

DEPARTMENT OF TRANSPORTATION**Pipeline and Hazardous Materials Safety Administration**

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

[Docket Nos. PHMSA–2007–0065 (HM–224D) and PHMSA–2008–0005 (HM–215J)]

RIN 2137–AE31

Hazardous Materials: Revision to Requirements for the Transportation of Batteries and Battery-Powered Devices; and Harmonization With the United Nations Recommendations, International Maritime Dangerous Goods Code, and International Civil Aviation Organization's Technical Instructions

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 to the International Maritime Dangerous Goods Code, the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air, and the United Nations Recommendations on the Transport of Dangerous Goods.

The proposals include amendments and clarifications addressing the safe transportation of batteries and battery-powered devices. Consistent with recent changes to the International Civil Aviation Organization's Technical Instructions, PHMSA is proposing to clarify the prohibition against transporting electrical devices, including batteries and battery-powered devices that are likely to create sparks or generate a dangerous amount of heat. PHMSA also is proposing to modify and enhance requirements for the packaging and handling of batteries and battery-powered devices, particularly in air commerce, to emphasize the safety precautions that are necessary to prevent incidents during transportation. PHMSA developed these proposals in conjunction with the Federal Aviation

Administration in order to enhance the safe transportation of batteries and battery-powered devices.

DATES: Comments must be received by September 29, 2008.

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, SE., 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, SE., 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–2008–0005 (HM–215J) or RIN 2137–AE31 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: T. Glenn Foster or Charles Betts, Office of Hazardous Materials Standards, telephone (202) 366–8553, or Shane Kelley, International Standards, telephone (202) 366–0656, Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, 1200 New Jersey Avenue, SE., 2nd Floor, Washington, DC 20590–0001.

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I. Background

By final order published December 21, 1990 (Docket HM–181; 55 FR 52402), we comprehensively revised the Hazardous Materials Regulations (HMR; 49 CFR parts 171 to 180) to harmonize U.S. requirements with the United Nations Recommendations on the Transport of Dangerous Goods (UN Recommendations). The UN Recommendations are not regulations, but rather are recommendations issued by the UN Committee of Experts on the Transport of Dangerous Goods (TDG) and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). These recommendations are amended and updated biennially by the TDG and serve as the basis for national, regional, and international modal regulations, including the International Maritime Organization's International Maritime Dangerous Goods Code (IMDG Code) and International Civil Aviation Organization Technical Instructions (ICAO TI) for the Transport of Dangerous Goods by Air.

Since publication of the 1990 rule, we have issued seven additional international harmonization rules (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; and HM–215I, 71 FR 78595) based on the corresponding biennial updates of the UN Recommendations, the IMDG Code, and the ICAO TI.

To maintain alignment of the HMR with international requirements, in this NPRM, we are proposing to incorporate

changes based on the Fifteenth revised edition of the UN Recommendations, Amendment 34 to the IMDG Code, and the 2009–2010 ICAO TI which become effective January 1, 2009.

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 in order 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 themselves provide an appropriate level of safety. To that end, 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. Each amendment is considered 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.

II. Transportation of Batteries and Battery-Powered Equipment, Articles and Devices

A. Current Regulatory Requirements

The most significant proposals in this NPRM address the transportation of batteries and battery-powered devices. Currently batteries and battery-powered devices are subject to a number of requirements in the HMR. Most importantly, the HMR restricts the transportation of electrical devices, including batteries and battery-powered devices, that are likely to create sparks or generate a dangerous amount of heat

that could cause fire, smoke, or otherwise adversely affect the packaging material or means of conveyance. These batteries and battery-powered devices are forbidden from transportation unless packaged in a manner that prevents such an occurrence (§ 173.21(c)). Additionally, the following types of batteries are subject to packaging and hazard communication requirements:

- Wet (electric storage) batteries (§ 173.159);
- Batteries containing sodium (§ 173.189);
- Lithium cells and batteries (§ 173.185);
- Solid potassium hydroxide batteries (§ 173.213); and
- Battery-powered vehicles and equipment (§ 173.220).

These requirements primarily address the hazards posed by the chemicals contained in the batteries as opposed to the stored electrical energy. For instance, wet cell batteries are required to be packaged in a manner to prevent leakage of the corrosive battery fluid in the event of an accident. The electrical hazard of the battery is addressed through general requirements to prevent short-circuiting, and the general prohibition on transporting such devices without proper protection and packaging (§ 173.21(c)). But the HMR currently prescribes no separate or unique classification for identifying materials that present a hazard in transport based on their stored electrical energy. This proposed rule will address the electrical hazards posed by batteries and battery-powered devices by enhancing packaging and hazard communication requirements.

B. Accident/Incident History

A growing number of incidents involving batteries and battery-powered devices transported by aircraft (see Section II.B) has highlighted the transportation safety risks. Additionally, several factors are contributing to a heightened concern for the future transport of these devices, with particular attention to the risk onboard aircraft, including: (1) The increasing number of batteries and battery-powered portable and handheld devices (e.g., laptops, cellular phones, etc.) carried by airline passengers and otherwise transported in commerce; (2) the development and use of batteries with extended operating life and greater stored energy; and (3) the increasing number of counterfeit batteries in distribution and use. If not adequately protected from damage, short circuiting or, for devices containing batteries, inadvertent activation, batteries and battery-powered devices of all types can

create or cause sparks or a dangerous amount of heat for extended periods, and in some cases, cause a fire. Cargo fires are a significant hazard in all modes of transportation and can have particularly catastrophic results in air transportation. If located aboard an aircraft during flight, inadequately protected batteries and battery-powered devices can pose a significant threat to the safety of people, property, and the environment.

PHMSA and the Federal Aviation Administration (FAA) are aware of more than 90 incidents involving batteries or battery-powered devices in air transportation since 1996 that produced smoke, fire or a dangerous amount of heat. These incidents have occurred either on board an aircraft in cargo, checked, or carry-on baggage, or in ground transport facilities associated with air transportation. Many of these incidents involved shipments of batteries as cargo. The remainder involved shipments of electrically powered vehicles, equipment, or apparatus containing batteries. Since most batteries are excepted from the incident reporting requirements in the HMR, it is likely there have been additional incidents in all modes of transportation that were not reported.

One major injury and several minor injuries were reported from these incidents. In some cases, the property damage and business interruption costs resulting from the incidents were significant. Most incidents occurred or were discovered on the ground in air transport facilities or vehicles. Three incidents occurred in flight on passenger and cargo planes, resulting in emergency landings or flight plan diversions.

C. Recent Actions To Enhance Battery Safety

In response to these incidents, PHMSA's predecessor agency (the Research and Special Programs Administration) issued a public advisory on July 7, 1999 (64 FR 36743), reminding the transportation industry and public that batteries and electric devices that contain batteries are forbidden for transport unless properly packaged to prevent the creation of sparks or generation of a dangerous amount of heat (§ 173.21). The FAA issued safety advisories to the airline industry on July 2, 1999, and again on May 23, 2002.

In response to a series of incidents involving batteries carried by airline passengers, PHMSA initiated a campaign to educate the public about ways to reduce the risks posed in the transportation of batteries and battery-

powered devices. The campaign included establishing a dedicated Web page for air travelers and developing a battery safety guide that includes safety measures and tips for the general public, for distribution at airports, in retail outlets, and through electronic media. As part of our battery safety campaign, we recommended various practical measures for complying with the regulations and reducing transportation risks. Recommended practices include keeping batteries installed in electronic devices; packing spare batteries individually in carry-on baggage; keeping spare batteries in their original retail packaging; separating batteries from other metallic objects, such as keys, coins and jewelry; securely packing battery-powered devices in a manner to prevent accidental activation; and ensuring batteries are undamaged and purchased from reputable sources. On March 26, 2007, PHMSA issued a safety advisory notice (72 FR 14167) to further inform the traveling public and airline employees about the importance of properly packing and handling batteries and battery-powered devices when they are carried on board an aircraft.

We have also initiated a comprehensive strategy aimed at reducing the risks posed by batteries and battery-powered devices in transportation. On February 22, 2007; April 26, 2007; May 24–25, 2007; and April 11, 2008, PHMSA hosted meetings with public and private sector stakeholders who share our concern for the safe transportation of batteries and battery-powered devices. The meetings provided an opportunity for representatives of the National Transportation Safety Board (NTSB), the Consumer Product Safety Commission, manufacturers of batteries and battery-powered devices, airlines, airline employee organizations, testing laboratories, and the emergency response and law enforcement communities to share and disseminate information about battery-related risks and developments. Understanding these risks is essential to promote improvements in industry standards and best practices. Together we identified a series of immediate and longer-term actions that participants are taking or will take to enhance safety, including:

- Comprehensive reporting and investigation of battery-related incidents;
- Improved battery, consumer product, and software design;
- Development and implementation of a technical standards agenda;

- Consideration and implementation of improved regulatory standards;
- Focused enforcement; and
- Development and implementation of a public outreach and education campaign.

The new requirements proposed in this NPRM are an important element of the safety strategy, designed to address specific battery-related hazards not adequately addressed by existing HMR requirements.

D. Proposals To Enhance the Safe Transportation of Batteries

In this NPRM, we propose the following provisions to enhance the safe transportation of batteries and battery-powered devices:

- Require reporting of incidents involving batteries and battery-powered devices (devices include equipment) or vehicles.
- Clarify the requirement that batteries, and battery-powered devices and vehicles, be offered for transportation and transported in a manner that prevents short-circuiting, dangerous evolution of heat, damage to terminals, and, in the case of transportation by aircraft, unintentional activation.
- Require a certification on the shipping documentation that batteries and battery-powered devices have met the conditions and all requirements for transport as specified in the applicable exception or special provision.
- Eliminate the requirement to disconnect the terminals when a battery-powered wheelchair or mobility aid is transported as checked baggage, provided the wheelchair or mobility aid design provides an effective means of preventing unintentional activation.

The measures proposed in this rule will harmonize the HMR with international standards applicable to the transportation of batteries and battery-powered devices. More importantly, these measures will provide data and information to develop an understanding of the root causes of battery incidents in transportation and reduce the associated risks.

1. Prevention of Short Circuits, Dangerous Evolution of Heat, Sparks, Unintentional Activation, or Damage to Terminals

In this NPRM, we are proposing a number of revisions to clarify that batteries of all types and battery-powered devices, equipment, and vehicles must be packaged for transportation in a manner that prevents short-circuiting, damage to terminals, dangerous evolution of heat, and, for transportation by aircraft, unintentional

activation. We are also proposing several examples of packaging methods that may meet this performance standard, including packaging each battery or each battery-powered device in fully enclosed inner packagings made of non-conductive material, and separating batteries and battery-powered devices in a manner to prevent contact with other batteries, devices or conductive materials (e.g., metal) in the packagings. Batteries designed with exposed terminals or connectors should have the exposed terminals or connectors individually protected with non-conductive caps. We propose to include language in §§ 171.15, 171.16, 173.21, 173.159, 173.220, and 175.10 to further clarify these requirements.

2. Incident Reporting

Since most batteries are currently excepted from the incident reporting requirements in the HMR, it is likely that numerous incidents involving batteries and battery-powered devices in all modes of transportation that have gone un-reported. This under-reporting has made it difficult to assess the full extent of incidents in transportation and their causes. Therefore, in this NPRM, we propose to require the reporting in accordance with §§ 171.15 and 171.16 of the HMR of all incidents involving shipments of batteries or battery-powered devices involving fire, violent rupture, explosion, or a dangerous evolution of heat. The proposed reporting requirement applies to all battery shipments, including batteries that are prepared and offered as excepted from HMR requirements. The proposed incident reporting requirement is consistent with incident reporting provisions recently adopted by ICAO. (See §§ 171.15 and 171.16.)

3. Batteries Installed in Equipment

The HMR include a number of provisions applicable to batteries installed in vehicles, machinery, or other types of equipment. Section 173.220 sets forth transportation requirements for internal combustion engines, self-propelled vehicles, mechanical equipment containing internal combustion engines, and battery powered vehicles or equipment. Generally, this section excepts battery-powered vehicles, machinery, and equipment from the HMR, provided they meet certain minimal requirements. We are aware of several incidents resulting in a dangerous evolution of heat initiated by batteries of this design which have been inadequately protected. In this NPRM, we propose to require battery-powered vehicles, machinery, and equipment,

including battery-powered wheelchairs and mobility aids, to conform to the new requirements being proposed in § 173.159, including requirements for protecting terminals and preventing short-circuiting and unintentional activation. In addition, we propose to clarify that battery-powered vehicles, machinery, and equipment are forbidden to be transported unless packaged in a manner preventing the creation of sparks, a dangerous amount of heat and, in air transportation, unintentional activation.

Section 175.10 sets forth exceptions for passengers, crewmembers, and air operators. Currently, the HMR permit a wheelchair or other battery-powered mobility device to be carried on board a passenger aircraft as checked baggage provided that (1) visual inspection, including removal of the battery if necessary, reveals no obvious defects; (2) the battery is disconnected and terminals are insulated to prevent short-circuiting; and (3) the battery is securely attached to the wheelchair or mobility device or removed and separately packaged. We are concerned, however, that repeated handling of the battery in a wheelchair or other mobility device could result in damage or other problems that could compromise safety. Moreover, the design for batteries and their housing has significantly improved in recent years. Therefore, in this NPRM, we propose to revise paragraph § 175.10(a)(15) to eliminate the current requirement to disconnect the terminals when a battery-powered wheelchair or other mobility device is transported as checked baggage provided the device provides an effective means of preventing unintentional activation. Battery terminals must continue to be protected from short-circuiting, but such protection is inherent in the design of most wheelchairs and mobility devices. This proposal will enhance safety while providing improved accommodation for passengers traveling with wheelchairs or mobility devices and is consistent with corresponding provisions in the ICAO TI.

4. Non-Spillable Batteries

Section 173.159 sets forth requirements for the transportation of wet batteries, including non-spillable batteries. As currently provided in § 173.159(d), non-spillable batteries are excepted from the HMR provided certain conditions are met. Unless all of the conditions specified in § 173.159(d) are met, the non-spillable battery is fully subject to the HMR as a wet electric storage battery. International regulations outline the conditions in which a battery can be considered non-spillable

and provide packaging requirements specific to non-spillable batteries. Non-spillable batteries meeting additional requirements are excepted from all other requirements of the HMR. In this NPRM, we are proposing to describe in § 173.159(f) the conditions in which a battery can be considered non-spillable and relocate the exceptions pertaining to non-spillable batteries to a new § 173.159a. Consistent with international requirements, we are proposing to specify that batteries can be considered “non-spillable,” provided they are capable of passing a vibration test and a pressure differential test without leakage. We are also proposing to require non-spillable batteries to be packaged in strong outer packaging and securely fastened in the battery holder or the equipment when the battery is an integral part of the operation of mechanical or electronic equipment. In addition, we propose to specify that except for the incident reporting requirements of §§ 171.15 and 171.16, non-spillable batteries are not subject to the requirements of the HMR if they meet the following additional conditions:

- At a temperature of 55 °C (131 °F), the battery does not contain any unabsorbed free-flowing liquid, and must be designed so that electrolyte will not flow from a ruptured or cracked case;
- The battery must be protected against short-circuiting and securely packaged in strong outer packaging;
- The battery must be marked “NONSPILLABLE” or “NONSPILLABLE BATTERY”; and
- For transportation by aircraft;
- They must meet the provisions of § 173.159(b); and
- Indicate that all conditions for transport as specified in the applicable exception or special provision have been met with the words, “not restricted” on the airway bill. This indication will allow freight forwarders and operators to verify that the consignor is aware of, and has complied with, the applicable regulatory requirements.

5. Conforming Amendments

We propose a number of conforming amendments in this NPRM to ensure that batteries are transported in accordance with the proposed requirements in § 173.159. For example, § 173.21(c) currently prohibits the transportation of electrical devices unless packaged to prevent the creation of sparks or generation of a dangerous amount of heat. In this NPRM, we propose to revise this paragraph to clarify that the term “electrical devices”

includes “batteries” and “battery-powered devices.” We also propose to revise Special provision 130 to specify that “Batteries, dry, sealed, n.o.s.” are not subject to the requirements of the HMR except those pertaining to incident reporting, short circuit protection, damage to terminals, prevention of a dangerous amount of heat, damage to terminals, and when transported by aircraft, unintentional activation and an indication on the air waybill that all conditions for transport have been met (Special provision 130).

In addition, we are proposing to amend certain entries in the Hazardous Materials Table (HMT) in § 172.101. Currently, under the HMR, dry batteries are not subject to incident reporting or measures to prevent unintentional activation until a dangerous amount of heat has developed. As indicated above, in this NPRM, we propose to extend the requirements for incident reporting and enhanced packaging to cover all batteries and battery-powered devices. Thus, we propose to remove the entry “Batteries, dry, *not subject to the requirements of this subchapter*” in favor of a new entry, “Batteries, dry, sealed, n.o.s.”

Note that shippers must distinguish between the proper shipping name “Batteries, dry, sealed, n.o.s.” and the existing proper shipping name “Batteries, wet, non-spillable, *electric storage*.” Batteries described as “Batteries, wet, non-spillable, *electric storage*” have metallic lead and lead oxide electrodes and sulfuric acid electrolytes just like regular “wet” batteries, but the acid is either gelled up with silica or absorbed in a mat of micro-glass fibers. These batteries are not truly “sealed” (non-spillable) but are “valve regulated” (they are technically termed “valve-regulated lead-acid” or “VRLA”). The resealable valves prevent the entrance of oxygen from the outside air, but release excess hydrogen and oxygen formed during overcharging. These types of batteries are generally used for 12-volt vehicular starting applications and uninterruptible power supply applications.

Batteries described under the proposed new proper shipping name “Batteries, dry, sealed, n.o.s.” are hermetically “sealed” and generally utilize other metals and/or carbon as electrodes. These batteries are typically used for portable power applications. The rechargeable (and some nonrechargeable) types have gelled alkaline electrolytes (rather than acidic) making it difficult for them to generate hydrogen or oxygen when overcharged.

The entry “Batteries, dry, containing potassium hydroxide solid, *electric storage*” would be revised by adding to column (7) a reference to proposed new Special provision “237.” The new special provision would specify that, for transportation by aircraft, “Batteries, dry, containing potassium hydroxide solid, *electric storage*” must be prepared and packaged in accordance with the requirements of § 173.159(a), and for transportation by aircraft, § 173.159(b)(2). The entry “Batteries, wet, non-spillable, *electric storage*” would be revised by adding to column (8A), a reference to proposed new § 173.159a.

Section 173.189 sets forth transportation requirements for batteries containing sodium or cells containing sodium. In this NPRM, we propose to revise paragraph (e) to specify that vehicles, machinery and equipment powered by sodium batteries must be consigned under the entry “Battery-powered vehicle or Battery-powered equipment.”

Section 176.84 contains additional stowage and segregation requirements for hazardous materials on cargo and passenger vessels. In this NPRM, in order to fully align the HMR with the IMDG Code, a new vessel stowage code “146” is added to the § 176.84(b) table to specify that, “Category B stowage applies for unit loads in open cargo transport units.” The new vessel stowage code “146” is assigned to “Batteries, wet, filled with acid, *electric storage*,” UN2794 and “Batteries, wet, filled with alkali, *electric storage*,” UN2795 in column (10B) of the HMT.

6. Lithium Batteries

Except for incident reporting requirements, this NPRM does not propose any amendments pertaining to the transportation of lithium batteries. PHMSA is working to evaluate and reduce lithium battery risks through targeted enforcement; inspections and testing, including root cause investigation of all incidents; public outreach; and other non-regulatory initiatives.

As we identify other opportunities for safety improvement, further rulemaking may be necessary. Before developing additional rulemaking proposals, PHMSA plans to complete an assessment of the costs and benefits of further restrictions and available alternatives. In the meantime, we will continue to monitor and evaluate the safety performance of lithium batteries in transportation, identify and target counterfeit and other non-conforming batteries, and encourage the

development and introduction of safer battery designs.

III. Additional Harmonization Proposals in This NPRM

In addition to the battery proposals detailed above, in this NPRM, we are proposing the following amendments to harmonize the HMR with the most recent revisions to the UN Recommendations, ICAO TI, and IMDG Code:

- **Hazardous Materials Table (HMT):** Amendments to the 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 limitations and vessels stowage provisions.

- **Fuel Cells:** Amendments to the HMT to add four new proper shipping names to describe the range of fuel used in fuel cell cartridges: (1) Corrosive substances (UN3477); (2) liquefied flammable gas (UN3478); (3) hydrogen in metal hydride (UN3479); and (4) water-reactive substances (UN3476). In addition, we are proposing amendments to expand the types of fuel cell cartridges permitted in carry-on baggage to include water-reactive substances and hydrogen in a metal hydride. Amendments to § 173.230 provide packaging requirements for fuel cells and, except for transportation by aircraft, limited quantity exceptions for the various types of fuel cell cartridges specified above.

- **Small Quantity Exceptions:** Amendments maintaining current allowances for small quantities of Division 2.2, Class 3, Division 4.1, Division 4.2 (PG II and III), Division 4.3 (PG II and III), Division 5.1, Division 5.2, Division 6.1, Class 7, Class 8, and Class 9 materials transported by highway and rail and adopting the UN and ICAO excepted quantity provisions for transportation by aircraft or vessel.

- **Incident Reporting:** Amendments to provisions that except certain hazardous materials or commodities from the requirements of the HMR, including incident reporting requirements. The HMR contain overriding provisions in §§ 171.15 and 171.16 requiring notice of specific types of incidents to the National Response Center (NRC) and submission of a Hazardous Materials Incident Report, DOT Form F 5800.1, when in possession of a hazardous material at the time of an incident. We would amend several provisions to emphasize the need to provide notice to the NRC and to address the need to obtain more accurate and complete data on incidents. The NRC relies on notices

to gather and distribute spill data to emergency responders, and the DOT hazardous materials transportation safety program relies on DOT Form F 5800.1 to gather basic information on incidents that occur during transportation.

- **Organic Peroxide Tables:**

Amendments to the Organic Peroxide Tables to add, revise, or remove certain hazardous materials and provisions.

- **Incorporation by Reference:**

Amendments to incorporate by reference the updated ICAO TI, IMDG Code, and UN Recommendations.

- **Hazard Communication on Air waybills:** Amendments to require the consignor to indicate on the “air waybill” that certain hazardous materials or articles have met the conditions for transport as specified in the applicable exception or special provision.

- **Petitions for Rulemaking:** We are addressing several petitions for rulemaking: P-1490, requesting PHMSA to remove the requirement that the type of package must be included on the notification of pilot-in-command; P-1494, requesting PHMSA to specify that pictograms described in the UN GHS are not prohibited under the HMR; P-1505, requesting PHMSA to include a new proper shipping name “Powder, smokeless,” UN0509, to the § 172.101 HMT and to include the new entry among the explosives assigned Packaging Instruction 114(b) in § 173.62; and P-1516, requesting PHMSA to allow the marine pollutant list to remain the basis in domestic transportation for regulating substances hazardous to the environment while permitting substances meeting the new IMDG Code criteria to be transported as substances hazardous to the environment. We are also addressing petitions P-1517 and P-1518, requesting PHMSA to align provisions for the transport of fuel cell systems and cartridges in the HMR with international standards.

- **Requirements for Marine Pollutants:**

Recently, the classification criteria for marine pollutants in the IMDG Code were amended for consistency with the aquatic toxicity criteria adopted within the GHS. The HMR currently allow materials meeting the criteria of a marine pollutant under the prior IMDG Code criteria to be classified as such for domestic or international transportation (see paragraph 4 of the introduction to Appendix B of 172.101). The new classification system adopted into the IMDG Code is complicated, and the associated criteria for classifying mixtures containing marine pollutants would involve an additional layer of complexity without a corresponding

public benefit; therefore, we are not proposing to adopt the new IMDG Code environmental classification system. In this rulemaking, we are proposing to maintain the current regulatory approach to facilitate transportation without mandating use of the new GHS-based criteria. We also propose to adopt a new marking for marine pollutants consistent with the marking adopted within the IMDG Code. These actions will provide the greatest possible harmonization with international requirements without imposing an undue burden on industry. This proposal is also consistent with a Petition for Rulemaking (P-1516) filed by the Dangerous Goods Advisory Council (DGAC). DGAC requested that for domestic transportation the marine pollutant list be maintained as the basis for regulating substances hazardous to the environment while permitting a substance meeting the new IMDG Code criteria to be transported as a substance hazardous to the aquatic environment. DGAC also recommended that the current 10% rule for classifying mixtures containing marine pollutants be used while allowing compliance with the mixture calculation in the IMDG Code. Though we have not proposed to implement a 10% rule for marine pollutants irrespective of whether they are identified as a severe marine pollutant, we request comments on that recommendation. In particular, we are interested in the environmental impacts of such a change and its effect on human health and the environment. We invite comments on the practical consequences of the differing approaches, for instance, in the event of release of such substances into aquatic resources and drinking water.

IV. Amendments Not Being Considered for Adoption in This NPRM

This NPRM proposes changes to the HMR based on amendments to the Fifteenth revised edition of the UN Recommendations, Amendment 34 to the IMDG Code, and the 2009–2010 ICAO TI, which become effective January 1, 2009. However, we are not proposing to adopt all of the amendments to those documents 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 handled, or will be handling, 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, does not require substantive changes from the international standard on which it is based, and imposes minimal or no cost impacts on persons subject to the requirement. Otherwise, in order to provide opportunity for notice and comment, the change must 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.

Below is a listing of those 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:

- *Requirements for Hazardous Materials Security.* The UN and ICAO have adopted minimal requirements pertaining to hazardous materials security. On March 25, 2003, we published a final rule to enhance the security of hazardous materials transported in commerce (68 FR 14510). In the final rule, shippers and carriers of certain highly hazardous materials are required to develop and implement security plans. In addition, all shippers and carriers of hazardous materials are required to include a security component. The security plan requirements apply to shipments of hazardous materials that must be placarded and to select agents. In a separate rulemaking, we are considering revising the list of materials for which security plans are required to ensure that the requirements apply only to those materials that pose a true security risk in transportation. See the advance notice of proposed rulemaking (ANPRM) published on September 21, 2006 (71 FR 55156).

- *Requirements for Radioactive Materials.* We are not proposing to adopt provisions pertaining to the transportation of Class 7 (radioactive) materials. Amendments to requirements pertaining to the transportation of Class 7 (radioactive) materials are based on changes contained in the International Atomic Energy Agency (IAEA) publication, "IAEA Safety Standards: Regulations for the Safe Transport of Radioactive Materials." Due to their complexity, these changes are being

addressed in a separate rulemaking under Docket HM-250.

- *Requirements for Infectious Substances.* The UN and ICAO have adopted minimal standards applicable to the transportation of human remains and animal carcasses as to which there is minimal likelihood that pathogens are present. For purposes of the HMR, such specimens are not considered hazardous, and their transportation is not subject to the HMR. These specimens are currently regulated by the Food and Drug Administration of the U.S. Department of Health and Human Services, the U.S. Department of Agriculture and subject to State and local authorities. Therefore, we are not proposing to incorporate the new international provisions into the HMR.

- *Requirement for Definition of "Target" for Use During Packaging Testing.* Amendments to the HMR pertaining to the definition of a "target" for a drop test performed on non-bulk packagings are not being proposed in this rulemaking. The UN Recommendations amended the description to specify that the surface of a target must be immovable, free of defects, rigid, and large enough to ensure that the test package falls entirely upon the surface. We believe the current provisions in the HMR pertaining to the drop test method for non-bulk packagings adequately address this issue.

- *Requirement for Vibration Test for All Intermediate Bulk Containers (IBCs).* Amendments to the HMR pertaining to the test method and duration of a vibration test for IBCs are not being proposed in this rulemaking. PHMSA successfully helped to introduce to the UN Recommendations a vibration test requirement for IBCs that would both enhance safety and help to establish a more equivalent testing protocol for manufacturers of IBCs worldwide. However, the vibration test adopted by the UN may be conducted as a "stand-alone" design-type test on an otherwise untested IBC. In contrast, the vibration test originally introduced by PHMSA would require the vibration test to be conducted in sequence with other required tests. We believe this method provides a higher degree of safety, and therefore, are not proposing to amend the vibration test requirements currently in the HMR.

- *Requirement for Bromine (UN1744).* In the Fifteenth edition of the UN Recommendations, a packing instruction and a special packing provision for "Bromine," UN1744 were consolidated into a new packing instruction specifically for Bromine. After reviewing this new packing

instruction, we believe the current provisions in the HMR pertaining to the packaging of Bromine are adequate.

- *Exceptions to Packaging for Paint and Paint-Related Material.*

Amendments authorizing certain exceptions from performance testing of packagings containing paint and certain paint-related materials are not being proposed in this rulemaking. Currently, both the UN Recommendations and the HMR contain certain packaging exceptions for specific adhesives, printing inks, printing ink related materials, paint, paint-related materials and resin solutions (see UN Packing Instruction P001, Special Packing Provision PP1 and 49 CFR 173.173(b)(2)). The Fifteenth revised edition of the UN Recommendations expands the exceptions to also include such materials when classified as environmentally hazardous substances. We are currently reviewing the incident data related to these exceptions, and may consider this issue for a future rulemaking.

- *Requirements for Lithium Batteries.* Amendments to the HMR pertaining to lithium batteries based on the Fifteenth revised edition of the UN Recommendations are not being proposed in this rulemaking. We are reviewing these requirements and may consider them for a future rulemaking.

- *Requirements for Additional Signage.* Amendments to the HMR pertaining to additional signage in airports are not being proposed in this rulemaking. We are reviewing these amendments, including the related cost impacts, and may consider them for a future rulemaking. We request comments to provide information and suggestions that we can use during a future review.

V. Section-by-Section Review

Following is a section-by-section review of the amendments proposed in this NPRM. Note that this section-by-section review excludes the proposals applicable to the transportation of batteries and battery-powered devices, which are detailed in Section II of this Notice. We request comments providing information and suggestions that we can use during the review of these proposals.

Part 171

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 standards bodies. PHMSA regularly reviews updated consensus standards and considers their merit for inclusion in the HMR.

Section 171.7 lists 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; their adoption will maintain the high safety standard currently achieved under the HMR. Therefore, we propose to update the incorporation by reference materials for the ICAO TI, the IMDG Code, and the UN Recommendations. The updated editions of these standards become effective January 1, 2009.

We propose to revise the following standards:

- The Technical Instructions for the Safe Transport of Dangerous Goods by Air, 2007–2008 Edition.
- International Convention for the Safety of Life at Sea (SOLAS) Amendments 2000, Chapter II–2, Regulation 19, 2001.
- The International Maritime Organization’s International Maritime Dangerous Goods Code, 2006 Edition, Incorporating Amendment 33–06, English Edition, Volumes 1 and 2.
- The UN Recommendations on the Transport of Dangerous Goods, Fourteenth revised edition (2005), Volumes I and II.

Section 171.14

This section lists specific transition periods for certain provisions adopted into the HMR. Paragraph (d) of this section specifies transition provisions

for previously adopted amendments intended to harmonize the HMR with international standards. We are proposing revisions to this paragraph to provide specific transitional provisions for certain amendments proposed in this NPRM. We are proposing an effective date of January 1, 2009, and a mandatory compliance date of January 1, 2010. We propose to permit voluntary compliance as of January 1, 2009, to correspond with the effective implementation dates of the 2009–2010 ICAO TI and Amendment 34 of the IMDG Code. This authorization would allow shippers to prepare their international shipments in accordance with international standards that will become effective on January 1, 2009.

Section 171.25

Section 171.25 specifies additional requirements for the use of the IMDG Code when a hazardous material is offered for transportation to, from, or within the United States by vessel, and by motor carrier and rail, provided all or part of the movement is by vessel. Recently, an incident occurred in which a portable tank containing “Argon, refrigerated liquid (cryogenic liquid),” UN1951, stowed below the deck of a vessel released its contents, resulting in the asphyxiation deaths of three individuals who entered the confined cargo space where the portable tank was stowed. The HMR currently prohibit the stowage of such materials below deck (§ 176.76(g)) because of the potential hazard of asphyxiation when large volumes of refrigerated liquefied gases are released below the deck of a vessel in confined spaces. However, the IMDG Code does not prohibit the stowage of tanks below deck in all cases. Some refrigerated liquefied gases, including argon, are assigned to stowage “Category B” in column (16) of the dangerous goods list of the IMDG Code. Therefore, in this NPRM, we propose to revise § 171.25 to specify that portable tanks, cargo tanks, and tank cars containing cryogenic liquids must be “on deck” regardless of the stowage authorized in the IMDG Code.

Part 172

Section 172.101 Hazardous Materials Table (HMT)

Section 172.101 contains the HMT and explanations for each of its columns. We propose to make various amendments to the HMT. Readers should review all changes for a complete understanding of the proposed amendments. For purposes of the Government Printing Office’s typesetting procedures, proposed

changes to the HMT will appear under three sections of the Table, "remove," "add," and "revise." Certain entries in the HMT, such as those with proposed revisions to the proper shipping names, will appear as a "remove" and "add." Proposed amendments to the HMT for the purpose of harmonizing with international standards include, but are not limited to, the following:

In the final rule for Docket HM-215G (69 FR 76044; December 20, 2004), we added new generic entries for Organometallic substances consistent with descriptions added to the UN Recommendations. In the final rule, we allowed the continued use of certain specific Organometallic entries; however, we anticipated removing the specific Organometallic entries from the HMT by January 1, 2007. The entries were to be removed because they were superseded by more appropriate generic entries. However, the entries intended to be removed currently remain in the HMT. Therefore, we are proposing to remove the following Organometallic entries for consistency with the intent of HM-215G:

UN3052 Aluminum alkyl halides, liquid
UN3461 Aluminum alkyl halides, solid
UN3076 Aluminum alkyl hydrides
UN3051 Aluminum alkyls
UN1366 Diethylzinc
UN1370 Dimethylzinc
UN2445 Lithium alkyls, liquid
UN3433 Lithium alkyls, solid
UN3053 Magnesium alkyls
UN2005 Magnesium diphenyl

Special provision "TP12" states: "This material is considered highly corrosive to steel." The phrase "highly corrosive to steel" is not defined by any specific criteria. Further, "TP12," unlike other TP codes, is simply a statement and does not apply any regulatory requirement. It is unclear if all highly corrosive materials are assigned Special provision "TP12," or if this statement provides any useful guidance for selecting an appropriate portable tank. Therefore, we are proposing to revise the following entries by removing Special provision "TP12":

UN1716 Acetyl bromide
UN1717 Acetyl chloride
UN2584 Alkyl sulfonic acids, liquid or Aryl sulfonic acids, liquid with more than 5 percent free sulfuric acid
UN2571 Alkyl sulfuric acids
UN2817 Ammonium hydrogendifluoride, solution, PG II and III
UN2796 Battery fluid, acid
UN1736 Benzoyl chloride
UN1737 Benzyl bromide
UN1738 Benzyl chloride
UN1738 Benzyl chloride *unstabilized*
UN1739 Benzyl chloroformate
UN2692 Boron tribromide

UN1742 Boron trifluoride acetic acid complex, liquid
UN1743 Boron trifluoride propionic acid complex, liquid
UN1744 Bromine
UN1744 Bromine solutions
UN1745 Bromine pentafluoride
UN1746 Bromine trifluoride
UN2513 Bromoacetyl bromide
NA2742 sec-Butyl chloroformate
UN2353 Butyryl chloride
NA9263 Chloropivaloyl chloride
UN1754 Chlorosulfonic acid *with or without sulfur trioxide*
UN1755 Chromic acid solution, PG II and PG III
UN1758 Chromium oxychloride
UN2240 Chromosulfuric acid
NA9264 3,5-Dichloro-2,4,6-trifluoropyridine
UN1764 Dichloroacetic acid
UN1768 Difluorophosphoric acid, anhydrous
NA2845 Ethyl phosphonous dichloride, anhydrous [*pyrophoric liquid*]
NA2927 Ethyl phosphonothioic dichloride, anhydrous or Ethyl phosphorodichloridate
UN1776 Fluorophosphoric acid anhydrous
UN1778 Fluorosilicic acid
UN1777 Fluorosulfonic acid
UN1782 Hexafluorophosphoric acid
UN1789 Hydrochloric acid PG II and PG III
UN1786 Hydrofluoric acid and Sulfuric acid mixtures
UN1790 Hydrofluoric acid, *with more than 60 percent strength*
UN1790 Hydrofluoric acid, *with not more than 60 percent strength*
NA2742 Isobutyl chloroformate
UN3246 Methanesulfonyl chloride
NA9206 Methyl phosphonic dichloride
NA2845 Methyl phosphonous dichloride, *pyrophoric liquid*
NA1556 Methylchloroarsine
UN1826 Nitrating acid mixtures, spent *with more than 50 percent nitric acid*
UN1826 Nitrating acid mixtures, spent *with not more than 50 percent nitric acid*
UN1796 Nitrating acid mixtures *with more than 50 percent nitric acid*
UN1796 Nitrating acid mixtures *with not more than 50 percent nitric acid*
UN2031 Nitric acid *other than red fuming, with more than 70 percent nitric acid*
UN2031 Nitric acid *other than red fuming, with not more than 20 percent nitric acid*
UN2031 Nitric acid *other than red fuming, with not more than 70 percent nitric acid*
UN2032 Nitric acid, red fuming
UN1798 Nitrohydrochloric acid
UN2308 Nitrosylsulfuric acid, liquid
UN1873 Perchloric acid *with more than 50 percent but not more than 72 percent acid, by mass*
UN1817 Pyrosulfuryl chloride
UN2879 Selenium oxychloride
UN1906 Sludge, acid
UN1828 Sulfur chlorides
UN1829 Sulfur trioxide, stabilized
UN1831 Sulfuric acid, fuming *with less than 30 percent free sulfur trioxide*
UN1831 Sulfuric acid, fuming *with 30 percent or more free sulfur trioxide*
UN1832 Sulfuric acid, spent
UN1830 Sulfuric acid *with more than 51 percent acid*

UN2796 Sulfuric acid *with not more than 51 percent acid*
UN1834 Sulfuryl chloride
UN1836 Thionyl chloride
UN2699 Trifluoroacetic acid
NA9269 Trimethoxysilane

We propose to add a new non-bulk packaging section (§ 173.206) for the transportation of certain flammable, corrosive and toxic materials, specifically, chlorosilanes that have water-reactive properties. For a detailed summary of the rationale, see the preamble discussion for § 173.206. The following entries would be revised in Column (8B) by replacing the current non-bulk packaging provision with "206":

UN1724 Allyltrichlorosilane, stabilized
UN1728 Amyltrichlorosilane
UN1747 Butyltrichlorosilane
UN1753 Chlorophenyltrichlorosilane
UN2986 Chlorosilanes, corrosive, flammable, n.o.s.
UN2987 Chlorosilanes, corrosive, n.o.s.
UN2985 Chlorosilanes, flammable, corrosive, n.o.s.
UN3362 Chlorosilanes, toxic, corrosive, flammable, n.o.s.
UN3361 Chlorosilanes, toxic, corrosive, n.o.s.
UN1762 Cyclohexenyltrichlorosilane
UN1763 Cyclohexyltrichlorosilane
UN2434 Dibenzylchlorosilane
UN1766 Dichlorophenyltrichlorosilane
UN1767 Diethyldichlorosilane
UN1162 Dimethylchlorosilane
UN1769 Diphenyldichlorosilane
UN1771 Dodecyltrichlorosilane
UN2435 Ethylphenyldichlorosilane
UN1196 Ethyltrichlorosilane
UN1781 Hexadecyltrichlorosilane
UN1784 Hexyltrichlorosilane
UN2437 Methylphenyldichlorosilane
UN1250 Methyltrichlorosilane
UN1799 Nonyltrichlorosilane
UN1800 Octadecyltrichlorosilane
UN1801 Octyltrichlorosilane
UN1804 Phenyltrichlorosilane
UN1816 Propyltrichlorosilane
UN1298 Trimethylchlorosilane
UN1305 Vinyltrichlorosilane, stabilized

For consistency in the assignment of Special provision "TP13" (which requires provision of self-contained breathing apparatus when transported by vessel) to all chlorosilanes, the following entries would be revised in Column (7) by adding Special provision "TP13":

UN2987 Chlorosilanes, corrosive, n.o.s.
UN1781 Hexadecyltrichlorosilane
UN1804 Phenyltrichlorosilane
UN1818 Silicon tetrachloride

We consider Special provision "TP7" essential for the safe transport of chlorosilanes. This special provision requires the vapor space to be purged of air by nitrogen or other means. However, there is no consistent assignment of "TP7" to chlorosilanes.

For enhanced safety and consistency with international regulations, the following entries would be revised in Column (7) by adding Special provision "TP7":

UN3362 Chlorosilanes, toxic, corrosive, flammable, n.o.s.
 UN3361 Chlorosilanes, toxic, corrosive, n.o.s.
 UN1250 Methyltrichlorosilane
 UN1305 Vinyltrichlorosilane, stabilized

Chlorosilanes of Class 3 and Class 8 are currently authorized for transport in metal IBCs under Special provisions "IB1" and "IB2." Because metal IBCs have lift-up lids with clamp screws, we are concerned that the overturn of a metal IBC during an accident may lead to an opening of a lift-up lid and result in a release of chlorosilanes from these packagings. To address these concerns, we are proposing to prohibit the use of metal IBCs by removing the respective "IB1" or "IB2" provisions from the following entries. We are also proposing to add Special provision "TP7" to require the vapor space to be purged of air, as discussed above:

UN2986 Chlorosilanes, corrosive, flammable, n.o.s.
 UN2987 Chlorosilanes, corrosive, n.o.s.
 UN2985 Chlorosilanes, flammable, corrosive, n.o.s.

Bottom discharge openings are currently allowed on portable tanks used for the transport of most chlorosilanes. For example, some chlorosilane entries are assigned Special provision "T7," which provides for bottom opening requirements. As part of a voluntary initiative to enhance safety, portions of the regulated community have begun to use only portable tanks without bottom discharge connections. To further enhance safety and to prohibit the use of portable tanks with bottom discharge openings, we are proposing to revise the following entries by replacing Special provision "T7" with "T10." Special provision "T10" prohibits the use of bottom discharge openings. We are also proposing to delete the respective IBC special provisions (as indicated below) to prohibit the use of metal IBCs and add Special provision "TP7" to require the vapor space to be purged of air, as discussed above:

UN1724 Allylchlorosilane, stabilized
 UN1728 Amylchlorosilane
 UN1747 Butyltrichlorosilane
 UN1753 Chlorophenyltrichlorosilane
 UN1762 Cyclohexenyltrichlorosilane
 UN1763 Cyclohexyltrichlorosilane
 UN2434 Dibenzylchlorosilane
 UN1766 Dichlorophenyltrichlorosilane
 UN1767 Diethylchlorosilane
 UN1162 Dimethylchlorosilane
 UN1769 Diphenylchlorosilane

UN1771 Dodecyltrichlorosilane
 UN2435 Ethylphenyldichlorosilane
 UN1196 Ethyltrichlorosilane
 UN1781 Hexadecyltrichlorosilane
 UN1784 Hexyltrichlorosilane
 UN2437 Methylphenyldichlorosilane
 UN1799 Nonylchlorosilane
 UN1800 Octadecyltrichlorosilane
 UN1801 Octyltrichlorosilane
 UN1804 Phenyltrichlorosilane
 UN1816 Propyltrichlorosilane
 UN1298 Trimethylchlorosilane

As a safety measure for the transport of most chlorosilanes, we are proposing to apply Special provision "T10," to prohibit bottom discharge openings on portable tanks used to transport chlorosilanes. However, for chlorosilanes meeting the criteria of Division 4.3 and for "n.o.s." entries meeting the criteria for Classes 3, 8 and Division 6.1 that have been assigned "T10," we are considering the general assignment of Special provision "T14" rather than "T10." In addition to prohibiting bottom outlet openings, Special provision "T14" requires a higher minimum test pressure for the periodic hydrostatic pressure test. We believe a higher minimum test pressure would provide an increased level of safety when transporting these types of chlorosilanes in portable tanks. Some chlorosilanes meeting the above classification criteria (e.g., UN2987 and UN1295) have already been assigned Special provision "T14." Therefore, to enhance safety and for consistency in assigning special provisions, we are proposing to revise the following entries by replacing Special provision "T10" with Special provision "T14" in Column (7):

UN2988 Chlorosilanes, water-reactive, flammable, corrosive, n.o.s.
 UN1183 Ethyldichlorosilane
 UN1242 Methylchlorosilane

The following entries would be revised by assigning PG II in column (5) rather than PG I. The flammability properties (i.e., the flashpoint) place them in PG II, and no additional evidence indicates the entries are more corrosive than all the other chlorosilanes classed as a Class 3, subsidiary Class 8, PG II (e.g., UN1126). Therefore, in accordance with the Precedence of hazard table (§ 173.2a), the entries would be classed as Class 3, subsidiary Class 8, PG II materials. In addition, as discussed above, we would replace Special provision "T7" with "T10" for most chlorosilanes, however, for these entries Special provision "T10" would replace the previously assigned Special provision "T11." Readers should note, this revision is contingent upon the adoption of the proposed change from PG I to PG II. The

entries would be revised in Column (5) by assigning PG II and in Column (7) by replacing Special provision "T11" with Special provision "T10":

UN1250 Methyltrichlorosilane
 UN1305 Vinyltrichlorosilane, stabilized

As discussed above, for most chlorosilanes, we are proposing to replace Special provision "T7" with "T10," which prohibits bottom discharge openings. In addition, we propose to revise the following entries by replacing Special provision "T11" with Special provision "T14" which prohibits bottom discharge openings in portable tanks:

UN2986 Chlorosilanes, corrosive, flammable, n.o.s.
 UN2985 Chlorosilanes, flammable, corrosive, n.o.s.
 UN3362 Chlorosilanes, toxic, corrosive, flammable, n.o.s.
 UN3361 Chlorosilanes, toxic, corrosive, n.o.s.

Chlorosilanes of Division 6.1 are authorized for transport in metal IBCs under Special provision "IB1." As discussed above, we are proposing to prohibit the use of metal IBCs for the transport of chlorosilanes. Additionally, Special provision "TP27" is recommended for chlorosilanes assigned Special provision "T14." If found acceptable according to the test pressure definition in § 178.274, Special provision "TP27" allows a test pressure of 4 bar instead of 6 bar. We would assign tank provision "TP27" to all "n.o.s." entries of Classes 3, 8 and Division 6.1. Entries for Division 4.3 would not be assigned "TP27" because of higher risk of a possible release of a flammable gas. The following entries would be revised in Column (7) by deleting Special provision "IB1" and adding Special provision "TP27":

UN3362 Chlorosilanes, toxic, corrosive, flammable, n.o.s.
 UN3361 Chlorosilanes, toxic, corrosive, n.o.s.

The following entries would be revised by adding Special provision "IP2" to correct an inconsistency. "Chloroacetic acid, solid," UN1751 is the only Division 6.1, PG II material assigned Special provision "IB8" that is not also assigned Special provision "IP2." Similarly, the remaining entries listed below are Division 5.1, PG II materials assigned "IB8" but not "IP2". The following entries would be revised in Column (7) by adding Special provision "IP2":

UN1751 Chloroacetic acid, solid
 UN1463 Chromium trioxide, anhydrous.
 UN2465 Dichloroisocyanuric acid, dry or Dichloroisocyanuric acid salts
 UN1473 Magnesium bromate

UN2627 Nitrites, inorganic, n.o.s.
 UN1484 Potassium bromate
 UN1485 Potassium chlorate
 UN1487 Potassium nitrate and sodium nitrite mixtures
 UN1488 Potassium nitrite
 UN1490 Potassium permanganate
 UN1493 Silver nitrate
 UN1494 Sodium bromate
 UN1495 Sodium chlorate
 UN3247 Sodium peroxoborate, anhydrous
 UN2468 Trichloroisocyanuric acid, dry
 UN1512 Zinc ammonium nitrite
 UN1514 Zinc nitrate

Special provision "36" places net quantity limits per package for medicines classed as hazardous materials. However, the quantity limits are inconsistent with the net quantity packaging limits authorized under the limited quantities exceptions authorized for these materials. Therefore, these entries would be revised in Column (7) by removing Special provision "36":

UN3248 Medicine, liquid, flammable, toxic, n.o.s.
 UN1851 Medicine, liquid, toxic, n.o.s.
 UN3249 Medicine, solid, toxic, n.o.s.

Chemical oxygen generators are subject to stringent packaging and shipping requirements. We are proposing to add a new Special provision "62" to the following entries to emphasize that chemical oxygen generators are not authorized to be transported under the generic "oxidizer, n.o.s." entries.

UN3098 Oxidizing liquid, corrosive, n.o.s.
 UN3139 Oxidizing liquid, n.o.s.
 UN3099 Oxidizing liquid, toxic, n.o.s.
 UN3085 Oxidizing solid, corrosive, n.o.s.
 UN3137 Oxidizing solid, flammable, n.o.s.
 UN1479 Oxidizing solid, n.o.s.
 UN3100 Oxidizing solid, self-heating, n.o.s.
 UN3087 Oxidizing solid, toxic, n.o.s.
 UN3121 Oxidizing solid, water-reactive, n.o.s.

The following entries would be revised by adding a reference to packaging section "307" to Column (8A) for consistency with international regulations regarding exception from the HMR for manufactured articles and apparatuses containing minimal amounts of inert gas. See the discussion of changes to § 173.307 for additional information regarding this proposed change.

UN1006 Argon, compressed
 UN1046 Helium, compressed
 UN1970 Krypton, compressed
 UN1065 Neon, compressed
 UN2036 Xenon, compressed

The entry "Batteries, dry, containing potassium hydroxide solid, *electric storage*" would be revised by adding to column (7) a reference to proposed new Special provision "237."

The entries "Boron trifluoride," UN1008, and "Hydrogen iodide,

anhydrous" UN2197, would be revised by adding the Class 8 subsidiary hazard label to Column (6) for consistency with international regulations and for consistency with all other Division 2.3 toxic gas entries in the HMT that also have the Class 8 subsidiary hazard.

The entry "Calcium manganese silicon," UN2844 would be revised in Column (7) by removing Special provision "IP2." When this material is transported in other than metal or rigid plastic IBCs, Special provision "IP2" specifies they must be transported in a closed freight container or a closed transport vehicle. However, this is inconsistent with other Division 4.3, PG III materials that are not subject to this Special IBC packaging provision.

For consistency with UN Recommendations, the entry "Chlorine," UN1017, would be revised in Column (6) by adding the Division 5.1 subsidiary hazard label. This label will help communicate that this material may cause or enhance the combustion of other materials.

The hazardous materials descriptions for the entries "Chloronitrobenzene, liquid *ortho*," UN3409, and "Chloronitrobenzenes, solid *meta* or *para*," UN1578, would be revised in Column (2) by removing the italicized word(s). The italicized word(s) associated with the proper shipping names are a potential source of confusion and would be removed for clarification and consistency with the same entries in the UN Recommendations. This revision appears as a "Remove/Add" in this rulemaking.

The entries "Environmentally hazardous substances, liquid, n.o.s.," UN3082 and "Environmentally hazardous substances, solid, n.o.s.," UN3077, would be revised by adding a new Special provision "335" in Column (7). Special provision "335" clarifies that mixtures of non-hazardous solids and environmentally hazardous liquids or solids may be classified as UN3077 provided there is no free liquid visible at the time the substance is loaded or at the time the packaging or transport unit is closed.

In addition to flammable liquid fuel cell cartridges already provided for by the HMR, a number of other rapidly advancing fuel cell technologies employing a range of fuels continue to emerge. In this NPRM, we are proposing to revise the entry for fuel cells containing a flammable liquid (UN3473) to include fuel cell cartridges containing a flammable liquid packed with or contained in equipment, and to add four new proper shipping names to the HMT to describe the range of fuel used in fuel

cell cartridges. These entries are (1) water-reactive substances (UN3476); (2) corrosive substances (UN3477); (3) liquefied flammable gas (UN3478); and (4) hydrogen in metal hydride (UN3479). Readers should note that liquefied flammable gases and hydrogen in a metal hydride are both Division 2.1 materials used in fuel cell cartridges. However, the provisions necessary for the safe transportation of these articles are quite different and therefore, it is necessary to distinguish them with separate shipping descriptions.

A new entry "Fuel cell cartridges or Fuel cell cartridges contained in equipment or Fuel cell cartridges packed with equipment, *containing corrosive substances*," UN3477, would be added.

The proper shipping name for the entry "Fuel cell cartridges, *containing flammable liquids*," UN3473, would be revised in Column (2) to read "Fuel cell cartridges or Fuel cell cartridges contained in equipment or Fuel cell cartridges packed with equipment, containing flammable liquids." This revision appears as a "Remove/Add" in this rulemaking.

A new entry "Fuel cell cartridges or Fuel cell cartridges contained in equipment or Fuel cell cartridges packed with equipment, *containing hydrogen in metal hydride*," UN3479, would be added.

A new entry "Fuel cell cartridges or Fuel cell cartridges contained in equipment or Fuel cell cartridges packed with equipment, *containing liquefied flammable gas*," UN3478, would be added.

A new entry "Fuel cell cartridges or Fuel cell cartridges contained in equipment or Fuel cell cartridges packed with equipment, *containing water-reactive substances*," UN3476, would be added.

The entry "Gasohol," NA1203, would be revised in Column (7) by adding Special provision "177" to indicate that mixtures of gasoline and ethanol with less than 10 percent ethanol for use in internal combustion engines (e.g., automobiles) must be assigned the PG II entry regardless of variations in volatility.

The entry "Gasoline," UN1203, would be revised in Column (7) by adding Special provision "177" to indicate that gasoline for use in an internal combustion engine (e.g., automobiles) must be assigned the PG II entry regardless of variations in volatility.

The proper shipping name for the entry "Hydrogen in a metal hydride storage system," UN3468, would be revised in Column (2) to read "Hydrogen in a metal hydride storage

system or Hydrogen in a metal hydride storage system contained in equipment or Hydrogen in a metal hydride storage system packed with equipment." This revision appears as a "Remove/Add" in this rulemaking.

A new entry
"1-Hydroxybenzotriazole, anhydrous, dry or wetted with less than 20 percent water, by mass," UN0508, would be added.

A new entry
"1-Hydroxybenzotriazole, anhydrous, wetted with not less than 20 percent water, by mass," UN3474, would be added.

The entry "Hypochlorite solutions," UN1791, would be revised by adding the PG III description and associated packaging provisions to Columns (5) and (8), respectively. The PG III information was inadvertently omitted in a final rule under Docket HM-2151 (71 FR 78596; December 29, 2006). This revision appears as a "Remove/Add" in this rulemaking.

The entry "Magnesium nitrate," UN1474, would be revised in Column (7) by adding a new Special provision "332." Special provision "332" specifies magnesium nitrate hexahydrate is not subject to the HMR. Testing conducted by independent laboratories on magnesium nitrate hexahydrate in accordance with Test O.1: *Test for Oxidizing Solids* of the *UN Manual of Tests and Criteria* indicated magnesium nitrate hexahydrate does not have a burning rate to meet the criteria as a Division 5.1 oxidizer.

The hazardous materials description for the entry "Nitric acid, other than red fuming, with not more than 70 percent nitric acid," UN2031, PG II would be revised in Column (2) to read "Nitric acid, other than red fuming, with at least 65 percent, but not more than 70 percent nitric acid" to conform with proper shipping names that have similar descriptions (e.g., UN3366). This entry would also be revised in Column (7) by adding Special provision "IP15," and in Column (10B) by removing vessel stowage codes "44," "110," and "111," and adding "74" in their place. Special provision "IP15" specifies that for UN2031 with more than 55% nitric acid, the use of rigid plastic IBCs and composite IBCs with a rigid plastic inner receptacle would be authorized for two years from the date of manufacture of the IBC. Finally, the entry would be revised by adding a Division 5.1 subsidiary hazard label to column (6). This revision appears as a "Remove/Add" in this rulemaking.

A new entry "Nitric acid, other than red fuming, with less than 65 percent

nitric acid," UN2031, PG II would be added.

The entry "Nitrocellulose, solution, flammable with not more than 12.6 percent nitrogen, by mass, and not more than 55 percent nitrocellulose," UN2059, PG II and PG III, would be revised in Column (7) by adding a new Special provision "198." Special provision "198" authorizes nitrocellulose solutions containing less than 20% nitrocellulose to be transported as paint or printing ink.

The entry "Organometallic substance, liquid, water-reactive, flammable," UN3399, would be revised in Column (10A) by removing vessel stowage location code "E" and adding "D" to harmonize with the IMDG Code and SOLAS. Amendments were also made to SOLAS Chapter II-2/Regulation 19 strictly prohibiting the stowage of 4.3 liquids having a flashpoint less than 23 °C under deck or in enclosed roll-on/roll-off (ro-ro) vessel spaces. SOLAS Chapter II-2/Regulation 19 sets out fire-fighting construction and equipment requirements for vessels carrying dangerous goods. We believe this proposed amendment is necessary to avoid the risk of a carrier stowing a package in an enclosed space that is not properly equipped for a Class 4.3 material with a subsidiary Class 3 and a flashpoint less than 23 °C. When a flammable liquid with a flashpoint less than 23 °C is stowed under deck, the space must be ventilated but cannot have electrical equipment in the space. In most cases, natural or mechanical ventilation is used. However, powered ventilation is required for Class 4.3 under deck due to the risk of moisture in the air and the entry of sea water into the hold through the ventilation openings. This proposed change would prohibit only UN3399 from under deck stowage. All other Class 4.3 liquids, with a subsidiary Class 3 and flashpoint less than 23 °C, are not permitted under deck or in enclosed ro-ro spaces under the IMDG Code.

The proper shipping name for the entry "Pentaerythrite tetranitrate mixture, desensitized, solid, n.o.s.," UN3344, would be revised in Column (2) to read "Pentaerythrite tetranitrate mixture, desensitized, solid, n.o.s. or Pentaerythritol tetranitrate mixture, desensitized, solid, n.o.s. or PETN mixture, desensitized, solid, n.o.s.," to conform to proper shipping names that have similar descriptions (e.g., UN0411). This revision appears as a "Remove/Add" in this rulemaking.

The entry "Polychlorinated biphenyls, solid," UN3432 would be revised in Column (7) by adding Special provisions "IP2" and "IP4" for

consistency with similar requirements for "Polyhalogenated biphenyls, solid or Polyhalogenated terphenyls, solid," UN3152. Special provisions "IP2" and "IP4" require IBCs other than metal or rigid plastic to be offered for transportation in a closed freight container or closed transport vehicle and require flexible, fiberboard, or wooden IBCs to be sift-proof and water-resistant or be fitted with a sift-proof or water-resistant liner, respectively.

The entries "Potassium persulfate," UN1492 and "Sodium persulfate," UN1505, would be revised in Column (10B) by removing vessel stowage code "56" and adding "145."

The proper shipping name for the entry "Trinitrophenol, wetted," UN1344, would be revised in Column (2) to read "Trinitrophenol, or Picric acid, wetted," to conform to proper shipping names that have similar descriptions (e.g., UN3364). This revision appears as a "Remove/Add" in this rulemaking.

The proper shipping name for the entry "Trinitrotoluene, wetted," UN1356, would be revised to read "Trinitrotoluene, wetted or TNT, wetted," to conform to proper shipping names that have similar descriptions (e.g., UN3366). This revision appears as a "Remove/Add" in this rulemaking.

A new entry "Signals, distress, ship," UN0505, would be added.

A new entry "Signals, distress, ship," UN0506, would be added.

A new entry "Signals, smoke," UN0507, would be added.

A new entry "Powder, smokeless," UN0509, would be added. A discussion of changes to § 173.62 provides an explanation of the addition of this new entry.

Currently, no portable tank instructions are assigned to "Water-reactive liquid, corrosive, n.o.s.," UN3129; "Water-reactive liquid, n.o.s.," UN3148; or to the PG I entries for "Water reactive solid, corrosive, n.o.s.," UN3131; and "Water-reactive solid, n.o.s.," UN2813. We would add portable tank assignments (portable tank special provisions) consistent with the "Guidelines for Assigning Portable Tank Requirements to Substances in Classes 3 to 9." These assignments are consistent with similarly classed entries in the HMT. The entries would be revised in Column (7) as follows:

The entry "Water-reactive liquid, corrosive, n.o.s.," UN3129, PG I, would be revised by adding Special provisions "T14," "TP2," and "TP7."

The entry "Water-reactive liquid, corrosive, n.o.s.," UN3129, PG II, would be revised by adding Special provisions "T11" and "TP2."

The entry "Water-reactive liquid, corrosive, n.o.s.," UN3129, PG III, would be revised by adding Special provisions "T7" and "TP1."

The entry "Water-reactive liquid, n.o.s.," UN3148, PG I, would be revised by adding Special provisions "T9," "TP2," and "TP7."

The entry "Water-reactive liquid, n.o.s.," UN3148, PG II, would be revised by adding Special provisions "T7" and "TP2."

The entry "Water-reactive liquid, n.o.s.," UN3148, PG III, would be revised by adding Special provisions "T7" and "TP1."

The entry "Water-reactive solid, corrosive, n.o.s.," UN3131, PG I, would be revised by adding Special provisions "T9," "TP7," and "TP33."

The entry "Water-reactive solid, n.o.s.," UN2813, PG I, would be revised by adding Special provisions "T9," "TP7," and "TP33."

The proper shipping name for the entry "Xenon," UN2036, would be revised to read "Xenon, compressed," UN2036, for consistency with proper shipping names for other compressed gases (i.e., inert gases). This revision appears as a "Remove/Add" in this rulemaking.

Appendix B to § 172.101

Appendix B to § 172.101 lists Marine Pollutants regulated under the HMR and prescribes requirements for classifying and describing a marine pollutant. In this NPRM, we are proposing to amend the introductory text and the List of Marine Pollutants to add an allowance for the use of the revised classification criteria for materials toxic to the aquatic environment (marine pollutants) contained in the IMDG Code.

Additionally, under Docket HM-215D (66 FR 33316; June 21, 2001 and 67 FR 15743; April 3, 2002), a number of entries were removed because they no longer met the criteria for a "Marine Pollutant." However, some entries were inadvertently retained. Therefore, we are proposing to remove the following entries from the List of Marine Pollutants: "5-Ethyl-2-picoline," "Ethyl propenoate, inhibited," "Isopropenylbenzene," and "2-Phenylpropene."

Section 172.102

Section 172.102 lists a number of 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. For consistency with international regulations, we propose to

amend § 172.102, Special provisions, as follows:

Special provision "36" specifies maximum net quantity limits per package for the transport of medicines classified as flammable or toxic (i.e., UN1851, UN3248, and UN3249). These limits are inconsistent with the packaging limits authorized in limited quantity exceptions for these materials. The entries were initially introduced to the UN Recommendations with a special provision limiting the materials to PG II and III and requiring the materials to have a maximum net quantity per package of 5 L or 5 kg. However, since then, these materials have been authorized in the HMR as limited quantities and consumer commodities. This has created an inconsistency between the quantity limits per package in Special provision "36" and the limits outlined in the limited quantity exceptions. Therefore, to resolve this inconsistency, we would remove Special provision "36."

Special provision "137" specifies conditions for exception from the HMR for certain types of vegetable fibers. We propose to revise the Special provision to include "tampico fiber, dry" having a minimum baling density of 360 kg/m³ as being eligible for this exception.

Special provision "138" specifies insolubility criteria for lead compounds. We are proposing to revise the Special provision to add clarifying language that specifies lead compounds meeting the insolubility criteria outlined in the Special provision are not subject to the HMR unless they meet the criteria for one of the other hazard classes.

Special provision "150" specifies composition limits for uniform mixtures of fertilizers containing ammonium nitrate as the main ingredient. We are proposing to revise the composition limits outlined in paragraph (b) of the provision by adding the words "and/or mineral calcium sulphate" after "dolomite."

In the final rule under Docket HM-215G (69 FR 76044; December 20, 2004), we added new generic entries to describe Organometallic materials consistent with descriptions added to the UN Recommendations, but allowed the continued use of several specific Organometallic entries (e.g., Dimethylzinc, UN1370). We anticipated removing these remaining entries from the HMT by January 1, 2007. The entries were to be removed because they were superseded by the addition of the more appropriate generic entries. However, they currently remain in the HMT. Therefore, we are proposing to remove the remaining specific Organometallic entries for consistency with the original

intent of HM-215G to remove the entries by January 1, 2007. In addition, we are proposing to remove Special provision "173." Special provision "173" provides the option to use an appropriate generic entry listed in the HMT to describe the material and was only assigned to Organometallic materials. Since new generic entries have been added to the HMT, and because the Special provision only applies to entries that are to be removed, this Special provision would be rendered obsolete.

Special provision "177" requires materials for use in internal combustion engines (e.g., in automobiles) to be assigned the PG II entry regardless of variations in volatility of the material. The Special provision is currently assigned to the entry "Ethanol and gasoline mixture or Ethanol and motor spirit mixture or Ethanol and petrol mixture," UN3475. However, the provision also applies to the entries "Gasohol," NA1203 and "Gasoline," UN1203. For consistency with UN Recommendations that assign similar provisions to gasoline and mixtures of ethanol and gasoline, and for uniform application of the provision, we are proposing to revise Special provision "177" to specify its application to both gasoline and ethanol/gasoline mixtures.

Special provision "188" specifies conditions for exception from the HMR for small lithium cells and batteries. We propose to revise the Special provision to require the reporting of incidents, including those which result in the production of smoke, sparks, or a dangerous evolution of heat.

Special provision "189" specifies conditions for exception from the HMR for medium lithium cells and batteries. We propose to revise the Special provision to require the reporting of incidents including those which result in the production of smoke, sparks, or a dangerous evolution of heat.

A new Special provision "198" would be added to permit nitrocellulose solutions containing less than 20% nitrocellulose to be transported as paint or printing ink, as applicable.

A new Special provision "237" would be added to specify that "Batteries, dry, containing potassium hydroxide solid, *electric storage*" must be prepared and packaged in accordance with the requirements of § 173.159(a), (b) and (c), and for transportation by aircraft, § 173.159(d)(2).

A new Special provision "332" would be added to specify magnesium nitrate hexahydrate is not subject to the HMR.

A new Special provision "335" would be added to clarify proper classification of mixtures of solids which are not

subject to the HMR and environmentally hazardous liquids or solids. Special provision "335" specifies these mixtures would be classified as UN3077 and may be transported under that entry provided there is no free liquid visible at the time the material is loaded or the packaging or transport unit is closed.

A new Special provision "IP15" would be added to indicate that for "Nitric acid," UN2031, with more than 55% nitric acid, the use of rigid plastic IBCs and composite IBCs with a rigid plastic inner receptacle is permitted for two years from the date of manufacture of the IBC.

A new Special provision "N90" would be added to prohibit the use of metal packagings for transport of "1-Hydroxybenzotriazole, anhydrous, wetted *not less than 20 percent water, by mass*," UN3474.

Special provision "TP12" would be removed. This provision states "this material is considered highly corrosive to steel." The phrase "highly corrosive to steel" is not defined by any specific criteria. Further, "TP12," unlike other TP codes, is simply a statement and does not apply any regulatory requirement. It is unclear if all highly corrosive materials are assigned Special provision "TP12" or if this statement provides any useful guidance for selecting an appropriate portable tank. Therefore, we propose to delete Special provision "TP12" from § 172.102(c)(8) "*TP*" Codes.

Section 172.202

Section 172.202 establishes the requirements for the description of hazardous materials on shipping papers. The UN Recommendations do not require the subsidiary hazard to be indicated on the shipping paper when a subsidiary hazard label is not required. We agree that the requirement to indicate the subsidiary hazard on the shipping paper should be consistent with the requirement to apply a subsidiary risk label. Therefore, we propose to harmonize with the UN Recommendations by making an appropriate revision to § 172.202(a)(2) to specify that the subsidiary hazard class or division number is not required to be entered when a corresponding subsidiary hazard label is not required. We also propose to revise paragraph (a)(4) to clarify that the packing group is not required to be indicated on a shipping paper for explosives, self-reactive substances, batteries other than those containing sodium, and organic peroxides in addition to entries that are not assigned a packing group. In addition, we also propose to revise paragraph (a)(6) to clarify that for all

articles where "No Limit" is shown in Column (9A) or (9B) of the HMT, the quantity must be the gross mass, following the letter "G."

Section 172.322

Section 172.322 specifies marking requirements for vessel transportation of each non-bulk packaging and bulk packaging that contains a marine pollutant. In this NPRM we are proposing to adopt the new marking for marine pollutants that has been incorporated into the IMDG Code. We are proposing mandatory use of this marking one year after publication of the final rule. Commenters are requested to submit remarks regarding the impact of adopting a one-year compliance date. As part of their petition to PHMSA (P-1516), DGAC recommended inclusion of the new marine pollutant mark in the HMR.

Section 172.400a

Section 172.400a establishes exceptions for labeling requirements. Currently, the UN Recommendations do not require a package labeled with a Division 4.2 label to bear a Division 4.1 subsidiary hazard label. This is primarily because the Division 4.2 label communicates a more severe spontaneously combustible flammability hazard and as such the Division 4.1 label is not considered to provide additional hazard communication value. In this NPRM, we propose to revise paragraph (c) to include a similar exception.

Section 172.401

Section 172.401 establishes specific requirements for prohibited labeling. We received a petition (P-1494) from the DGAC requesting that PHMSA specify that pictograms described in the United Nations Globally Harmonized System of Classification and Labelling are not prohibited under the HMR. In its petition, DGAC states that the UN Economic and Social Council's Committee of Experts on the Transport of Dangerous Goods and on the GHS established the goal of implementing the GHS in 2008. DGAC contends that to facilitate international trade, it is important that packages bearing GHS pictograms are acceptable for transportation in the United States. DGAC also states that GHS pictograms may already appear on packages used in transportation and cites Annex 7 of the GHS showing examples of GHS pictograms appearing on drums. Pictograms prescribed by GHS are not identical to labels required under the UN Recommendations or the HMR; such pictograms typically consist of a red

bordered diamond with a hazard symbol such as a "flame" or a "skull and crossbones." DGAC expects these GHS pictograms to be smaller in size than the transport labels required under the HMR and international regulations.

We agree with DGAC that the GHS pictograms should be permitted on packages intended for transportation in the United States to facilitate international trade. We also believe that such a revision will not diminish the current level of safety affecting these materials. Therefore, in this NPRM, we are proposing to amend § 172.401 which prohibits the transportation of packages bearing any mark or label that could be confused or conflict with a label required under the HMR, to specify that restrictions under this section do not apply to packages labeled in conformance with the GHS.

Section 172.446

Section 172.446 specifies the requirements for Class 9 labels. Unlike the HMR, the international regulations do not have a solid horizontal line dividing the lower and upper half of the Class 9 label. The Class 9 label in § 172.446 depicts a solid horizontal line. For consistency with international regulations and to provide relief to the regulated community, in this NPRM, we propose to revise paragraph (b) to allow a solid horizontal line as an option.

Section 172.448

Section 172.448 establishes the specifications for the "CARGO AIRCRAFT ONLY" label. For consistency with international regulations, in this NPRM, we are proposing to replace the current label. The symbol of this label is not altered; however the text is revised to read, "Forbidden in Passenger Aircraft." In addition, we propose to authorize continued use of the current label until January 1, 2013.

Part 173

Section 173.4

Section 173.4 establishes the requirements for exceptions to the HMR for small quantities of Class 3, Division 4.1, Division 4.2 (PG II and III), Division 4.3 (PG II and III), Division 5.1, Division 5.2, Division 6.1, Class 7, Class 8, and Class 9 materials. Recently, provisions for the transport of hazardous materials in excepted quantities were incorporated into the UN Regulations and the IMDG Code. These provisions are based largely on existing excepted quantity provisions provided by the ICAO TI. The provisions permit certain small quantities of hazardous materials

to be transported with minimal regulation, but ensure a high level of safety through stringent packaging and testing requirements.

The excepted quantity provisions adopted within the UN Regulations and the small quantity provisions of the HMR are similar, but not identical. For example, differences include variations in the authorized hazard classes and packing groups; differences in the quantities authorized per package; and differences in marking, documentation and incident reporting requirements. We believe that aligning the existing small quantity provisions in the HMR with the excepted quantity provisions for air and vessel transportation will enhance harmonization and increase safety. Therefore, for consistency with the UN Recommendations and to increase safety and facilitate international transportation, in this NPRM, we are proposing to adopt a new excepted quantity provision for transportation by aircraft and vessel into a new § 173.4a. We stress that we are not proposing to remove the existing small quantity provisions in 173.4, but rather proposing to limit the use of these provisions to domestic highway and rail transportation. We also propose to move the exception for small quantities—less than 1 gram for solids and less than 1 milliliter for liquids per inner packaging currently found in § 173.4(e)—to a new § 173.4b. This would align the requirements of the HMR with those of the ICAO TI and the IMDG Code for transport by air and vessel, while maintaining the existing small quantity exceptions for domestic highway and rail transport. We welcome comments regarding the potential for confusion and any cost impacts resulting from this change. Small quantity exceptions would be separated into the following three sections:

(1) Section 173.4 for small quantities transported by domestic highway and rail only;

(2) Section 173.4a for excepted quantities transported by aircraft and vessel; and

(3) Section 173.4b for de minimis quantities of material (less than 1 gram for solids and less than 1 milliliter for liquids per inner packaging) transported by all modes.

In addition, we considered extending the allowance for small quantity exceptions to fuel cells. Fuel cells by design offer a high degree of integrity and often contain a relatively small amount of hazardous material. However, we wish to maintain the level of safety ensured by the rigorous testing and packaging required for fuel cell cartridges of various types required by

the provisions proposed in § 173.230. Therefore, in this NPRM, we propose to revise § 173.4(d) to specify that fuel cell cartridges are not eligible for the small quantity exceptions.

Sections 173.12 and 173.134

Section 173.12 establishes exceptions for shipments of waste materials. Section 173.134 establishes definitions, classification criteria, and exceptions for Division 6.2 (infectious substances). On January 28, 2008, we published a final rule under Docket HM–218D (73 FR 4699) that added a new paragraph (f) in § 173.12 to specify that household waste, as defined in § 171.8, is not subject to the HMR. In addition, we revised a household waste exception in § 173.134(b)(13)(i) to reference the household waste definition in § 171.8. Upon publication of the final rule, we received a comment expressing concern with the implementation of these amendments. The commenter, Regulatory Resources Inc., expressed concern that this amendment was too broad and would allow entities such as large hotels undergoing renovation to offer their waste, including hazardous materials, for transportation as non-regulated materials. This was not our intention. In an effort to reduce confusion, we are proposing to revise these two sections to specify that household waste is not subject to the HMR when transported in accordance with applicable state, local, or tribal requirements.

Section 173.24b

Section 173.24b establishes additional general requirements for bulk packagings. In this NPRM, we are proposing to add a new paragraph to clarify that IBCs and Large Packagings that are not designated and tested for stacking may not be stacked during transportation. In addition, we are also proposing to clarify that IBCs and Large Packagings that are intended for stacking may not have more weight superimposed upon them than is marked on the packaging.

Section 173.62

Section 173.62 establishes specific packaging requirements for explosives. We received a petition (P–1505) from the Sporting Arms & Ammunition Manufacturers' Institute (SAAMI) requesting that PHMSA include a new proper shipping name "Powder, smokeless," UN0509, to the § 172.101 HMT and to include the new entry among the explosives assigned Packaging Instruction 114(b) in § 173.62. In its petition, SAAMI states that the UN Sub-Committee of Experts on the

Transport of Dangerous Goods adopted a proposal by SAAMI to add the new entry to its Dangerous Goods List and a related change to the packing provisions in the UN Recommendations.

Typically, we harmonize with the UN following the formal adoption of a proposal into the published version of the UN Recommendations. However, because of the limited scope of this amendment and because the new entry allows for a more accurate classification of smokeless powder, we are proposing to amend § 173.62 to include a new entry UN0509 to the Explosives Table, which specifies the Packing Instruction assigned to each explosive, and to add a reference to the new entry in Packing Instruction 114(b). We also propose to include a "D" in column 1 of the table entry to indicate that the entry is appropriate for domestic use but may not be appropriate for international transportation. Following the adoption of the entry within the IMDG Code and the ICAO TI, this indication would no longer be necessary, and it is our intention to remove the "D" in a future rulemaking consistent with the adoption of the entry within the aforementioned international regulations.

Additionally, consistent with our proposal to add new entry "1-Hydroxybenzotriazole, anhydrous, dry or wetted with less than 20% water, by mass," Division 1.3C, UN0508, to the HMT, we are adding this material under Packing Instruction "114(b)." We propose to revise this instruction to specify that, for UN0508, inner packagings are not required if drums are used as the outer packaging. We also propose to add a new sentence under Packing Instruction 114(b) to prohibit metal packagings for UN0508. In addition, we propose to clarify that inner packagings are not necessary if drums are used as the outer packaging for UN0160 and UN0161.

Section 173.115

The HMR define a Division 2.2 material (non-flammable, nonpoisonous compressed gas—including compressed gas, liquefied gas, pressurized cryogenic gas, compressed gas in solution, asphyxiant gas and oxidizing gas) as any material or mixture that "exerts in the packaging an absolute pressure of 280 kPa (40.6 psia) or greater at 20 °C (68 °F), or is a cryogenic liquid, and does not meet the definition of Division 2.1 or 2.3." Recently, the definition of Division 2.2 gases in the UN Recommendations was amended to include all liquefied gases, irrespective of their pressure. This amendment was made on the basis that certain liquefied gases that pose no pressure hazard at

ambient pressures and temperatures may exhibit a pressure hazard under conditions normally encountered in transport, such as increased temperature. In addition, the pressure of a Division 2.2 gas was amended to be 302 kPa absolute (43.8 psi); a slight increase from the current threshold of 280 kPa absolute (40.6 psi). In order to enhance safety and to maintain global uniformity with respect to the classification of Division 2.2 gases, we are proposing to adopt these amendments. Additionally, in this NPRM, we are proposing to re-designate current paragraph (k) as a new paragraph (l). The new paragraph (k) would read "For Division 2.2 gases, the oxidizing ability shall be determined by tests or by calculation in accordance with ISO 10156:1996 and ISO 10156-2:2005 (IBR, see § 171.7 of this subchapter.)" This revision would require the use of specific test and calculation methods for a more accurate determination of the oxidizing ability of Division 2.2 gases. Additionally, we propose to revise § 171.7 to incorporate these ISO standards.

Section 173.137

Section 173.137 establishes packing group criteria for corrosive (Class 8) materials. In this NPRM, we are proposing to add a note to clarify that an additional test on the second material is not required when the initial test on either steel or aluminum indicates the material is corrosive.

Sections 173.162, 173.164, 173.166, 173.186, 173.306, 173.307, 175.10

The ICAO TI recently adopted new amendments to require additional information to be included on the "air waybill" for certain hazardous materials. Currently, a number of hazardous materials are excepted from the full regime of the hazard communication requirements that generally apply to the transport of hazardous materials in the ICAO TI when certain conditions are met to ensure an appropriate level of safety. An example is non-spillable batteries, which are excepted if certain conditions specified in Special provision A67 of the ICAO TI are met. Frequently, the ICAO TI contains more restrictive or additional requirements and conditions that apply for air transportation. The special provisions that address these requirements contain packaging provisions, prohibitions, and exceptions from requirements for particular quantities or forms of materials. Many shippers may not be familiar with the regulations and special requirements for the transportation of dangerous goods

by air as some shippers may only occasionally ship dangerous goods by air. Frequently, these shippers will offer hazardous materials in the same manner received when the initial mode of transport may have been surface transport.

Shipments of undeclared or improperly prepared hazardous materials, particularly in the air mode, pose a significant safety threat. Improper packing and handling of these shipments could result in a release or a failure to communicate the inherent hazard or risk of the materials to emergency responders and transportation workers. Improperly packaged batteries, electrical devices, and articles such as lighters which contain ignition devices can serve as a source of fire if damaged during handling and transport. The issue of undeclared dangerous goods has received significant attention in recent years. The actual number of undeclared hazardous materials shipments is not known but when reported is generally related to an incident or accident in air transport.

In addition, operator and freight forwarder personnel, particularly those accepting general cargo (non-hazardous materials) are trained to be alert for undeclared or "hidden" hazardous materials. Consignments of packages marked with key words such as "lithium batteries," "chemicals," and the like, or with certain markings and labels may be challenged by carriers or freight forwarders and acceptance delayed, while the shipper verifies that the goods are not regulated. Infrequent consignors and those that have not received appropriate training must still be aware of the applicable requirements. The air acceptance process is based on a system of checks and balances that ensures that hazardous materials are properly prepared in accordance with the ICAO TI and in full compliance with all applicable safety requirements. When hazardous materials are offered for transportation in compliance with all applicable requirements, the risk in transport is significantly reduced. To enable air carriers to ascertain that a shipment conforms to applicable requirements, in this NPRM, for transportation by aircraft, we are proposing a number of amendments consistent with recently adopted amendments in the ICAO TI. Specifically we are proposing to require the consignor to include on the "air waybill" an indication that a hazardous material or article has met the applicable conditions for transport. This indication will allow freight forwarders and operators to verify that the

consignor is aware of, and has complied with, the applicable regulatory requirements. Additionally, it will reduce the likelihood of unnecessary carrier delays by improving communication.

Section 173.196

Section 173.196 establishes packaging requirements for Category A infectious substances. In this NPRM, we are proposing to revise paragraphs (a)(1) and (a)(2) by replacing the word "watertight" with "leakproof." These proposed revisions are consistent with international regulations. No substantive changes to the packaging requirements are intended by this wording change.

Section 173.206

In this rulemaking, we are proposing to add a new packaging section (§ 173.206) to the HMR to harmonize with new packaging requirements for water-reactive chlorosilanes adopted in the Fifteenth revised edition of the UN Recommendations. The enhanced packaging requirements more adequately address the water-reactive properties of these materials. We are also evaluating whether packaging for other water-reactive materials should also be enhanced. Depending on the outcome of our evaluation, we may propose further amendments to the UN Recommendations and the HMR. In the meantime, the entries affected by the proposed addition of new packaging § 173.206 are as follows:

UN1724	Allyltrichlorosilane, stabilized
UN1728	Amyltrichlorosilane
UN1747	Butyltrichlorosilane
UN1753	Chlorophenyltrichlorosilane
UN2986	Chlorosilanes, corrosive, flammable, n.o.s.
UN2987	Chlorosilanes, corrosive, n.o.s.
UN2985	Chlorosilanes, flammable, corrosive, n.o.s.
UN3362	Chlorosilanes, toxic, corrosive, flammable, n.o.s.
UN3361	Chlorosilanes, toxic, corrosive, n.o.s.
UN1762	Cyclohexenyltrichlorosilane
UN1763	Cyclohexyltrichlorosilane
UN2434	Dibenzyltrichlorosilane
UN1766	Dichlorophenyltrichlorosilane
UN1767	Diethyltrichlorosilane
UN1162	Dimethyltrichlorosilane
UN1769	Diphenyltrichlorosilane
UN1771	Dodecyltrichlorosilane
UN2435	Ethylphenyltrichlorosilane
UN1196	Ethyltrichlorosilane
UN1781	Hexadecyltrichlorosilane
UN1784	Hexyltrichlorosilane
UN2437	Methylphenyltrichlorosilane
UN1250	Methyltrichlorosilane
UN1799	Nonyltrichlorosilane
UN1800	Octadecyltrichlorosilane
UN1801	Octyltrichlorosilane
UN1804	Phenyltrichlorosilane
UN1816	Propyltrichlorosilane

UN1298 Trimethylchlorosilane
UN1305 Vinyltrichlorosilane, stabilized

Section 173.222

Section 173.222 specifies the requirements for dangerous goods in machinery or apparatus. Paragraph (c) of this section specifies the total net quantity limits contained in one item of machinery or apparatus. Consistent with the ICAO TI, we are proposing to prohibit Division 2.2 gases with subsidiary risks and refrigerated liquefied gases for transportation by aircraft as dangerous goods in machinery or apparatus.

Section 173.225

Section 173.225 specifies packaging requirements and other provisions for organic peroxides. When the § 172.101 table specifies this section, the organic peroxide must be packaged and offered for transportation in accordance with the provisions of this section. Each packaging must also conform to the general requirements of Subpart B of Part 173 and to the applicable requirements of Part 178 of the HMR. Specifically, organic peroxides that require temperature control are subject to § 173.21(f). When an IBC or bulk packaging is authorized and meets the requirements of paragraph (f) or (h) of § 173.225, respectively, lower control temperatures than those specified for non-bulk packaging may be required. An organic peroxide not identified in paragraph (c), (e), or (g) of § 173.225 by technical name, or not assigned to a generic type in accordance with paragraph (b)(3) of this section, must conform to the requirements in paragraph (c) of § 173.128.

The Organic Peroxides Table specifies by technical name those organic peroxides that are authorized for transportation and not subject to the approval provisions of § 173.128. An organic peroxide identified by technical name is authorized for transportation only if it conforms to all applicable provisions of the table. In this NPRM, we are proposing to amend the Organic Peroxides Tables by adding new entries, revising current entries, and adding new Notes “29,” “30,” and “31” following the Organic Peroxides Table. New Note “29” would indicate that specific entries are not subject to the requirements of this subchapter for Division 5.2. New Notes “30” and “31” would indicate that for specific entries, organic peroxides with a boiling point greater than 130 °C (266 °F) or available oxygen less than or equal to 6.7% are acceptable. We are also proposing to add new entries to the Organic Peroxide

IBC Table in paragraph (e) of this section.

The following current entries in the Organic Peroxides Table would be amended:

UN3101 tert-Amyl peroxy-3,5,5-trimethylhexanoate
UN3117 Di-(2-ethylhexyl) peroxydicarbonate [as a stable dispersion in water]

The following entries would be added to the Organic Peroxides Table:

UN3119 tert-Amyl peroxyneodecanoate
UN3119 tert-Amyl peroxy-pivalate
UN3106 tert-Butyl peroxy 3,5,5-trimethylhexanoate
UN3115 Cumyl peroxyneodecanoate
Exempt Cyclohexanone peroxide(s)
UN3105 2,2-DI-(tert-amylperoxy)-butane
Exempt Dibenzoyl peroxide
UN3109 tert-Butyl peroxybenzoate
UN3103 1,1-DI-(tert-butylperoxy)-cyclohexane
UN3109 1,1-DI-(tert-Butylperoxy)-cyclohexane
UN3105 1,1-DI-(tert-butylperoxy)-cyclohexane + tert-butylperoxy-2-ethylhexanoate
Exempt Di-(2-tert-butylperoxyisopropyl) benzene(s)
UN3103 1,1-DI-(tert-butylperoxy)-3,3,5-trimethylcyclohexane
UN3118 DI-2,4-dichlorobenzoyl peroxide
Exempt Di-4-chlorobenzoyl peroxide
Exempt Dicumyl peroxide
UN3119 Di-(2-ethylhexyl) peroxydicarbonate [as a stable dispersion in water]
UN3119 Di-(2-neodecanoyl-peroxyisopropyl) benzene, as stable dispersion in water
UN3115 3-Hydroxy-1,1-dimethylbutyl peroxyneodecanoate
UN3117 3-Hydroxy-1,1-dimethylbutyl peroxyneodecanoate
UN3119 3-Hydroxy-1,1-dimethylbutyl peroxyneodecanoate [as a stable dispersion in water]
UN3109 Methyl isopropyl ketone peroxide(s)
UN3107 3,3,5,7,7-Pentamethyl-1,2,4-trioxepane

A new Note “30” would be added following the Organic Peroxides Table to read:

“Diluent type B with boiling point > 130 °C (266 °F).”

A new “Note “31” would be added following the Organic Peroxides Table to read:

“Active oxygen ≤ 6.7%.”

The following entries would be revised or added to the Organic Peroxide IBC Table as follows:

UN3109 tert-Butyl peroxybenzoate, not more than 32% in diluent type A
UN3109 1,1-DI-(tert-Butylperoxy)-cyclohexane, not more than 37% in diluent type A
UN3119 tert-Amyl peroxy-pivalate, not more than 32% in diluent type A
UN3119 tert-Butyl peroxyneodecanoate, not more than 52%, stable dispersion, in water

UN3119 Di-(2-neodecanoylperoxyisopropyl) benzene, not more than 42%, stable dispersion, in water
UN3119 3-Hydroxy-1,1-dimethylbutyl peroxy-neodecanoate, not more than 52%, stable dispersion, in water

In addition, in the Organic Peroxide Portable Tank Table, UN3119 “Di-(3,5,5-trimethyl-hexanoyl) peroxide, not more than 38% in diluent type A” would be revised, and UN3119 “tert-Amyl peroxyneodecanoate, not more than 47% in diluent type A” would be added as a new entry.

Section 173.226

Section 173.226 establishes non-bulk packaging requirements for Division 6.1 PG I, Hazard Zone A materials. In this NPRM, we are proposing to editorially revise paragraph (c) to enhance accuracy, reduce misunderstanding, and provide a more user-friendly format.

Section 173.230

Section 173.230 establishes provisions for the transportation of fuel cell cartridges containing flammable liquids. As portable electronic devices continue to evolve, developers of fuel cell technologies are considering various types of fuel sources to meet increasing power demands. In addition to the flammable liquid fuel cell cartridges currently addressed in the HMR, fuel cell technologies may employ a range of fuels, including hydrogen in a metal hydride, butane, borohydrides and formic acid. The fuels may be a gas such as hydrogen in a metal hydride or butane that meets the defining criteria for a Division 2.1 material; a solid borohydride (including formulations) that meets the defining criteria for a Division 4.3 material; or liquid or solid formulations that meet the defining criteria as a Class 8 material (e.g., sodium borohydride, or formic acid).

Provisions addressing these fuel cell technologies have already been adopted in the Fifteenth revised edition of the UN Recommendations, the ICAO TI and the IMDG Code. Additionally, we have received petitions from HMT Associates, L.L.C. (P-1517) and the U.S. Fuel Cell Council (P-1518) requesting that we align the HMR provisions for fuel cell systems and cartridges with international standards. Consistent with DOT’s strategic goals of ensuring safety while utilizing 21st century technology, we are proposing to add four new proper shipping names to the HMT to describe the range of fuel used in fuel cell cartridges: “Water-reactive substances,” UN3476; “Corrosive substances,” UN3477; “Liquefied flammable gas,” UN3478; and “Hydrogen in metal hydride,” UN3479.

This proposal will provide guidance for the safe transportation of fuel cells and will introduce a greater variety of technology into the global market place. The type of hazard would not be included in the proper shipping name but, instead, would be identified by the hazard class or division (e.g., 2.1; 3; etc.). Readers should note that liquefied flammable gases and hydrogen in a metal hydride are both Division 2.1 materials used in fuel cell cartridges. However, the provisions necessary for the safe transportation of these articles are quite different and therefore, it is necessary to distinguish them with separate shipping descriptions. In addition, because fuel cell cartridges may contain any number of hazardous materials, we also propose to revise § 173.230 to provide a comprehensive system to address the requirements for fuel cell cartridges containing various hazardous materials. Paragraph (a) of this section would outline requirements applicable to fuel cell cartridges containing any authorized fuel, while paragraphs (b), (c), and (d) would outline additional requirements unique to each fuel cell type. Further, paragraph (e) would provide a list of authorized packages and configurations, with paragraph (f) describing the additional requirements for the transportation of fuel cell cartridges by aircraft, including transport by passengers and crewmembers. Finally, paragraphs (g) and (h) would outline the limited quantity and consumer commodity provisions, respectively.

In addition, for consistency with the ICAO TI in regard to the transportation of fuel cell cartridges, in § 175.10, we propose to expand the types of fuel cell cartridges permitted in carry-on baggage by airline passengers and crew to include water-reactive substances and hydrogen in a metal hydride. Fuel cells permitted for transport by passengers and crew must continue to conform to certain rigorous performance criteria outlined in § 175.10.

Section 173.304(b)

Section 173.304(b) specifies additional requirements for liquefied compressed gases in UN pressure receptacles. In a final rule published on June 12, 2006, under Docket PHMSA-2005-17463 (HM-220E) entitled "UN Cylinders," (71 FR 33858), we adopted the filling limits for liquefied compressed gases and mixtures in UN pressure receptacles specified in the UN Recommendations. Based on a review of the P200 filling limits, we lowered the filling limits for ten gases and added a table under paragraph (c) in § 173.304b to specify the revised filling limits. The

UN Recommendations subsequently adopted these revised filling limits. Since there is no longer a need for the revised filling limits for liquefied compressed gases in the HMR, in this NPRM, we propose to remove paragraph (c) of § 173.304b in its entirety. Current paragraphs (d) and (e) would be re-designated accordingly.

Section 173.306

Section 173.306 establishes transportation requirements for limited quantities of compressed gases. The ICAO TI have incorporated provisions for the transportation of limited quantities of compressed gases in plastic aerosols to keep abreast with new technology and on the basis that plastic aerosols provide a level of safety equivalent to other authorized packagings. Although the HMR do not currently allow the transportation of these plastic aerosols by air, PHMSA has issued several Special Permits authorizing such transportation with certain restrictions, such as shipping paper, labeling, marking, and packaging requirements. We have reviewed these materials from a risk/safety perspective, and based on an equivalent level of safety determination established by the Special Permits, and a record of the safe transportation of plastic aerosols, we are proposing to adopt requirements for the construction and use of plastic aerosols within the HMR. We believe this proposed amendment will also enhance international harmonization and provide relief to the regulated community by reducing the need for Special Permits to transport these materials. A new aerosol specification "2S" is proposed for inclusion in § 173.306, with corresponding requirements as detailed in a new § 178.33b.

We are also proposing to revise paragraph (j) to require the consignor to include on an air waybill or other shipping documentation an indication that a hazardous material or article has met the applicable conditions for air transport. This indication will allow freight forwarders and operators to verify that the consignor is aware of, and has complied with, the applicable regulatory requirements.

Section 173.307

Section 173.307 specifies exceptions for compressed gases. The ICAO TI have Special provision (A69) excepting from regulation articles containing minimal amounts of gallium, mercury, or inert gas. Based on a review that indicated the special provision was not assigned appropriately among all inert gases, ICAO proposed to assign the special

provision to all the inert gases concerned. The HMR do not currently have a similar provision for inert gases, although the HMR have the same exception for articles containing gallium or mercury in §§ 173.162 and 173.164, respectively. Rather than adding a new special provision, we are proposing to add to this section a general exception for articles containing inert gas. This exception would specify that manufactured articles or apparatuses, each containing not more than 100 mg of inert gas and packaged so that the quantity of inert gas per package does not exceed 1 g, are not subject to the HMR.

Section 173.322

Section 173.322 establishes specific packaging requirements for ethyl chloride (UN1037). Recently, PHMSA became aware of an incident involving an aluminum compressed gas cylinder containing ethyl chloride. The investigation of this incident suggests the possibility that a reaction occurred within the aluminum cylinder as a result of the incompatibility between the ethyl chloride gas and the aluminum cylinder. The HMR currently prohibit the transportation of ethyl chloride in UN pressure receptacles constructed of aluminum alloy but have no such prohibition for specification cylinders. To address this occurrence, in this NPRM, we are proposing to prohibit the filling of specification cylinders made of aluminum alloy (e.g., DOT 3AL) with ethyl chloride.

Part 175

Section 175.10

Section 175.10 establishes exceptions for the transportation of certain hazardous materials by aircraft, including hazardous materials that may be carried by passengers, crewmembers, and air operators in checked or carry-on baggage. In this NPRM, we are proposing to revise the exception for dry ice in paragraph (a)(10) to clarify that dry ice carried in both carry-on and checked baggage is subject to the approval of the aircraft operator.

As noted under the discussion in § 173.230, we are also proposing to revise paragraph (a)(18) to expand the types of fuel cell cartridges permitted in carry-on baggage by airline passengers and crew. Fuel cells permitted for transport by passengers and crewmembers must continue to conform to the rigorous performance criteria outlined in § 175.10.

In addition, we are proposing to revise paragraph (a) and add a new paragraph (c) to specify that the

requirements to submit incident reports under §§ 171.15 and 171.16 of this subchapter apply to the air carrier.

Section 175.33

Section 175.33 establishes requirements for shipping papers and notification of pilot-in-command for hazardous materials transported by aircraft. We are proposing several amendments to strengthen and clarify these requirements, harmonize with international standards, and address a recommendation of the National Transportation Safety Board (NTSB) arising out of a 2006 incident.

On February 7, 2006, United Parcel Service Company (UPS) flight 1307, landed at its destination, Philadelphia International Airport, after a cargo smoke indication in the cockpit. The flight crewmembers evacuated the airplane upon landing and sustained minor injuries. The aircraft and most of the cargo, however, were destroyed. In its investigation of the incident, the NTSB determined that UPS personnel were able to retrieve the notice to captain (NOTOC), which contained information on the hazardous materials on board the airplane. However, NTSB also determined that personnel did not provide emergency responders with detailed information about the hazardous materials on board the airplane in a timely manner, and such a delay could have potentially created a safety hazard. As a result of its findings, NTSB recommended that PHMSA “require aircraft operators that transport hazardous materials to immediately provide consolidated and specific information about hazardous materials on board an aircraft, including proper shipping name, hazard class, quantity, number of packages, and location to on-scene emergency responders upon notification of an accident or incident.” (NTSB Recommendation A-07-106)

The HMR currently require aircraft operators to make available, upon request, to an authorized official of a Federal, State, or local government agency, including an emergency responder, at reasonable times and locations, the documents or information required by § 175.33, which include shipping papers and notification of pilot-in-command. However, aircraft operators are not required to provide hazardous materials information to emergency responders immediately upon notification of an accident or incident. We agree with NTSB that delays in the transmittal of information to emergency responders could delay timely and effective response to incidents. Under the Docket HM-206C NPRM published on March 25, 2003 (68

FR 14341), we stated that the “information” must be provided to an emergency responder with no undue delay.” Therefore, in this NPRM, we are proposing to revise paragraph (c)(4) of this section to require aircraft operators that transport hazardous materials to provide immediate and specific information about hazardous materials on board an aircraft, including proper shipping name, hazard class, quantity, number of packages, and location, to on-scene emergency responders in the event of an accident or incident.

In addition, for consistency with international regulations, in this NPRM, we are proposing to add a new paragraph (a)(11) to specify that for “Carbon dioxide, solid (dry ice),” UN1845, only the UN number, proper shipping name, class, total quantity, exact location aboard the aircraft, and the airport at which the package(s) is to be unloaded need be provided.

In response to a FedEx Express petition, [P-1490], we are also proposing to revise § 175.33(a)(1)(i) to remove the requirement that the type of package must be included on the notification of pilot-in-command.

Section 175.75

Section 175.75 specifies the requirements for quantity limitations and cargo locations for hazardous materials transported by aircraft. Paragraph (d) requires that each package containing a hazardous material acceptable only for cargo aircraft must be loaded in such a manner that a crew member or other authorized person can access, handle and when size and weight permit, separate such packages from other cargo during flight. To increase flexibility in these stowage requirements, we believe we can expand this requirement to allow for the stowage of these materials in inaccessible cargo compartments without decreasing the current level of safety, provided the compartment has an FAA-approved fire or smoke detection system and a fire-suppression system. Therefore, in this NPRM, we are proposing to revise paragraph (d) to provide an alternative that a package containing a hazardous material acceptable only for cargo aircraft may be loaded in an inaccessible cargo compartment provided the compartment has an FAA-approved fire or smoke detection system and a fire-suppression system. Accordingly, we would also revise paragraph (d) to provide for a more user-friendly format.

Section 175.88

Section 175.88 specifies the requirements for the inspection,

orientation and securing of packages of hazardous materials transported by aircraft. We are proposing to revise paragraph (c) to specify that packages of hazardous materials must be secured at all times in an aircraft in a manner that will prevent shifting or prevent a change in the position of the packages in the cargo compartment.

Part 176

Section 176.2

Section 176.2 establishes definitions specific to the transportation of hazardous materials by vessel. In this NPRM, we are proposing to editorially revise the definition for “Commandant” to update a routing designation.

Section 176.3

Section 176.3 establishes requirements for shipments of hazardous materials that are unacceptable for transportation by vessel, and requires compliance with parts 172 and 173 of the HMR. In this NPRM, we are proposing to specify that compliance with part 171 is also required.

Section 176.84

Section 176.84 establishes requirements for stowage and segregation for cargo vessels and passenger vessels. Consistent with proposed revisions for certain materials in the HMT, we are proposing to remove stowage codes “134,” “139,” and “140,” and add a new stowage code “145.” Stowage code 140 is assigned to “Aluminum alkyl halides, liquid,” UN3052, and “Aluminum alkyl halides, solid,” UN3461. Both of these shipping descriptions are proposed to be removed consistent with the adoption of appropriate generic organometallic entries. Stowage code “139” provides instruction to “stow ‘separated from’ mercury salts.” The provision is a duplicate of stowage code “70,” and both codes are assigned to the entry “1,4-Butynediol,” UN2716. Additionally, stowage code “139” is only assigned to this specific entry. Therefore, we are proposing to remove stowage code “139.” Stowage code “140” provides instruction to “stow ‘separated from’ UN3052 and UN3461,” which are identification numbers for aluminum alkyl halides in liquid and solid form, respectively. These entries are proposed to be removed in this rule. Consistent with the removal of these UN numbers from the hazardous materials table we are proposing to remove stowage code “140.” Stowage code “145” provides instruction to “stow ‘separated from’ ammonium compounds

except for UN1444." The stowage code is assigned to "Potassium persulfate," UN1492, and "Sodium persulfate," UN1505. These materials may form explosive mixtures with ammonium compounds; however, they do not react dangerously or form explosive mixtures when in contact with "Ammonium persulfate," UN1444. Finally, in order to fully align the HMR with the IMDG Code, a new vessel stowage code "146" is added to specify that, "Category B stowage applies for unit loads in open cargo transport units." The new vessel stowage code "146" is assigned to "Batteries, wet, filled with acid, *electric storage*," UN2794 and "Batteries, wet, filled with alkali, *electric storage*," UN2795 in column (10B) of the HMT.

Section 176.172

Section 176.172 establishes the structural serviceability requirements for freight containers and vehicles carrying Class 1 (explosive) materials on vessels. The IMDG Code, as recently amended, establishes similar requirements; however, unlike the HMR, the IMDG requirements expressly except containers carrying Division 1.4 explosives. Under the HMR, as provided in § 176.172(c), Division 1.4 explosive materials need not be accompanied by a statement certifying that the freight container is structurally serviceable. However, this certification exception does not explicitly except freight containers carrying Division 1.4 explosives from the underlying serviceability requirements. Because Division 1.4 explosives pose a minimal explosive risk, the structural serviceability requirements, like an accompanying certification, become correspondingly less valuable as a safety control. Therefore, in this rulemaking, we propose to amend paragraph (a) of this section to be consistent with the requirements of the IMDG Code, by excluding freight containers containing Division 1.4 explosive materials from the serviceability requirements.

Part 178

Section 178.33b

As noted in the discussion under § 173.306, we are proposing to add a new section that defines the design, construction, and testing requirements for plastic aerosols. Specifically, we are proposing to add a new § 178.33b to specify packaging; compliance; type and size; inspection; duties of an inspector; material; manufacture; design qualification; production, and leak testing; and marking requirements for plastic aerosols.

Section 178.502

Section 178.502 establishes the identification codes for marking packagings to certify conformance with UN performance standards. We propose to include a note at the end of this section to indicate that plastic materials include other polymeric materials such as rubber and, thus, the code used to designate plastic packagings may also be used for packagings constructed of other polymeric materials.

Section 178.703

Section 178.703 establishes marking requirements for IBCs. We propose to include an additional marking requirement to specify the maximum permitted stacking load applicable when an IBC is in use, with a transition date until January 1, 2011. The symbol must be not less than 100 mm (3.9 inches) × 100 mm (3.9 inches), and must be durable and clearly visible. The letters and numbers must be at least 12 mm high (.48 inches). The mass marked above the symbol must not exceed the load imposed during the design test divided by 1.8.

Section 178.801

Section 178.801 establishes general requirements for the testing of IBCs. For clarification, in this NPRM, we propose to add a sentence to paragraph (f) to specify that the IBC must be fitted with the primary bottom closure during production testing and inspection.

Section 178.810

Section 178.810 establishes the requirements for a drop test conducted for the qualification of all IBC design types. In this NPRM, we propose to revise the criteria in paragraph (e) for passing the drop test to specify that no damage is permitted which renders the IBC unsafe to be transported for salvage or for disposal, or results in a loss of contents. In addition, we are revising this paragraph to specify that the IBC must be capable of being lifted by an appropriate means until clear of the floor for five minutes.

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, as discussed in detail above, the proposed rule amends the HMR to more fully align them with the biennial updates of the UN Recommendations, the IMDG Code and the ICAO TI; this will facilitate the transport of hazardous materials in international commerce.

Harmonization serves to facilitate international transportation; 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 public. Thus, as explained in the corresponding sections above, we are not proposing harmonization with certain specific provisions of the UN Recommendations, 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.

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, the rule proposes to incorporate changes into the HMR based on the Fifteenth revised edition of the UN Recommendations, Amendment 34 to the IMDG Code, and the 2009–2010 ICAO TI, which become effective January 1, 2009. The continually increasing amount of hazardous materials transported in international commerce warrants the harmonization of domestic and international

requirements to the greatest extent possible.

B. Executive Order 12866 and DOT Regulatory Policies and Procedures

This proposed rule is not considered a significant regulatory action under section 3(f) of Executive Order 12866 and, therefore, was not reviewed by the Office of Management and Budget. The proposed rule is not considered a significant rule under the Regulatory Policies and Procedures of the Department of Transportation [44 FR 11034]. This proposed rule applies to offerors and carriers of hazardous materials, such as chemical manufacturers, chemical users and suppliers, packaging manufacturers, distributors, battery manufacturers, radiopharmaceutical companies, and training companies. Benefits resulting from the adoption of the amendments in this proposed rule include enhanced transportation safety resulting from the consistency of domestic and international hazard communications and continued access to foreign markets by U.S. manufacturers of hazardous materials.

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.

We propose a one-year transition period to allow for training of employees and to ease any burden on entities affected by the amendments. The total net increase in costs to businesses in implementing the proposed rule is considered to be minimal. Initial start-up and inventory costs would result from these changes; however, the costs would be offset by greater long-term savings of conformance with one set of regulations and a one-year transition period. A regulatory evaluation is available for review in the public docket for this rulemaking.

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:

(1) The designation, description, and classification of hazardous material;

(2) The packing, repacking, handling, labeling, marking, and placarding of hazardous material;

(3) The preparation, execution, and use of shipping documents related to hazardous material and requirements related to the number, contents, and placement of those documents;

(4) The written notification, recording, and reporting of the unintentional release in transportation of hazardous material; and

(5) 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 covered subject items (1), (2), (3), (4) and (5) 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, 2009. 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 section 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 users and suppliers, packaging manufacturers, distributors, battery manufacturers, 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 final rule will relieve U.S. companies, including small entities competing in foreign markets, from the burden of complying with a dual system of regulations. Therefore, I 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

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 collection and recordkeeping requests. There are no new information collection requirements in this notice of proposed rulemaking.

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 \$132 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 Counsel on Environmental Quality (CEQ) regulations order 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).

1. Purpose and Need

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 the Hazardous Materials Regulations with recent changes to the International Maritime Dangerous Goods Code, the International Civil Aviation Organization's Technical Instructions for the Transport of Dangerous Goods by Air, and the United Nations Recommendations on the Transport of Dangerous Goods. The amendments are intended to enhance the safety 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 effective emergency response in the event of a hazardous materials incident.

The HMR regulate materials that meet the definition of a marine pollutant in all modes of transportation. The intended effect is to increase the level of safety associated with the transportation of substances hazardous to the marine environment by way of improved communication of their presence in transportation and establishing appropriate requirements for their packaging. The HMR uses a list based system designed to help shippers determine if a material meets the definition of a marine pollutant. Recently, the IMO adopted a criteria based system for identification of materials hazardous to the marine environment based on the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

2. Alternatives

In developing this proposed rule, we considered three alternatives:

- (1) Do nothing.
- (2) Adopt the international standards in their entirety.
- (3) Adopt most of the international standards, with certain modifications based on safety or economic considerations.

Alternative 1:

Because our goal is to facilitate uniformity, compliance, commerce and safety in the transportation of hazardous materials, we rejected this alternative.

Alternative 2:

Under this alternative, we would adopt the classification criteria for marine pollutants in the IMDG Code consistent with the aquatic toxicity criteria adopted within the GHS. However, the new classification system adopted into the IMDG Code is complicated and the associated criteria for classifying mixtures containing marine pollutants would involve an additional layer of complexity without a corresponding public benefit. Therefore, we are not proposing to require the use of the new IMDG Code environmental classification system.

Alternative 3:

Consistency between U.S. and international regulations helps to assure the safety 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 effective emergency response in the event of a hazardous materials incident. Under

Alternative 3, we would harmonize the HMR with international standards to the extent consistent with U.S. safety and economic goals. As indicated above, we would not adopt provisions that, in our view, do not provide an adequate safety level. Further, we would provide for exceptions and extended compliance periods to minimize the potential economic impact of any revisions on the regulated community.

Under this alternative, we would maintain the current marine pollutant criteria and list while permitting the use of the GHS Criteria. If a material not listed as a marine pollutant in the HMR meets the definition of a marine pollutant in accordance with the GHS, that material may be transported as a marine pollutant in accordance with the applicable regulations. Alternative 3 is the only alternative that addresses, in all respects, the purpose of this regulatory action, which is to facilitate the safe and efficient transportation of hazardous materials in international commerce. These actions will provide the greatest possible harmonization with international requirements without posing an undue increased cost burden on industry. For these reasons, alternative 3 is our recommended alternative.

3. Analysis of Environmental Impacts

Hazardous materials are transported by aircraft, vessel, rail, and highway. The potential for environmental damage or contamination exists when packages of hazardous materials are involved in accidents or en route incidents resulting from cargo shifts, valve failures, package failures, or loading, unloading, or handling problems. The ecosystems that could be affected by a release include air, water, soil, and ecological resources (for example, wildlife habitats). The adverse environmental impacts associated with releases of most hazardous materials are short-term impacts that can be greatly reduced or eliminated through prompt clean-up of the accident scene. Most hazardous materials are not transported in quantities sufficient to cause significant, long-term environmental damage if they are released.

The hazardous material regulatory system is a risk-management system that is prevention-oriented and focused on identifying hazards and reducing the probability and quantity of a hazardous material release. Amending the Hazardous Materials Regulations to maintain alignment with international standards enhances the safe transportation of hazardous materials in domestic and international commerce. When considering the adoption of

international standards under the HMR, we review and consider each amendment on its own merit and assess their impact on transportation safety and the environment.

Alternative 1 would maintain the current marine pollutant classification system without change. We do not believe this would result in any significant impacts on the environment. Alternative 2 may result in a significant environmental impact if a material listed in the current marine pollutant list does not meet the GHS criteria. The recommended alternative 3 maintains the marine pollutant criteria and allows the voluntary use of the GHS criteria adopted by the IMDG Code. When a material meets the criteria under the GHS criteria but not the HMR, the material may still be transported under the applicable requirements for a marine pollutant. This would communicate the presence of an environmentally hazardous material consistent with the IMDG Code. Conversely, if a listed marine pollutant does not meet the GHS criteria, the material must be transported as a marine pollutant under the HMR unless approved by the Associate Administrator. The recommended alternative 3 would not result in any significant impact on the environment.

4. Consultations and Public Comment

On June 22, 2005, November 16, 2005, June 21, 2006, and November 29, 2006, PHMSA hosted public meetings with public and private stakeholders to discuss draft U.S. positions on the United Nations' Sub-Committee of Experts on the Transport of Dangerous Goods (UNSCOE) proposals for the Fifteenth revised edition of the UN Recommendations on the Transport of Dangerous Goods Model Regulations. In addition, PHMSA and the U.S. Coast Guard hosted a public meeting on August 29, 2006, and hosted a second meeting on September 6, 2007, to discuss amendments to the IMDG Code. A public meeting was held in October 2007 to discuss amendments to the ICAO TI. During these public meetings, U.S. positions on proposed amendments to the UN Recommendations were considered and discussed. Positions were established based on input received during these meetings in conjunction with internal review, including thorough technical review.

We have identified a number of immediate and long-term actions that participants in the international community are taking or will take to enhance the safe transportation of hazardous materials. Through this integrated and cooperative approach, we

believe we can be most successful in reducing incidents, enhancing safety, and protecting the public. We expect to receive comments from other agencies and affected members of the regulated and international communities during the comment period.

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. International Trade Analysis

The Trade Agreements Act of 1979 (Pub. L. 96–39), as amended by the Uruguay Round Agreements Act (Pub. L. 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 in order to protect the safety of the American public, and we have assessed the effects of the proposed rule to ensure that it does not exclude imports that meet this objective. Accordingly, this rulemaking is consistent with 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

Hazardous materials transportation, Incorporation by reference, Maritime carriers, 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.

In consideration of the foregoing, 49 CFR Chapter I is proposed to be amended as follows:

PART 171—GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS

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

Authority: 49 U.S.C. 5101–5128, 44701; 49 CFR 1.45 and 1.53; Pub. L. 101–410 section 4 (28 U.S.C. 2461 note); Pub. L. 104–134 section 31001.

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

a. Under the entry “International Civil Aviation Organization (ICAO),” the entry “Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Technical Instructions), 2007–2008 Edition” is revised;

b. Under the entry “International Maritime Organization (IMO)” the entries “International Maritime Dangerous Goods Code (IMDG Code), 2006 Edition, Incorporating Amendment 33–06 (English Edition), Volumes 1 and 2,” and “International Convention for the Safety of Life at Sea (SOLAS) Amendments 2000, Chapter II–2, Regulation 19, 2001” are revised;

c. Under the entry “International Organization for Standardization,” the entries “ISO 10156:1996, Gases and Gas Mixtures—Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets, Second edition, May 2005 (E)” and “ISO 10156–2:2005, Gas cylinders—Gases and gas mixtures—Part 2: Determination of oxidizing ability of toxic and corrosive gases and gas mixtures, First

edition, August 2005, (E)” are added in appropriate numerical order; and
 d. Under the entry “United Nations,” the entry “UN Recommendations on the Transport of Dangerous Goods,

Fourteenth revised edition (2005), Volumes I and II” is revised.
 The addition and revisions read as follows:

§ 171.7 Reference material.

(a) * * *

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

Source and name of material	49 CFR reference
<i>International Civil Aviation Organization (ICAO).</i>	
Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Technical Instructions), 2009–2010 Edition. <i>International Maritime Organization (IMO).</i>	171.8; 171.22; 171.23; 171.24; 172.202; 172.401; 172.512; 172.602; 173.56; 173.320; 175.33; 178.3.
International Convention for the Safety of Life at Sea (SOLAS), Amendments 2002, Chapter II–2/Regulation 19, 2004.	176.63, 176.84.
International Maritime Dangerous Goods Code (IMDG Code), 2008 Edition, Incorporating Amendment 34–08 (English Edition), Volumes 1 and 2.	171.22; 171.23; 171.25; 172.101 Appendix B; 172.202; 172.401; 172.502; 172.602; 173.21; 173.56; 176.2; 176.5; 176.11; 176.27; 176.30; 176.84; 178.3.
<i>International Organization for Standardization.</i>	
ISO 10156:1996, Gases and Gas Mixtures— Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets, Second edition, May 2005 (E).	173.115.
ISO 10156–2:2005, Gas cylinders—Gases and gas mixtures— Part 2: Determination of oxidizing ability of toxic and corrosive gases and gas mixtures, First edition, August 2005, (E).	173.115.
<i>United Nations.</i>	
UN Recommendations on the Transport of Dangerous Goods, Fifteenth revised edition (2007). Volumes I and II.	171.12; 171.22; 171.23; 172.202; 172.401; 172.502; 173.22; 173.24; 173.24b; 173.40; 173.56; 173.192; 173.197; 173.302b; 173.304b; 178.75; 178.274; 178.801.

3. In § 171.14, paragraphs (d) introductory text, (d)(1) and (d)(2) introductory text are revised to read as follows:

§ 171.14 Transitional provisions for implementing certain requirements.

* * * * *

(d) A final rule published in the **Federal Register** on [PUBLICATION DATE OF FINAL RULE], effective January 1, 2009, resulted in revisions to this subchapter.

During the transition period, until January 1, 2010, as provided in paragraph (d)(1) of this section, a person may elect to comply with either the applicable requirements of this subchapter in effect on December 31, 2008, or the requirements published in the [PUBLICATION DATE OF FINAL RULE] final rule.

(1) *Transition dates.* The effective date of the final rule published on [PUBLICATION DATE OF FINAL RULE] is January 1, 2009. A delayed

compliance date of January 1, 2010, is authorized. Unless otherwise specified, on and after January 1, 2010, all applicable regulatory requirements adopted in the final rule in effect on January 1, 2009, must be met.

(2) *Intermixing old and new requirements.* Marking, labeling, placarding, and shipping paper descriptions must conform to either the old requirements of this subchapter in effect on December 31, 2008, or the new requirements of this subchapter in the final rule [PUBLICATION DATE OF FINAL RULE] without intermixing communication elements, except that intermixing is permitted during the applicable transition period for packaging, hazard communication and handling provisions, as follows:

* * * * *

4. In § 171.15, paragraphs (b)(4) and (b)(5) are revised and a new paragraph (b)(6) is added to read as follows:

§ 171.15 Immediate notice of certain hazardous materials incidents.

* * * * *

(b) * * *

(4) A release of a marine pollutant occurs in a quantity exceeding 450 L (119 gallons) for a liquid or 400 kg (882 pounds) for a solid;

(5) A situation exists of such a nature (e.g., a continuing danger to life exists at the scene of the incident) that, in the judgment of the person in possession of the hazardous material, it should be reported to the NRC even though it does not meet the criteria of paragraph (b)(1), (2), (3) or (4) of this section; or

(6) A fire, violent rupture, explosion or a dangerous evolution of heat occurs involving electrical devices, such as batteries or battery-powered devices.

* * * * *

5. In § 171.16, paragraph (a)(2) is revised to read as follows:

§ 171.16 Detailed hazardous materials incident reports.

(a) * * *

(2) An unintentional release of hazardous material or the discharge of any quantity of hazardous waste. For incidents involving batteries or battery-powered devices, this includes those incidents resulting in the production of smoke, sparks, or dangerous evolution of heat;

* * * * *

6. In § 171.25, new paragraph (c)(5) is added to read as follows:

§ 171.25 Additional requirements for the use of IMDG Code.

* * * * *

(c) * * *

(5) Portable tanks, cargo tanks, and tank cars containing cryogenic liquids must be stowed “on deck” regardless of the stowage authorized in the IMDG Code. Cargo tanks or tank cars containing cryogenic liquids may be stowed one deck below the weather deck when transported on a trailership or trainship that is unable to provide “on deck” stowage because of the vessel’s design. Tank cars must be Class DOT-113 or AAR-204W tank cars.

* * * * *

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

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

Authority: 49 U.S.C. 5101–5128; 44701; 49 CFR 1.53.

8. In § 172.101, in the Hazardous Materials Table, in Column (7), remove “TP12” each place it appears.

9. In § 172.101, the Hazardous Materials Table is amended by removing, adding and revising entries, in the appropriate alphabetical sequence, to read as follows:

§ 172.101—HAZARDOUS MATERIALS TABLE

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or division	Identification numbers	PG	Label codes	Special provisions (§ 172.102)	(8) Packaging (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage	
							Exceptions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo aircraft only	Location	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	[REMOVE].												
	Aluminum alkyl halides, liquid.	* 4.2	* UN3052 ...	I	* 4.2, 4.3	* 173, B9, B11, T21, TP2, TP7.	* None	* 181	* 244	* Forbidden	Forbidden	D	134
	Aluminum alkyl halides, solid.	4.2	UN3461 ...	I	4.2, 4.3	173, T21, TP7.	None	181	244	Forbidden	Forbidden	D	134
	Aluminum alkyl hydrides	4.2	UN3076 ...	I	4.2, 4.3	173, B9, B11, T21, TP2, TP7.	None	181	244	Forbidden	Forbidden	D.	
	Aluminum alkyls	4.2	UN3051 ...	I	4.2, 4.3	173, B9, B11, T21, TP2, TP7.	None	181	244	Forbidden	Forbidden	D.	
	Batteries, dry, not subject to the requirements of this subchapter.	*	*		* 130.	*	*	*	*	*			
+	Chloronitrobenzene, liquid ortho.	* 6.1	* UN3409 ...	II	* 6.1	* IB2, T7, TP2.	* 153	* 202	* 243	* 5 L	60 L	A.	
+	Chloronitrobenzenes, solid meta or para.	6.1	UN1578 ...	II	6.1	IB8, IP2, IP4, T3, TP33.	153	212	242	25 kg	100 kg	A.	
	Chlorosilanes, toxic, corrosive, n.o.s.	* 6.1	* UN3361 ...	II	* 6.1, 8	* IB1, T11, TP2, TP13.	* None	* 202	* 243	* 1 L	30 L	C	40
	Chlorosilanes, toxic, corrosive, flammable, n.o.s.	6.1	UN3362 ...	II	6.1, 3, 8	IB1, T11, TP2, TP13.	None	202	243	1 L	30 L	C	40, 125
	Diethylzinc	* 4.2	* UN1366 ...	I	* 4.2, 4.3	* 173, B11, T21, TP2, TP7.	* None	* 181	* 244	* Forbidden	Forbidden	D	18
	Dimethylzinc	* 4.2	* UN1370 ...	I	* 4.2, 4.3	* 173, B11, B16, T21, TP2, TP7.	* None	* 181	* 244	* Forbidden	Forbidden	D	18
	Fuel cell cartridges containing flammable liquids.	* 3	* UN3473 ...	II	* 3	*	* 150	* 230	* None	* 5 L	60 L	A.	

Hydrogen in a metal hydride storage system.	*	2.1	UN3468	...	*	2.1	.....	*	167	.....	*	None	.....	*	214	.....	*	None	.....	*	Forbidden	.....	*	100 kg gross.	D.
Hypochlorite solutions	*	8	UN1791	...	II	.....	*	8	.....	A7, B2, B15, IB2, IP5, N34, T7, TP2, TP24.	*	154	.....	*	202	.....	*	242	.....	*	1 L	.....	*	30 L	B
Lithium alkyls, liquid	*	4.2	UN2445	...	I	.....	*	4.2, 4.3	.....	173, B11, T21, TP2, TP7.	*	None	.....	*	181	.....	*	244	.....	*	Forbidden	.....	*	Forbidden	D.
Lithium alkyls, solid	*	4.2	UN3433	...	I	.....	*	4.2, 4.3	.....	173, B11, T21, TP7, TP33.	*	None	.....	*	181	.....	*	244	.....	*	Forbidden	.....	*	Forbidden	D.
Magnesium alkyls	*	4.2	UN3053	...	I	.....	*	4.2, 4.3	.....	B11, T21, TP2, TP7.	*	None	.....	*	181	.....	*	244	.....	*	Forbidden	.....	*	Forbidden	D
Magnesium diphenyl	*	4.2	UN2005	...	I	.....	*	4.2	.....	173, T21, TP7, TP33.	*	None	.....	*	187	.....	*	244	.....	*	Forbidden	.....	*	Forbidden	C.
Nitric acid other than red fuming, with not more than 70 percent nitric acid.	*	8	UN2031	...	II	.....	*	8	.....	A6, B2, B47, B53, IB2, T8, TP2, TP12.	*	None	.....	*	158	.....	*	242	.....	*	Forbidden	.....	*	30 L	D
Pentaerythrite tetranitrate mixture, desensitized, solid, n.o.s. with more than 10 percent but not more than 20 percent PETN, by mass.	*	4.1	UN3344	...	II	.....	*	4.1	.....	118, N85 ...	*	None	.....	*	214	.....	*	None	.....	*	Forbidden	.....	*	Forbidden	E.
Trinitrophenol, wetted with not less than 30 percent water, by mass.	*	4.1	UN1344	...	I	.....	*	4.1	.....	23, A8, A19, N41.	*	None	.....	*	211	.....	*	None	.....	*	1 kg	.....	*	15 kg	E
Trinitrotoluene, wetted with not less than 30 percent water, by mass.	*	4.1	UN1356	...	I	.....	*	4.1	.....	23, A2, A8, A19, N41.	*	None	.....	*	211	.....	*	None	.....	*	0.5 kg	.....	*	0.5 kg	E
Xenon	*	2.2	UN2036	...	.....	.....	*	2.2	.....	.....	*	306	.....	*	302	.....	*	None	.....	*	75 kg	.....	*	150 kg	A.
[ADD].	*	.....	.....	.....	.....	.....	*	.....	.....	.....	*	.....	.....	*	.....	.....	*	.....	.....	*	.....	.....	*	.....	.....
Batteries, dry, sealed, n.o.s.	*	.....	.....	.....	.....	.....	*	.....	.....	130.	*	.....	.....	*	.....	.....	*	.....	.....	*	.....	.....	*	.....	.....

§ 172.101—HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or division	Identification numbers	PG	Label codes	Special provisions (§ 172.102)	(8) Packaging provisions (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage	
							Exceptions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo aircraft only	Location	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
+	Chloronitrobenzenes, liquid.	* 6.1	UN3409 ...	II	* 6.1	* IB2, T7, TP2.	153	202	243	5 L	60 L	A.	
+	Chloronitrobenzenes, solid.	6.1	UN1578 ...	II	6.1	IB8, IP2, IP4, T3, TP33.	153	212	242	25 kg	100 kg	A.	
	Chlorosilanes, corrosive, flammable, n.o.s.	* 8	UN2986 ...	II	* 8, 3	* T14, TP2, TP7, TP13, TP27.	None	206	243	1 L	30 L	C	40
	Chlorosilanes, toxic, corrosive, flammable, n.o.s.	* 6.1	UN3362 ...	II	* 6.1, 3, 8	* T14, TP2, TP7, TP13, TP27.	None	206	243	1 L	30 L	C	40, 125
	Chlorosilanes, toxic, corrosive, n.o.s.	6.1	UN3361 ...	II	6.1, 8	T14, TP2, TP7, TP13, TP27.	None	206	243	1 L	30 L	C	40
	Fuel cell cartridges or Fuel cell cartridges contained in equipment or Fuel cell cartridges packed with equipment, containing corrosive substances.	* 8	UN3477 ...		* 8	*	230	230	230	5 kg	50 kg	A.	
	Fuel cell cartridges or Fuel cell cartridges contained in equipment or Fuel cell cartridges packed with equipment, containing flammable liquids.	3	UN3473 ...		3	.....	230	230	230	5 kg	50 kg	A.	
	Fuel cell cartridges or Fuel cell cartridges contained in equipment or Fuel cell cartridges packed with equipment, containing hydrogen in metal hydride.	2.1	UN3479 ...		2.1	.....	230	230	230	1 kg	15 kg	B.	

Fuel cell cartridges or Fuel cell cartridges contained in equipment or Fuel cell cartridges packed with equipment, containing liquefied flammable gas.	2.1 UN3478 ...	2.1	230	230	230	1 kg	15 kg	B.
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	230	230	230	5 kg	50 kg	A.
Hydrogen in a metal hydride storage system or Hydrogen in a metal hydride storage system contained in equipment or Hydrogen in a metal hydride storage system packed with equipment.	2.1 UN3468 ...	2.1	167	214	230	Forbidden	100 kg gross.	40
1-Hydroxybenzotriazole, anhydrous, dry or wetted with less than 20 percent water, by mass.	1.3C UN0508 ...	1.3C		62		Forbidden	Forbidden	10.
1-Hydroxybenzotriazole, anhydrous, wetted, with not less than 20 percent water, by mass.	4.1 UN3474 ...	4.1	162, N80 ...	211		0.5 kg	0.5 kg	D 28, 36
Hypochlorite solutions	8 UN1791 ...	8	A7, B2, B15, IB2, IP5, N34, T7, TP2, TP24.	202	242	1 L	30 L	B 26
	III	8	IB3, N34, T4, TP2, TP24.	203	241	5 L	60 L	B 26
Nitric acid other than red fuming, with at least 65 percent, but not more than 70 percent nitric acid.	8 UN2031 ...	8	A6, B2, B47, B53, IB2, IP15, T8, TP2.	158	242	Forbidden	30 L	D 66, 74, 89, 90
Nitric acid, other than red fuming, with less than 65 percent nitric acid.	8 UN2031 ...	8	A6, B2, B47, B53, IB2, IP15, T8, TP2.	158	242	Forbidden	30 L	D 44, 66, 89, 90, 110, 111

§ 172.101—HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or division	Identification numbers	PG	Label codes	Special provisions (§ 172.102)	(8) Packaging provisions (§ 173.***)		(9) Quantity limitations		(10) Vessel stowage	
							Exceptions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo aircraft only	Location
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)
	Pentaerythritol tetranitrate mixture, desensitized, solid, n.o.s. or Pentaerythritol tetranitrate mixture, desensitized, solid, n.o.s. or PETN mixture, desensitized, solid, n.o.s., with more than 10 percent but not more than 20 percent PETN, by mass.	4.1	UN3344	II	4.1	118, N85	None	214	None	Forbidden	Forbidden	E.
D	Powder, smokeless	1.4C	UN0509		1.4C		None	62	None	Forbidden	Forbidden	A.
	Signals, distress, ship	1.4G	UN0505		1.4G		None	62	None	Forbidden	75 kg	06.
	Signals, distress, ship	1.4S	UN0506		1.4S		None	62	None	Forbidden	100 kg	05.
	Signals, smoke	1.4S	UN0507		1.4S		None	62	None	25 kg	100 kg	05.
	Trinitrophenol, wetted or Picric acid, wetted, with not less than 30 percent water by mass.	4.1	UN1344	I	4.1	23, A8, A19, N41.	None	211	None	1 kg	15 kg	E
	Trinitrotoluene, wetted or TNT, wetted, with not less than 30 percent water by mass.	4.1	UN1356	I	4.1	23, A2, A8, A19, N41.	None	211	None	0.5 kg	0.5 kg	E
	Xenon, compressed	2.2	UN2036		2.2		306, 307	302	None	75 kg	150 kg	A.
	[REVISE].											
	Allyltrichlorosilane, stabilized.	8	UN1724	II	8, 3	A7, B2, B6, N34, T10, TP2, TP7, TP13.	None	206	243	Forbidden	30 L	C

Amyltrichlorosilane	*	8	UN1728		II		*	8		A7, B2, B6, N34, T10, TP2, TP7, TP13.	*	None		*	206		*	242		Forbidden	30 L		C		40	
Argon, compressed	*	2.2	UN1006	....	.....	.....	*	2.2	.....	*	306, 307	...	*	302	.....	*	314, 315	...	75 kg	.....	150 kg	.....	A.			
Batteries, dry, containing potassium hydroxide solid, <i>electric storage</i> .	*	8	UN3028	....	III	.....	*	8	.....	237	.....	None	.....	*	213	.....	None	.....	25 kg gross	230 kg gross.	A	.....	52			
Batteries, wet, filled with acid, <i>electric storage</i> .		8	UN2794	....	III	.....		8	.....		159	.....		159	.....		159	.....	30 kg gross	No limit	A	.....	146			
Batteries, wet, filled with alkali, <i>electric storage</i> .		8	UN2795	....	III	.....		8	.....		159	.....		159	.....		159	.....	30 kg gross	No limit	A	.....	52, 146			
Batteries, wet, non-spillable, <i>electric storage</i> .		8	UN2800	....	III	.....		8	.....		159a	.....		159	.....		159	.....	No limit	No limit		.....				
Boron trifluoride	*	2.3	UN1008	....	.....	.....	*	2.3, 8	.....	2, B9, B14	.....	None	.....	*	302	.....	*	314, 315	...	Forbidden	Forbidden	D	.....	40		
Butyltrichlorosilane	*	8	UN1747		II		*	8, 3		A7, B2, B6, N34, T10, TP2, TP7, TP13.	*	None		*	206		*	243		Forbidden	30 L		C		40	
1,4-Butynediol	*	6.1	UN2716		III		*	6.1		A1, IB8, IP3, T1, TP33.		None		*	213		*	240		100 kg		200 kg		C		52, 53, 70
Calcium manganese sil- icon.	*	4.3	UN2844		III		*	4.3		A1, A19, IB8, IP4, T1, TP33.		151		*	213		*	241		25 kg		100 kg		A		52, 85, 103
Chlorine	*	2.3	UN1017	....	.....	.....	*	2.3, 5.1, 8	.....	2, B9, B14, N86, T50, TP19.	.....	None	.....	*	304	.....	*	314, 315	...	Forbidden	Forbidden	D	.....	40, 51, 55, 62, 68, 89, 90		
Chloroacetic acid, solid	*	6.1	UN1751		II		*	6.1, 8		A3, A7, IB8, IP2, IP4, N34, T3, TP33.		153		*	212		*	242		15 kg		50 kg		C		40
Chlorophenyltrichloro- silane.		8	UN1753		II			8		A7, B2, B6, N34, T10, TP2, TP7.		None			206			242		Forbidden	30 L		C		40	
Chlorosilanes, corrosive, n.o.s.	*	8	UN2987		II		*	8		B2, T14, TP2, TP7, TP13, TP27.		None		*	206		*	242		1 L		30 L		C		40

§ 172.101—HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or division	Identification numbers	PG	Label codes	Special provisions (§ 172.102)	(8) Packaging provisions (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage	
							Exceptions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo aircraft only	Location	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Chlorosilanes, flammable, corrosive, n.o.s.	3	UN2985 ...	II	3, 8	T14, TP2, TP7, TP13, TP27.	None	206	243	1 L	5 L	B	40
*	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	21, 28, 40, 49, 100
*	Chromium trioxide, anhydrous.	5.1	UN1463 ...	II	5.1, 6.1, 8	IB8, IP2, IP4, T3, TP33.	None	212	242	5 kg	25 kg	A.	
*	Cyclohexenyltrichlorosilane.	8	UN1762 ...	II	8	A7, B2, N34, T10, TP2, TP7, TP13.	None	206	242	Forbidden	30 L	C	40
*	Cyclohexyltrichlorosilane	8	UN1763 ...	II	8	A7, B2, N34, T10, TP2, TP7, TP13.	None	206	242	Forbidden	30 L	C	40
*	Dibenzylchlorosilane ...	8	UN2434 ...	II	8	B2, T10, TP2, TP7, TP13.	154	206	242	1 L	30 L	C	40
*	Dichloroisocyanuric acid, dry or Dichloroisocyanuric acid salts.	5.1	UN2465 ...	II	5.1	28, IB8, IP2, IP4, T3, TP33.	152	212	240	5 kg	25 kg	A	13
*	Dichlorophenyltrichlorosilane.	8	UN1766 ...	II	8	A7, B2, B6, N34, T10, TP2, TP7, TP13.	None	206	242	Forbidden	30 L	C	40

Diethyldichlorosilane	8	UN1767	...	II	...	8, 3	...	A7, B6, N34, T10, TP2, TP7, TP13.	None	206	243	...	Forbidden	30 L	...	C	40
Dimethyldichlorosilane	3	UN1162	...	II	...	3, 8	...	B77, T10, TP2, TP7, TP13.	None	206	243	...	Forbidden	Forbidden	B	...	40
Diphenyldichlorosilane	8	UN1769	...	II	...	8	...	A7, B2, N34, T10, TP2, TP7, TP13.	None	206	242	...	Forbidden	30 L	...	C	40
Dodecyltrichlorosilane	8	UN1771	...	II	...	8	...	A7, B2, B6, N34, T10, TP2, TP7, TP13.	None	206	242	...	Forbidden	30 L	...	C	40
Environmentally hazardous substance, liquid, n.o.s.	9	UN3082	...	III	...	9	...	8, 146, 335, IB3, T4, TP1, TP29.	155	203	241	...	No limit	No limit	...	A.	
Environmentally hazardous substance, solid, n.o.s.	9	UN3077	...	III	...	9	...	8, 146, 335, B54, IB8, IP3, N20, T1, TP33.	155	213	240	...	No limit	No limit	...	A.	
Ethyldichlorosilane	4.3	UN1183	...	I	...	4.3, 8, 3	...	A2, A3, A7, N34, T14, TP2, TP7, TP13.	None	201	244	...	Forbidden	1 L	...	D	21, 28, 40, 49, 100
Ethylphenyldichlorosilane	8	UN2435	...	II	...	8	...	A7, B2, N34, T10, TP2, TP7, TP13.	None	206	242	...	Forbidden	30 L	...	C.	
Ethyltrichlorosilane	3	UN1196	...	II	...	3, 8	...	A7, N34, T10, TP2, TP7, TP13.	None	206	243	...	1 L	5 L	...	B	40

§ 172.101—HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or division	Identification numbers	PG	Label codes	Special provisions (§ 172.102)	Packaging (§ 173.***)		Quantity limitations		Vessel stowage																
							Exceptions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo aircraft only	Location	Other														
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)														
D	Gasohol gasoline mixed with ethyl alcohol, with not more than 10% alcohol.	*	3	NA1203	...	II	...	*	144, 177	...	150	...	*	5 L	...	60 L	...	E.									
		3	UN1203	...	II	...	3	...	144, 177, B1, B33, T8.	...	150	...	202	...	242	...	5 L	...	60 L	...	E.						
	Helium, compressed	*	2.2	UN1046	...	...	...	...	...	...	306, 307	...	302	...	*	302, 314	...	75 kg	...	150 kg	...	A.					
	Hexadecyltrichlorosilane	*	8	UN1781	...	II	...	...	...	...	*	A7, B2, B6, N34, T10, TP2, TP7, TP13.	...	None	...	206	...	242	...	Forbidden	30 L	...	C	...	40		
	Hexyltrichlorosilane	*	8	UN1784	...	II	...	...	...	...	*	A7, B2, B6, N34, T10, TP2, TP7, TP13.	...	None	...	206	...	242	...	Forbidden	30 L	...	C	...	40		
	Hydrogen iodide, anhydrous.	*	2.3	UN2197	...	...	...	...	...	...	*	3, B14, N86, N89.	...	None	...	304	...	314, 315	...	Forbidden	Forbidden	D	...	...	40		
	Krypton, compressed	*	2.2	UN1056	...	...	...	...	...	...	*	...	...	306, 307	...	302	...	None	...	75 kg	...	150 kg	...	A.			
	Magnesium bromate	*	5.1	UN1473	...	II	...	...	...	...	*	A1, IB8, IP2, IP4, T3, TP33.	...	152	...	212	...	242	...	5 kg	...	25 kg	...	A	...	...	56, 58
	Magnesium nitrate	*	5.1	UN1474	...	III	...	...	...	...	*	332, A1, IB8, IP3, T1, TP33.	...	152	...	213	...	240	...	25 kg	...	100 kg	...	A.			
	Medicine, liquid, flammable, toxic, n.o.s.	*	3	UN3248	...	II	...	...	...	...	*	IB2	...	150	...	202	...	None	...	1 L	...	5 L	...	B	...	...	40
Medicine, liquid, toxic, n.o.s.		6.1	UN1851	...	II	...	...	...	...	...	3, 6.1	...	150	...	203	...	None	...	5 L	...	5 L	...	A.	...	...	40	
Medicine, solid, toxic, n.o.s.		6.1	UN3249	...	III	...	...	...	...	...	6.1	...	153	...	203	...	241	...	5 L	...	5 L	...	C	...	...	40	
				...	II	...	...	...	...	...	6.1	...	153	...	212	...	None	...	5 kg	...	5 kg	...	C	...	...	40	

Methyl Chloromethyl Ether.	*	6.1	UN1239	...	I	.....	6.1	.....	T1, TP33	..	153	.....	213	.....	None	.....	5 kg	.....	5 kg	.....	C	.....	40
	*	6.1	UN1239	...	I	.....	6.1, 3	.....	1, B9, B14, B30, B72, T22, TP2, TP13, TP38, TP44.	*	None	.....	226	.....	244	.....	Forbidden	.....	Forbidden	.....	D	.....	40
Methyldichlorosilane	*	4.3	UN1242	...	I	.....	4.3, 8, 3	.....	A2, A3, A7, B6, B77, N34, T14, TP2, TP7, TP13.	*	None	.....	201	.....	243	.....	Forbidden	.....	1 L	.....	D	.....	21, 28, 40, 49, 100
	*	8	UN2437	...	II	.....	8	.....	T10, TP2, TP7, TP13.	*	None	.....	206	.....	242	.....	1 L	.....	30 L	.....	C	.....	40
Methyltrichlorosilane	*	3	UN1250	...	II	.....	3, 8	.....	A7, B6, B77, N34, T10, TP2, TP7, TP13.	*	None	.....	206	.....	243	.....	1L	.....	5 L	.....	B	.....	40
	*	2.2	UN1065	...	.....	.....	2.2	.....	.....	*	306, 307	...	302	.....	None	.....	75 kg	.....	150 kg	.....	A.	.....	
Nitrites, inorganic, n.o.s.	*	5.1	UN2627	...	II	.....	5.1	.....	33, IB8, IP2, IP4, T3, TP33.	*	152	.....	212	.....	None	.....	5 kg	.....	25 kg	.....	A	.....	46, 56, 58, 133
	*	4.1	UN2557	...	II	.....	4.1	.....	44	*	151	.....	212	.....	None	.....	1 kg	.....	15 kg	.....	D	.....	28, 36
Nitrocellulose, solution, flammable with not more than 12.6 percent nitrogen, by mass, and not more than 55 percent nitrocellulose.	*	3	UN2059	...	I	.....	3	.....	198, T11, TP1, TP8, TP27.	*	None	.....	201	.....	243	.....	1 L	.....	30 L	.....	E.	.....	
					II	.....	3	.....	198, IB2, T4, TP1, TP8.		150	.....	202	.....	242	.....	5 L	.....	60 L	.....	B.	.....	
					III	.....	3	.....	198, B1, IB3, T2, TP1.		150	.....	203	.....	242	.....	60 L	.....	220 L	.....	A.	.....	

§ 172.101—HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or division	Identification numbers	PG	Label codes	Special provisions (§ 172.102)	(8) Packaging (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage	
							Exceptions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo aircraft only	Location	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Nitrocellulose with alcohol with not less than 25 percent alcohol by mass, and with not more than 12.6 percent nitrogen, by dry mass.	4.1	* UN2556 ...	II	* 4.1	*	151	212	None	1 kg	15 kg	D	28, 36
	Nitrocellulose with water with not less than 25 percent water by mass.	4.1	UN2555 ...	II	4.1		151	212	None	15 kg	50 kg	E	28, 36
	Nitroguanidine, wetted or Picrite, wetted with not less than 20 percent water, by mass.	4.1	* UN1336 ...	I	* 4.1	* 23, A8, A19, A20, N41.	None	211	None	1 kg	15 kg	E	28, 36
	4-Nitrophenylhydrazine, with not less than 30 percent water, by mass.	4.1	* UN3376 ...	I	* 4.1	* 162, A8, A19, A20, N41.	None	211	None	Forbidden	15 kg	E	28, 36
	Nitrostarch, wetted with not less than 20 percent water, by mass.	4.1	* UN1337 ...	I	* 4.1	* 23, A8, A19, A20, N41.	None	211	None	1 kg	15 kg	E	28, 36
	Nonyltrichlorosilane	8	* UN1799 ...	II	* 8	* A7, B2, B6, N34, T10, TP2, TP7, TP13.	None	206	242	Forbidden	30 L	C	40
	Octadecyltrichlorosilane	8	* UN1800 ...	II	* 8	* A7, B2, B6, N34, T10, TP2, TP7, TP13.	None	206	242	Forbidden	30 L	C	40
	Octyltrichlorosilane	8	* UN1801 ...	II	* 8	* A7, B2, B6, N34, T10, TP2, TP7, TP13.	None	206	242	Forbidden	30 L	C	40

G	Organometallic substance, liquid, water-reactive, flammable.	*	4.3	UN3399	...	I		*	4.3, 3		*	T13, TP2, TP7.		*	None		*	201		*	244		Forbidden	1 L		D		40, 52
						II	.....		4.3, 3	.....		IB1, IP2, T7, TP2, TP7.	.....		None	.....		202	.....		243	.....	1 L	.....	D	.....	40, 52	
						III	.....		4.3, 3	.....		IB2, IP4, T7, TP2, TP7.	.....		None	.....		203	.....		242	.....	5 L	.....	E	.....	40, 52	
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, 106, 138
						II	.....		5.1, 8	.....		62, IB1	.....		None	.....		202	.....		243	.....	1 L	.....	B	.....	34, 56, 58, 106, 138	
						III	.....		5.1, 8	.....		62, IB2	.....		152	.....		203	.....		242	.....	2.5 L	.....	B	.....	34, 56, 58, 106, 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, 106, 138
						II	.....		5.1	.....		62, 127	.....		152	.....		202	.....		242	.....	1 L	.....	B	.....	56, 58, 106, 138	
						III	.....		5.1	.....		A2, IB2	.....		152	.....		203	.....		241	.....	2.5 L	.....	B	.....	56, 58, 106, 138	
G	Oxidizing liquid, toxic, n.o.s.	*	5.1	UN3099	...	I			5.1, 6.1			A2, IB2			None			201			244		Forbidden	2.5 L		D		56, 58, 106, 138
						II	.....		5.1, 6.1	.....		62, IB1	.....		152	.....		202	.....		243	.....	1 L	.....	B	.....	56, 58, 106, 138	
						III	.....		5.1, 6.1	.....		62, IB2	.....		152	.....		203	.....		241	.....	2.5 L	.....	B	.....	56, 58, 106, 138	
G	Oxidizing solid, corrosive, n.o.s.	*	5.1	UN3085	...	I	.....		5.1, 8	.....		62	.....		None	.....		211	.....		242	.....	1 kg	.....	D	.....	13, 56, 58, 106, 138	
						II	.....		5.1, 8	.....		62, IB6, IP2, T3, TP33.	.....		None	.....		212	.....		242	.....	5 kg	.....	B	.....	13, 34, 56, 58, 106, 138	
						III	.....		5.1, 8	.....		62, IB8, IP3, T1, TP33.	.....		152	.....		213	.....		240	.....	25 kg	.....	B	.....	13, 34, 56, 58, 106, 138	
G	Oxidizing solid, flammable, n.o.s.	*	5.1	UN3137	...	I	.....		5.1, 4.1	.....		62	.....		None	.....		214	.....		214	.....	Forbidden	Forbidden.	Forbidden.	Forbidden.	Forbidden.	
G	Oxidizing solid, n.o.s.	*	5.1	UN1479	...	I	.....		5.1	.....		62, IB5, IP1.	.....		None	.....		211	.....		242	.....	1 kg	.....	D	.....	56, 58, 106, 138	
						II	.....		5.1	.....		62, IB8, IP2, IP4, T3, TP33.	.....		152	.....		212	.....		240	.....	5 kg	.....	B	.....	56, 58, 106, 138	
						III	.....		5.1	.....		62, IB8, IP3, T1, TP33.	.....		152	.....		213	.....		240	.....	25 kg	.....	B	.....	56, 58, 106, 138	
G	Oxidizing solid, self-heating, n.o.s.	*	5.1	UN3100	...	I	.....		5.1, 4.2	.....		62	.....		None	.....		214	.....		214	.....	Forbidden	Forbidden.	Forbidden.	Forbidden.	Forbidden.	
G	Oxidizing solid, toxic, n.o.s.	*	5.1	UN3087	...	I	.....		5.1, 4.2	.....		62	.....		None	.....		214	.....		214	.....	Forbidden	Forbidden.	Forbidden.	Forbidden.	Forbidden.	
						II	.....		5.1, 6.1	.....		62	.....		None	.....		211	.....		242	.....	1 kg	.....	D	.....	56, 58, 106, 138	
						III	.....		5.1, 6.1	.....		62, IB6, IP2, T3, TP33.	.....		152	.....		212	.....		242	.....	5 kg	.....	B	.....	56, 58, 106, 138	
G	Oxidizing solid, water-reactive, n.o.s.	*	5.1	UN3121	...	I	.....		5.1, 4.3	.....		62	.....		None	.....		214	.....		214	.....	Forbidden	Forbidden.	Forbidden.	Forbidden.	Forbidden.	
						II	.....		8	.....	*	B2, IB2, T7, TP2, TP28.	.....		154	.....	*	173	.....	*	242	.....	1 L	.....	A	.....	40	

§ 172.101—HAZARDOUS MATERIALS TABLE—Continued

Symbols (1)	Hazardous materials descriptions and proper shipping names (2)	Hazard class or division (3)	Identifica- tion num- bers (4)	PG (5)	Label codes (6)	Special provisions (§ 172.102) (7)	(8) Packaging (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage	
							Exceptions (8A)	Non-bulk (8B)	Bulk (8C)	Passenger aircraft/rail (9A)	Cargo air- craft only (9B)	Location (10A)	Other (10B)
				III	8	B52, IB3, T4, TP1, TP29.	154	173	241	5 L	60 L	A	40
*	Phenyltrichlorosilane	8	UN1804	II	8	A7, B6, N34, T10, TP2, TP7, TP13.	None	206	242	Forbidden	30 L	C	40
*	Polychlorinated biphenyls, solid.	9	UN3432	II	9	9, 81, 140, IB8, IP2, IP4, T3, TP33.	155	212	240	100 kg	200 kg	A	95
*	Potassium bromate	5.1	UN1484	II	5.1	IB8, IP2, IP4, T3, TP33.	152	212	242	5 kg	25 kg	A	56, 58
*	Potassium chlorate	5.1	UN1485	II	5.1	A9, IB8, IP2, IP4, N34, T3, TP33.	152	212	242	5 kg	25 kg	A	56, 58
*	Potassium nitrate and sodium nitrite mixtures.	5.1	UN1487	II	5.1	B78, IB8, IP2, IP4, T3, TP33.	152	212	240	5 kg	25 kg	A	56, 58
*	Potassium nitrite	5.1	UN1488	II	5.1	IB8, IP2, IP4, T3, TP33.	152	212	242	5 kg	25 kg	A	56, 58
*	Potassium permanga- nate.	5.1	UN1490	II	5.1	IB8, IP2, IP4, T3, TP33.	152	212	240	5 kg	25 kg	D	56, 58, 138
*	Potassium persulfate	5.1	UN1492	III	5.1	A1, A29, IB8, IP3, T1, TP33.	152	213	240	25 kg	100 kg	A	58, 145
*	Propyltrichlorosilane	8	UN1816	II	8, 3	A7, B2, B6, N34, T10, TP2, TP7, TP13.	None	206	243	Forbidden	30 L	C	40

Silicon tetrachloride	*	8	UN1818	II	*	8	.....	*	A3, A6, B2, B6, T10, TP2, TP7, TP13.	None	*	202	.....	*	242	.....	*	1 L	.....	*	30 L	.....	C	.....	40
Silver nitrate	*	5.1	UN1493	II	*	5.1	.....	*	IB8, IP2, IP4, T3, TP33.	152	*	212	.....	*	242	.....	*	5 kg	.....	*	25 kg	.....	A.	.....	
Sodium bromate	*	5.1	UN1494	II	*	5.1	.....	*	IB8, IP2, IP4, T3, TP33.	152	*	212	.....	*	242	.....	*	5 kg	.....	*	25 kg	.....	A	.....	56, 58
Sodium chlorate	*	5.1	UN1495	II	*	5.1	.....	*	A9, IB8, IP2, IP4, N34, T3, TP33.	152	*	212	.....	*	240	.....	*	5 kg	.....	*	25 kg	.....	A	.....	56, 58
Sodium peroxoborate, anhydrous.	*	5.1	UN3247	II	*	5.1	.....	*	IB8, IP2, IP4, T3, TP33.	152	*	212	.....	*	240	.....	*	5 kg	.....	*	25 kg	.....	A	.....	13, 25
Sodium persulfate	*	5.1	UN1505	III	*	5.1	.....	*	A1, IB8, IP3, T1, TP33.	152	.....	213	.....	240	.....	25 kg	.....	100 kg	.....	A	.....	A	.....	58, 145	
Trichloroisocyanuric acid, dry.	*	5.1	UN2468	II	*	5.1	.....	*	IB8, IP2, IP4, T3, TP33.	152	*	212	.....	*	240	.....	*	5 kg	.....	*	25 kg	.....	A	.....	13
Trimethyltrichlorosilane ..	*	3	UN1298	II	*	3, 8	.....	*	A3, A7, B7, N34, T10, TP2, TP7, TP13.	None	*	206	.....	*	243	.....	*	1 L	.....	*	5 L	.....	E	.....	40
Vinyltrichlorosilane, stabilized.	*	3	UN1305	II	*	3, 8	.....	*	A3, A7, B6, N34, T10, TP2, TP7, TP13.	None	*	206	.....	*	243	.....	*	1 L	.....	*	5 L	.....	B	.....	40
Water-reactive liquid, corrosive, n.o.s.	G	4.3	UN3129	I	*	4.3, 8	.....	*	T14, TP2, TP7.	None	*	201	.....	*	243	.....	Forbidden	1 L	.....	D.	.....	.....	.....	.....	
				II		4.3, 8	.....		IB1, T11, TP2.	None	.....	202	.....	243	.....	1 L	.....	5 L	.....	E	.....	.....	.....	85	
				III		4.3, 8	.....		IB2, T7, TP1.	None	.....	203	.....	242	.....	5 L	.....	60 L	.....	E.	.....	.....	.....	.....	
Water-reactive liquid, n.o.s.	G	4.3	UN3148	I	*	4.3	.....	*	T9, TP2, TP7.	None	.....	201	.....	244	.....	Forbidden	1 L	.....	E	.....	.....	.....	.....	40	
				II		4.3	.....		IB1, T7, TP2.	None	.....	202	.....	243	.....	1 L	.....	5 L	.....	E	.....	.....	.....	40	
				III		4.3	.....		IB2, T7, TP1.	None	.....	203	.....	242	.....	5 L	.....	60 L	.....	E	.....	.....	.....	40	

§ 172.101—HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or division	Identification numbers	PG	Label codes	Special provisions (§ 172.102)	(8) Packaging (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage										
							Exceptions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo aircraft only	Location	Other									
														(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)																
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.								
																151	212	242	15 kg	50 kg	E	85
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	40								
															151	212	242	15 kg	50 kg	E	40	
																						151	213	241	25 kg	100 kg	E	40
	Zinc ammonium nitrite ...	5.1	UN1512 ...	II	5.1	IB8, IP2, IP4, T3, TP33.	None	*	212	242	5 kg	25 kg	E.									
															152	212	240	5 kg	25 kg	A.		
	Zinc nitrate	5.1	UN1514 ...	II	5.1	IB8, IP2, IP4, T3, TP33.	152	*	212	240	5 kg	25 kg	A.									

* * * * *

10. In Appendix B to § 172.101, introductory paragraphs 4 and 5 are revised and four entries are removed to read as follows:

Appendix B to § 172.101—List of Marine Pollutants

* * * * *

4. If a material is not listed in this appendix and meets the criteria for a marine pollutant as provided in Chapter 2.9 of the IMDG Code, (incorporated by reference; see § 171.7 of this subchapter), the material may be transported as a marine pollutant in accordance with the applicable requirements of this subchapter.

5. If a material or a solution meeting the definition of a marine pollutant in § 171.8 of

this subchapter does not meet the criteria for a marine pollutant as provided in section 2.9.3.3 and 2.9.3.4 of the IMDG Code, (incorporated by reference; see § 171.7 of this subchapter), it may be excepted from the requirements of this subchapter as a marine pollutant if that exception is approved by the Associate Administrator.

LIST OF MARINE POLLUTANTS

S.M.P. (1)	Marine pollutant (2)
[REMOVE]	
*	*
	5-Ethyl-2-picoline Ethyl propenoate, inhibited.
*	*
	Isopropenylbenzene.
*	*
	2-Phenylpropene.
*	*

11. In § 172.102:
a. In paragraph (c)(1), Special provisions 130, 137, 138, 150, 177, 188 and 189 are revised; new Special provisions 62, 198, 237, 332, and 335 are added; and Special provisions 36 and 173 are removed.

b. In paragraph (c)(4), Table 2 IP Codes is revised.

c. In paragraph (c)(5), new Special provision N90 is added.

d. In paragraph (c)(8), Special provision TP12 is removed.

The revisions and additions read as follows:

§ 172.102 Special provisions.

* * * * *

(c) * * *

(1) * * *

Code/Special Provisions

* * * * *

62 Oxygen generators (see § 171.8 of this subchapter) are not authorized for transportation under this entry.

* * * * *

130 For other than a dry battery specifically covered by another entry in the § 172.101 Table, “Batteries, dry, sealed, n.o.s.” are not subject to any other requirements of this subchapter except for the following:

(1) The incident reporting requirements in §§ 171.15 and 171.16;

(2) Batteries and each battery-powered device or equipment containing such batteries must be prepared and packaged for transport so as to prevent:

(i) The potential of a dangerous evolution of heat;

(ii) Short circuits, including but is not limited to the following:

(a) Packaging each battery or each battery-powered device or equipment when practicable in fully enclosed inner packagings made of non-conductive material;

(b) Separating batteries and battery-powered devices in a manner to prevent contact with other batteries, devices or conductive materials (e.g., metal) in the packagings; or

(c) Ensuring exposed terminals or connectors are individually protected with non-conductive caps, non-conductive tape, or by other appropriate means; and

(iv) Damage to terminals. If not impact resistant, the outer packaging should not be used as the sole means of protecting the battery terminals from damage or short circuiting. Batteries must be securely cushioned and packed to prevent any shifting which could loosen terminal caps or reorient the terminals to produce short circuits. Terminal protection methods include but are not limited to the following:

(a) Securely attaching covers of sufficient strength to protect the terminals;

(b) Packaging the battery in a rigid plastic packaging; or

(c) Constructing the battery with terminals that are recessed or otherwise protected so that the terminals will not be subjected to damage if the package is dropped; and

(3) When transported by aircraft,
(i) Packaged in a manner that prevents unintentional activation, (e.g. adequate

packaging, switch caps or locks, recessed switches, trigger locks, temperature sensitive circuit breakers, etc.); and

(ii) The air waybill must contain the words, “not restricted.”

* * * * *

137 Cotton, dry; flax, dry; sisal, dry; and tampico fiber, dry are not subject to the requirements of this subchapter when they are baled in accordance with ISO 8115, “Cotton Bales—Dimensions and Density” (IBR, see § 171.7 of this subchapter) to a density of not less than 360 kg/m³ (22.1 lb/ft³) for cotton, 400 kg/m³ (24.97 lb/ft³) for flax, 620 kg/m³ (38.71 lb/ft³) for sisal and 360 kg/m³ (22.1 lb/ft³) for tampico fiber and transported in a freight container or closed transport vehicle.

138 Lead compounds which, when mixed in a ratio of 1:1000 with 0.07M (Molar concentration) hydrochloric acid and stirred for one hour at a temperature of 23 °C ± 2 °C, exhibit a solubility of 5% or less are considered insoluble and are not subject to the requirements of this subchapter unless they meet criteria as another hazard class or division.

* * * * *

150 This description may be used only for uniform mixtures of fertilizers containing ammonium nitrate as the main ingredient within the following composition limits:

a. Not less than 90% ammonium nitrate with not more than 0.2% total combustible, organic material calculated as carbon, and with added matter, if any, that is inorganic and inert when in contact with ammonium nitrate; or

b. Less than 90% but more than 70% ammonium nitrate with other inorganic materials, or more than 80% but less than 90% ammonium nitrate mixed with calcium carbonate and/or dolomite and/or mineral calcium sulphate, and not more than 0.4% total combustible, organic material calculated as carbon; or

c. Ammonium nitrate-based fertilizers containing mixtures of ammonium nitrate and ammonium sulphate with more than 45% but less than 70% ammonium nitrate, and not more than 0.4% total combustible, organic material calculated as carbon such that the sum of the percentage of compositions of ammonium nitrate and ammonium sulphate exceeds 70%.

* * * * *

177 Gasoline or ethanol and gasoline mixtures for use in internal combustion engines (e.g., in automobiles, stationary engines and other engines) must be assigned to this entry regardless of variations in volatility.

* * * * *

188 *Small lithium cells and batteries.* Lithium cells or batteries, including cells or batteries packed with or contained in equipment, are not subject to any other requirements of this subchapter if they meet all of the following:

a. *Primary lithium batteries and cells.*

(1) Primary lithium batteries and cells are forbidden for transport aboard passenger-carrying aircraft. The outside of each package that contains primary (nonrechargeable) lithium batteries or cells must be marked "PRIMARY LITHIUM BATTERIES—FORBIDDEN FOR TRANSPORT ABOARD PASSENGER AIRCRAFT" or "LITHIUM METAL BATTERIES—FORBIDDEN FOR TRANSPORT ABOARD PASSENGER AIRCRAFT" on a background of contrasting color. The letters in the marking must be:

(i) At least 12 mm (0.5 inch) in height on packages having a gross weight of more than 30 kg (66 pounds); or

(ii) At least 6 mm (0.25 inch) on packages having a gross weight of 30 kg (66 pounds) or less, except that smaller font may be used as necessary to fit package dimensions; and

(2) The provisions of paragraph (a)(1) do not apply to packages that contain 5 kg (11 pounds) net weight or less of primary lithium batteries or cells that are contained in or packed with equipment and the package contains no more than the number of lithium batteries or cells necessary to power the piece of equipment;

b. For a lithium metal or lithium alloy cell, the lithium content is not more than 1.0 g. For a lithium-ion cell, the

equivalent lithium content is not more than 1.5 g;

c. For a lithium metal or lithium alloy battery, the aggregate lithium content is not more than 2.0 g. For a lithium-ion battery, the aggregate equivalent lithium content is not more than 8 g;

d. Effective October 1, 2009, the cell or battery must be of a type proven to meet the requirements of each test in the UN Manual of Tests and Criteria (IBR; see § 171.7 of this subchapter);

e. Cells or batteries are separated so as to prevent short circuits and are packed in a strong outer packaging or are contained in equipment;

f. Effective October 1, 2008, except when contained in equipment, each package containing more than 24 lithium cells or 12 lithium batteries must be:

(1) Marked to indicate that it contains lithium batteries, and special procedures should be followed if the package is damaged;

(2) Accompanied by a document indicating that the package contains lithium batteries and special procedures should be followed if the package is damaged;

(3) Capable of withstanding a 1.2 meter drop test in any orientation without damage to cells or batteries contained in the package, without shifting of the contents that would allow short circuiting and without release of package contents; and

(4) Gross weight of the package may not exceed 30 kg (66 pounds). This requirement does not apply to lithium cells or batteries packed with equipment;

g. Electrical devices must conform to § 173.21 of this subchapter;

h. Sections 171.15 and 171.16 of this subchapter for those incidents resulting in the production of smoke, sparks, or dangerous evolution of heat; and

i. Lithium batteries or cells are not authorized aboard an aircraft in checked or carry-on luggage except as provided in § 175.10.

* * * * *

189 *Medium lithium cells and batteries.* Effective October 1, 2008, when transported by motor vehicle or rail car, lithium cells or batteries, including cells or batteries packed with or contained in equipment, are not subject to any other requirements of this subchapter if they meet all of the following:

a. The lithium content anode of each cell, when fully charged, is not more than 5 grams.

b. The aggregate lithium content of the anode of each battery, when fully charged, is not more than 25 grams.

c. The cells or batteries are of a type proven to meet the requirements of each test in the UN Manual of Tests and Criteria (IBR; see § 171.7 of this subchapter). A cell or battery and equipment containing a cell or battery that was first transported prior to January 1, 2006 and is of a type proven to meet the criteria of Class 9 by testing in accordance with the tests in the UN Manual of Tests and Criteria, Third revised edition, 1999, need not be retested.

d. Cells or batteries are separated so as to prevent short circuits and are packed in a strong outer packaging or are contained in equipment.

e. The outside of each package must be marked "LITHIUM BATTERIES—FORBIDDEN FOR TRANSPORT ABOARD AIRCRAFT AND VESSEL" on a background of contrasting color, in letters:

(1) At least 12 mm (0.5 inch) in height on packages having a gross weight of more than 30 kg (66 pounds); or

(2) At least 6 mm (0.25 inch) on packages having a gross weight of 30 kg (66 pounds) or less, except that smaller font may be used as necessary to fit package dimensions.

f. Except when contained in equipment, each package containing more than 24 lithium cells or 12 lithium batteries must be:

(1) Marked to indicate that it contains lithium batteries, and special procedures should be followed if the package is damaged;

(2) Accompanied by a document indicating that the package contains lithium batteries and special procedures should be followed if the package is damaged;

(3) Capable of withstanding a 1.2 meter drop test in any orientation without damage to cells or batteries contained in the package, without shifting of the contents that would allow short circuiting and without release of package contents; and

(4) Gross weight of the package may not exceed 30 kg (66 pounds). This requirement does not apply to lithium cells or batteries packed with equipment.

g. Electrical devices must conform to § 173.21 of this subchapter; and

h. Sections 171.15 and 171.16 of this subchapter for those incidents resulting in the production of smoke, sparks, or dangerous evolution of heat.

* * * * *

198 Nitrocellulose solutions containing not more than 20% nitrocellulose may be transported as paint or printing ink, as applicable. See UN1210, UN1263, UN3066, UN3469, and UN3470.

237 “Batteries, dry, containing potassium hydroxide solid, *electric storage*” must be prepared and packaged in accordance with the requirements of § 173.159(a), (b). For transportation by aircraft, the provisions of § 173.159(d)(2) are applicable.

332 Magnesium nitrate hexahydrate is not subject to the requirements of this subchapter.

335 Mixtures of solids that are not subject to this subchapter and environmentally hazardous liquids or solids may be classified as “Environmentally hazardous substances, solid, n.o.s.,” UN3077 and

may be transported under this entry, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each transport unit must be leakproof when used as bulk packaging.

* * * * *

(4) * * *

TABLE 2—IP CODES

IBC code	Authorized IBCs
IP1	IBCs must be packed in closed freight containers or a closed transport vehicle.
IP2	When IBCs other than metal or rigid plastic 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.
IP20	Dry sodium cyanide or potassium cyanide is also permitted in sift-proof, water-resistant, fiberboard IBCs when transported in closed freight containers or transport vehicles.

(5) * * *

Code/Special Provisions

* * * * *

N90 Metal packagings are not authorized.

* * * * *

12. In § 172.202, paragraphs (a)(3) introductory text, (a)(4), and (a)(6)(vi) are revised to read as follows:

§ 172.202 Description of hazardous material shipping papers.

(a) * * *

(3) The hazard class or division number prescribed for the material, as shown in Column (3) of the § 172.101 table. The subsidiary hazard class or division number is not required to be entered when a corresponding subsidiary hazard label is not required. Except for combustible liquids, the subsidiary hazard class(es) or subsidiary division number(s) must be entered in parentheses immediately following the primary hazard class or division number. In addition—

* * * * *

(4) The packing group in Roman numerals, as designated for the hazardous material in Column (5) of the § 172.101 table. Class 1 materials, self-reactive substances, batteries other than

those containing lithium, lithium ions, or sodium, and Division 5.2 materials are excepted from this requirement. In addition, entries that are not assigned a packing group (e.g., Class 7) are excepted from this requirement. The packing group may be preceded by the letters “PG” for example “PG II;” and

* * * * *

(6) * * *

(vi) For items where “No Limit” is shown in Column (9A) or (9B) of the § 172.101 table, the quantity shown must be the net mass or volume of the material. For articles (e.g., UN2800 and UN3166) the quantity must be the gross mass, followed by the letter “G”; and

* * * * *

13. In § 172.322, paragraphs (d) introductory text, (d)(1), and (e) are revised to read as follows:

§ 172.322 Marine pollutants.

* * * * *

(d) The MARINE POLLUTANT mark is not required—

(1) On a combination package containing a marine pollutant in inner packagings each of which contains:

(i) 5 L (1.3 gallons) or less net capacity for liquids; or

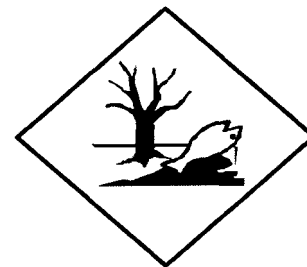
(ii) 5 kg (11 pounds) or less net capacity for solids.

* * * * *

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

(1) Except for size, the MARINE POLLUTANT mark must appear as follows:

Marine Pollutant Mark



Symbol (fish and tree): Black on white or suitable contrasting background.

(2) The symbol and border must be black and the background white, or the symbol, border and background must be of contrasting color to the surface to which the mark be affixed. Each side of the mark must be—

(i) At least 100 mm (4 inches) for marks applied to:

(A) Non-bulk packages, except in the case of packages which, because of their size, can only bear smaller marks;

(B) Bulk packages with a capacity of less than 3,785 L (1,000 gallons); or

(ii) At least 250 mm (10 inches) for marks applied to all other bulk packages.

* * * * *

14. In § 172.400a, paragraph (c) is revised to read as follows:

§ 172.400a Exceptions from labeling.

* * * * *

(c) Notwithstanding the provisions of § 172.402(a), a Division 6.1 subsidiary hazard label is not required on a package containing a Class 8 (corrosive) material which has a subsidiary hazard of Division 6.1 (poisonous) if the toxicity of the material is based solely on the corrosive destruction of tissue

rather than systemic poisoning. In addition, a Division 4.1 subsidiary hazard label is not required on a package bearing a Division 4.2 label.

* * * * *

15. In § 172.401, a new paragraph (c)(5) is added to read as follows:

§ 172.401 Prohibited labeling.

* * * * *

(c) * * *

(5) The Globally Harmonized System of Classification and Labelling of Chemicals (GHS) (IBR, see § 171.7 of this subchapter).

* * * * *

16. In § 172.446, paragraph (b) is revised to read as follows:

§ 172.446 CLASS 9 Label.

* * * * *

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

17. Section 172.448 is revised to read as follows:

§ 172.448 CARGO AIRCRAFT ONLY label.

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



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

(c) A CARGO AIRCRAFT ONLY label conforming to the specifications in § 172.448 on December 31, 2008, may be used until January 1, 2013.

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 1.45, 1.53.

19. Section 173.4 is revised to read as follows:

§ 173.4 Small quantities for highway and rail.

(a) When transported domestically by highway or rail in conformance with this section, small quantities of Class 3, Division 4.1, Division 4.2 (PG II and III),

Division 4.3 (PG II and III), Division 5.1, Division 5.2, Division 6.1, Class 7, Class 8, and Class 9 materials that also meet the definition of one or more of these hazard classes, are not subject to any other requirements of this subchapter when—

(1) The maximum quantity of material per inner receptacle or article is limited to—

(i) Thirty (30) mL (1 ounce) for authorized liquids, other than Division 6.1, Packing Group I, Hazard Zone A or B materials;

(ii) Thirty (30) g (1 ounce) for authorized solid materials;

(iii) One (1) g (0.04 ounce) for authorized materials meeting the definition of a Division 6.1, Packing Group I, Hazard Zone A or B material; and

(iv) An activity level not exceeding that specified in §§ 173.421, 173.424, 173.425 or 173.426, as appropriate, for

a package containing a Class 7 (radioactive) material.

(2) With the exception of temperature sensing devices, each inner receptacle:

(i) Is not liquid-full at 55 °C (131 °F), and

(ii) Is constructed of plastic having a minimum thickness of no less than 0.2 mm (0.008 inch), or earthenware, glass, or metal;

(3) Each inner receptacle with a removable closure has its closure held securely in place with wire, tape, or other positive means;

(4) Unless equivalent cushioning and absorbent material surrounds the inside packaging, each inner receptacle is securely packed in an inside packaging with cushioning and absorbent material that:

(i) Will not react chemically with the material, and

(ii) Is capable of absorbing the entire contents (if a liquid) of the receptacle;

(5) The inside packaging is securely packed in a strong outside packaging;

(6) The completed package, as demonstrated by prototype testing, is capable of sustaining—

(i) Each of the following free drops made from a height of 1.8 m (5.9 feet) directly onto a solid unyielding surface without breakage or leakage from any inner receptacle and without a substantial reduction in the effectiveness of the package:

(A) One drop flat on bottom;

(B) One drop flat on top;

(C) One drop flat on the long side;

(D) One drop flat on the short side;

and

(E) One drop on a corner at the junction of three intersecting edges; and

(ii) A compressive load as specified in § 178.606(c) of this subchapter.

Note to paragraph (a)(6): Each of the tests in paragraph (a)(6) of this section may be performed on a different but identical package; i.e., all tests need not be performed on the same package.

(7) Placement of the material in the package or packing different materials in the package does not result in a violation of § 173.21;

(8) The gross mass of the completed package does not exceed 29 kg (64 pounds);

(9) The package is not opened or otherwise altered until it is no longer in commerce; and

(10) The shipper certifies conformance with this section by marking the outside of the package with the statement “This package conforms to 49 CFR 173.4.”

(b) A package containing a Class 7 (radioactive) material also must conform to the requirements of § 173.421(a)(1) through (a)(5) or § 173.424(a) through (g), as appropriate.

(c) Packages which contain a Class 2, Division 4.2 (PG I), or Division 4.3 (PG I) material conforming to paragraphs (a)(1) through (a)(10) of this section may be offered for transportation or transported if specifically approved by the Associate Administrator.

(d) Fuel cell cartridges and lithium batteries and cells are not eligible for the exceptions provided in this section.

20. Section 173.4a is added to read as follows:

§ 173.4a Excepted quantities.

(a) Excepted quantities of materials other than articles transported in accordance with this section are not subject to any additional requirements of this subchapter except for:

(1) The training requirements of subpart H of part 172 of this subchapter;

(2) The shipper's responsibilities to properly class their material in

accordance with § 173.22 of this subchapter;

(3) Sections 171.15 and 171.16 of this subchapter pertaining to the reporting of incidents;

(4) For a Class 7 (Radioactive) material the requirements for an excepted package; and

(5) For transportation by vessel, the shipping paper requirements of subpart C of part 172 of this subchapter.

(b) *Authorized materials.* Only materials authorized for transport aboard passenger aircraft and appropriately classed within one of the following hazard classes or divisions may be transported in accordance with this section:

(1) Division 2.2 materials with no subsidiary hazard;

(2) Class 3 materials;

(3) Class 4 (PG II and III) materials except for self-reactive materials;

(4) Division 5.1 (PG II and III);

(5) Division 5.2 materials only when contained in a chemical kit or a first aid kit;

(6) Division 6.1, other than PG I, Hazard Zone A or B material;

(7) Class 7, Radioactive material in excepted packages;

(8) Class 8 (PG II and III), except for UN2803 (Gallium) and UN2809 (Mercury); and

(9) Class 9, except for UN1845 (Carbon dioxide, solid or Dry ice), and lithium batteries and cells.

(c) *Inner packaging limits.* The maximum quantity of hazardous materials in each inner packaging is limited to:

(1) 1 g (0.04 ounce) or 1 mL (0.03 ounce) for solids or liquids of Division 6.1, Packing Group I or II or other materials that also meet the definition of a toxic material;

(2) 30 g (1 ounce) or 30 mL (1 ounce) for solids or liquids other than those covered in paragraph (c)(1) of this section; and

(3) For gases a water capacity of 30 mL (1.8 cubic inches) or less.

(d) *Outer packaging aggregate quantity limits.* The maximum aggregate quantity of hazardous material contained in each outer packaging must not exceed the limits provided in the following paragraphs. For outer packagings containing more than one hazardous material, the aggregate quantity of hazardous material must not exceed the lowest permitted maximum aggregate quantity. The limits are as follows:

(1) For other than a Division 2.2 or Division 5.2 material:

(i) Packing Group I—300 g (0.66 pounds) for solids or 300 mL (0.08 gallons) for liquids;

(ii) Packing Group II—500 g (1.1 pounds) for solids or 500 mL (0.1 gallons) for liquids;

(iii) Packing Group III—1 kg (2.2 pounds) for solids or 1 L (0.2 gallons) for liquids;

(2) For Division 2.2 material, 1 L (61 cubic inches); or

(3) For Division 5.2 material, 500 g (1.1 pounds) for solids or 250 mL (0.05 gallons) for liquids.

(e) *Packaging materials.* Packagings used for the transport of excepted quantities must meet the following:

(1) Each inner receptacle must be constructed of plastic, or of glass, porcelain, stoneware, earthenware or metal. When used for liquid hazardous materials, plastic inner packagings must have a thickness of not less than 0.2 mm (0.008 inch).

(2) Each inner packaging with a removable closure must have its closure held securely in place with wire, tape or other positive means. Each inner receptacle having a neck with molded screw threads must have a leak proof, threaded type cap. The closure must not react chemically with the material.

(3) Each inner packaging must be securely packed in an intermediate packaging with cushioning material in such a way that, under normal conditions of transport, it cannot break, be punctured or leak its contents. The intermediate packaging must completely contain the contents in case of breakage or leakage, regardless of package orientation. For liquid hazardous materials, the intermediate packaging must contain sufficient absorbent material that:

(i) Will absorb the entire contents of the inner packaging. In such cases, and

(ii) Will not react dangerously with the material or reduce the integrity or function of the packaging materials.

(iii) The absorbent material may be the cushioning material.

(4) The intermediate packaging must be securely packed in a strong, rigid outer packaging.

(5) Placement of the material in the package or packing different materials in the package must not result in a violation of § 173.21.

(6) Each package must be of such a size that there is adequate space to apply all necessary markings.

(7) The package is not opened or otherwise altered until it is no longer in commerce.

(8) Overpacks may be used and may also contain packages of hazardous material or other materials not subject to the HMR subject to the requirements of § 173.25.

(f) *Package tests.* The completed package as prepared for transport, with

inner packagings filled to not less than 95% of their capacity for solids or 98% for liquids, must be capable of withstanding, as demonstrated by testing which is appropriately documented, without breakage or leakage of any inner packaging and without significant reduction in effectiveness:

(1) Drops onto a solid unyielding surface from a height of 1.8 m (5.9 feet):

(i) Where the sample is in the shape of a box, it must be dropped in each of the following orientations:

(A) One drop flat on the bottom;

(B) One drop flat on the top;

(C) One drop flat on the longest side;

(D) One drop flat on the shortest side;

and

(E) One drop on a corner at the junction of three intersecting edges.

(ii) Where the sample is in the shape of a drum, it must be dropped in each of the following orientations:

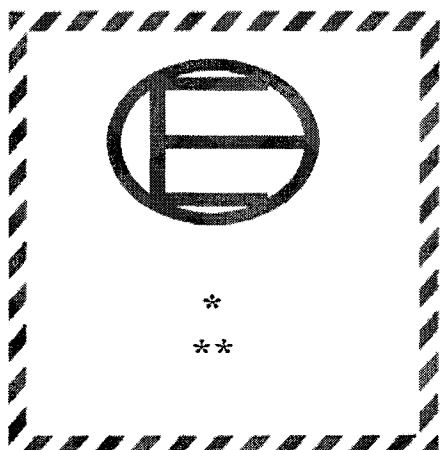
(A) One drop diagonally on the top chime, with the center of gravity directly above the point of impact;

(B) One drop diagonally on the base chime; and

(C) One drop flat on the side.

(2) A compressive load as specified in § 178.606(c) of this subchapter. Each of the tests in this paragraph (f) may be performed on a different but identical package; that is, all tests need not be performed on the same package.

(g) *Marking*. Excepted quantities of hazardous materials packaged, marked, and otherwise offered and transported in accordance with this section must be durably and legibly marked with the following marking:



(1) The “*” must be replaced by the primary hazard class, or when assigned, the division of each of the hazardous materials contained in the package. The “***” must be replaced by the name of the shipper or consignee if not shown elsewhere on the package.

(2) The symbol shall be not less than 100 mm (3.9 inches) × 100 mm (3.9

inches), and must be durable and clearly visible.

(h) *Documentation*.

(1) For transport by air, a shipping paper is not required, except that, if a document such as an air waybill accompanies a shipment, the document must include the statement “Dangerous Goods in Excepted Quantities” and indicate the number of packages.

(2) For transport by vessel, a shipping paper is required and must include the statement “Dangerous Goods in Excepted Quantities” and indicate the number of packages.

(i) *Restrictions*. Hazardous material packaged in accordance with this section may not be carried in checked or carry-on baggage.

21. Section 173.4b is added to read as follows:

§ 173.4b De minimis exceptions.

(a) Packing Group II and III materials in Class 3, Division 4.1, Division 4.2, Division 4.3, Division 5.1, Division 6.1, Class 8, and Class 9 do not meet the definition of a hazardous material in § 171.8 of this subchapter when packaged in accordance with this section and, therefore, are not subject to the requirements of this subchapter.

(1) The maximum quantity of material per inner receptacle or article is limited to—

(i) One (1) mL (0.03 ounce) for authorized liquids; and

(ii) One (1) g (0.04 ounce) for authorized solid materials;

(2) Each inner receptacle with a removable closure has its closure held securely in place with wire, tape, or other positive means;

(3) Unless equivalent cushioning and absorbent material surrounds the inside packaging, each inner receptacle is securely packed in an inside packaging with cushioning and absorbent material that:

(i) Will not react chemically with the material, and

(ii) Is capable of absorbing the entire contents (if a liquid) of the receptacle;

(4) The inside packaging is securely packed in a strong outside packaging;

(5) The completed package is capable of sustaining—

(i) Each of the following free drops made from a height of 1.8 m (5.9 feet) directly onto a solid unyielding surface without breakage or leakage from any inner receptacle and without a substantial reduction in the effectiveness of the package:

(A) One drop flat on bottom;

(B) One drop flat on top;

(C) One drop flat on the long side;

(D) One drop flat on the short side;

and

(E) One drop on a corner at the junction of three intersecting edges; and

(ii) A compressive load as specified in § 178.606(c) of this subchapter. Each of the tests in this paragraph (a)(5) may be performed on a different but identical package; that is, all tests need not be performed on the same package.

(6) Placement of the material in the package or packing different materials in the package does not result in a violation of § 173.21;

(7) The aggregate quantity of hazardous material per package does not exceed 100 g (0.22 pounds) for solids or 100 mL (3.38 ounces) for liquids;

(8) The gross mass of the completed package does not exceed 29 kg (64 pounds);

(9) The package is not opened or otherwise altered until it is no longer in commerce; and

(10) For transportation by aircraft:

(i) The hazardous material is authorized to be carried aboard passenger-carrying aircraft in Column 9A of the § 172.101 Hazardous Materials Table; and

(ii) Material packed in accordance with this section may not be carried in checked or carry-on baggage.

(b) [Reserved]

22. In § 173.12, as amended on January 28, 2008, paragraph (f) is revised to read as follows:

§ 173.12 Exceptions for shipment of waste materials.

* * * * *

(f) *Household waste*. Household waste, as defined in § 171.8 of this subchapter, is not subject to the requirements of this subchapter when transported in accordance with applicable state, local, or tribal requirements.

23. In § 173.21, paragraph (c) is revised to read as follows:

§ 173.21 Forbidden materials and packages.

* * * * *

(c) Electrical devices, such as batteries and battery-powered devices, which are likely to create sparks or generate a dangerous evolution of heat, unless packaged in a manner which precludes such an occurrence.

* * * * *

24. In § 173.24b, paragraph (e) is redesignated as paragraph (f) and revised, and a new paragraph (e) is added to read as follows:

§ 173.24b Additional general requirements for bulk packagings.

* * * * *

(e) Stacking of IBCs and Large Packagings:

(1) IBCs and Large Packagings not designed and tested to be stacked. No packages or freight (hazardous or otherwise) may be stacked upon an IBC or a Large Packaging that was not designed and tested to be stacked upon.

(2) IBCs and Large Packagings designed and tested to be stacked. The superimposed weight placed upon an IBC or a Large Packaging designed to be stacked may not exceed the maximum permissible stacking test mass marked on the packaging.

(f) *UN portable tanks.* (1) A UN portable tank manufactured in the United States must conform in all details to the applicable requirements in parts 172, 173, 178 and 180 of this subchapter.

(2) *UN portable tanks manufactured outside the United States.* A UN portable tank manufactured outside the United States, in accordance with national or international regulations based on the UN Recommendations (IBR, see § 171.7 of this subchapter), which is an authorized packaging under § 173.24 of this subchapter, may be filled, offered and transported in the United States, if the § 172.101 Table of

this subchapter authorizes the hazardous material for transportation in the UN portable tank and it conforms to the applicable T codes, and tank provision codes, or other special provisions assigned to the hazardous material in Column (7) of the Table. In addition, the portable tank must—

(i) Conform to applicable provisions in the UN Recommendations (IBR, see § 171.7 of this subchapter) and the requirements of this subpart;

(ii) Be capable of passing the prescribed tests and inspections in part 180 of this subchapter applicable to the UN portable tank specification;

(iii) Be designed and manufactured according to the ASME Code (IBR, see § 171.7 of this subchapter) or a pressure vessel design code approved by the Associate Administrator;

(iv) Be approved by the Associate Administrator when the portable tank is designed and constructed under the provisions of an alternative arrangement (see § 178.274(a)(2) of this subchapter); and

(v) The competent authority of the country of manufacture must provide reciprocal treatment for UN portable

tanks manufactured in the United States.

25. In § 173.62, in paragraph (b), the Explosives Table is amended by adding entries in the appropriate numerical order, and in paragraph (c), in the Table of Packing Methods, packing instruction entry 114(b) is revised to read as follows:

§ 173.62 Specific packaging requirements for explosives.

* * * * *

(b) * * *

EXPLOSIVES TABLE

ID#	PI
* * * * *	* * * * *
UN0505	135
UN0506	135
UN0507	135
UN0508	114(b)
UN0509	114(b)
* * * * *	* * * * *
(c) * * *	
(5) * * *	

TABLE OF PACKING METHODS—CONTINUED

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
* * *	* * *	* * *	* * *
114(b) This packing instruction applies to dry solids.	Bags paper, kraft plastics textile, sift-proof woven plastics, sift-proof.	Not necessary	Boxes. natural wood, ordinary (4C1). natural wood, sift-proof walls (4C2) plywood (4D).
PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:			
1. For UN 0077, 0132, 0234, 0235 and 0236, packagings must be lead free.	Receptacles, fibreboard, metal, paper, plastics, woven plastics, sift-proof.	.....	reconstituted wood (4F). fibreboard (4G). Drums. steel, removable head (1A2). aluminum, removable head (1B2) plywood (1D). fibre (1G). plastics, removable head (1H2).
2. For UN 0160 and UN 0161, when metal drums (1A2 or 1B2) are used as the outer packaging, metal packagings must be so constructed that the risk of explosion, by reason of increased internal pressure from internal or external causes is prevented.			
3. For UN 0160, UN 0161, and UN0508, inner packagings are not necessary if drums are used as the outer packaging.			
4. For UN 0508 and UN0509, metal packagings shall not be used.			
* * *	* * *	* * *	* * *

26. In § 173.115, paragraph (b) is revised, (k) is redesignated as new paragraph (l), and new paragraph (k) is added to read as follows:

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

* * * * *

(b) Division 2.2 (*non-flammable, nonpoisonous compressed gas—including compressed gas, liquefied gas,*

pressurized cryogenic gas, compressed gas in solution, asphyxiant gas and oxidizing gas). For the purpose of this subchapter, a non-flammable, nonpoisonous compressed gas (Division 2.2) means any material (or mixture) which—

(1) Exerts in the packaging an absolute pressure of 302 kPa (43.8 psia) or greater at 20 °C (68 °F), is a liquefied gas or is a cryogenic liquid, and

(2) Does not meet the definition of Division 2.1 or 2.3.

* * * * *

(k) For Division 2.2 gases, the oxidizing ability shall be determined by tests or by calculation in accordance with ISO 10156:1996 and ISO 10156-2:2005 (IBR, see § 171.7 of this subchapter).

(l) The following applies to aerosols (see § 171.8 of this subchapter):

(1) An aerosol must be assigned to Division 2.1 if the contents include 85% by mass or more flammable components and the chemical heat of combustion is 30 kJ/g or more;

(2) An aerosol must be assigned to Division 2.2 if the contents contain 1% by mass or less flammable components and the heat of combustion is less than 20 kJ/g.

(3) Aerosols not meeting the provisions of paragraphs (a) or (b) of this section must be classed in accordance with the appropriate tests of the UN Manual of Tests and Criteria (IBR, see § 171.7 of this subchapter). An aerosol which was tested in accordance with the requirements of this subchapter in effect on December 31, 2005, is not required to be retested.

(4) Division 2.3 gases may not be transported in an aerosol container.

(5) When the contents are classified as Division 6.1, PG III or Class 8, PG II or III, the aerosol must be assigned a subsidiary hazard of Division 6.1 or Class 8, as appropriate.

(6) Substances of Division 6.1, PG I or II, and substances of Class 8, PG I are forbidden from transportation in an aerosol container.

(7) Flammable components are Class 3 flammable liquids, Division 4.1 flammable solids, or Division 2.1 flammable gases. The chemical heat of combustion must be determined in accordance with the UN Manual of Tests and Criteria (IBR, see § 171.7 of this subchapter).

* * * * *

27. In § 173.134, as amended on January 28, 2008, paragraph (b)(13)(i) is revised to read as follows:

§ 173.134 Class 6, Division 6.2—Definitions and exceptions.

* * * * *

- (b) * * *
(13) * * *

(i) Household waste as defined in § 171.8, when transported in accordance with applicable state, local, or tribal requirements.

* * * * *

28. In § 173.137, paragraph (c)(2) is revised and a note to the section is added to read as follows:

§ 173.137 Class 8—Assignment of packing group.

* * * * *

- (c) * * *

(2) That do not cause full thickness destruction of intact skin tissue but exhibit a corrosion on either steel or aluminum surfaces exceeding 6.25 mm (0.25 inch) a year at a test temperature of 55 °C (130 °F) when tested on both materials. The corrosion may be

determined in accordance with the UN Manual of Tests and Criteria (IBR, see § 171.7 of this subchapter) or other equivalent test methods.

Note to § 173.137: When an initial test on either a steel or aluminum surface indicates the material being tested is corrosive, the follow up test on the other surface is not required.

29. Section 173.159 is revised to read as follows:

§ 173.159 Batteries, wet.

(a) Electric storage batteries, containing electrolyte acid or alkaline corrosive battery fluid (wet batteries), may not be packed with other materials except as provided in paragraphs (g) and (h) of this section and in §§ 173.220 and 173.222; and any battery or battery-powered device, equipment or vehicle must be prepared and packaged for transport so as to prevent:

(1) The potential of a dangerous evolution of heat;

(2) Short circuits, including, but not limited to:

(i) Packaging each battery or each battery-powered device or equipment when practicable in fully enclosed inner packagings made of non-conductive material;

(ii) Separating batteries and battery-powered devices in a manner to prevent contact with other batteries, devices or conductive materials (e.g., metal) in the packagings; or

(iii) Ensuring exposed terminals are protected with non-conductive caps, non-conductive tape, or by other appropriate means; and

(3) Damage to terminals. If not impact resistant, the outer packaging should not be used as the sole means of protecting the battery terminals from damage or short circuiting. Batteries must be securely cushioned and packed to prevent any shifting which could loosen terminal caps or reorient the terminals. Terminal protection methods include but are not limited to:

(i) Securely attaching covers of sufficient strength to protect the terminals;

(ii) Packaging the battery in a rigid plastic packaging; or

(iii) Constructing the battery with terminals that are recessed or otherwise protected so that the terminals will not be subjected to damage if the package is dropped.

(b) For transportation by aircraft:

(1) The packaging for wet batteries must incorporate an acid-or alkali-proof liner, or include a supplementary packaging with sufficient strength and adequately sealed to prevent leakage of electrolyte fluid in the event of spillage; and

(2) Any battery-powered device, equipment or vehicle must be prepared and packaged for transport so as to prevent unintentional activation (e.g., adequate packaging, switch caps or locks, recessed switches, trigger locks, temperature sensitive circuit breakers, etc.).

(c) The following specification packagings are authorized for batteries packed without other materials provided all requirements of paragraph (a) of this section, and for transportation by aircraft, paragraph (b) of this section, are met:

- (1) Wooden box: 4C1, 4C2, 4D, or 4F
- (2) Fiberboard box: 4G
- (3) Plywood drum: 1D
- (4) Fiber drum: 1G
- (5) Plastic drum: 1H2
- (6) Plastic jerrican: 3H2
- (7) Plastic box: 4H2

(d) The following non-specification packagings are authorized for batteries packed without other materials provided all requirements of paragraph (a) of this section, and for transportation by aircraft, paragraph (b) of this section, are met:

(1) Electric storage batteries are firmly secured to skids or pallets capable of withstanding the shocks normally incident to transportation are authorized for transportation by rail, highway, or vessel. The height of the completed unit must not exceed 1½ times the width of the skid or pallet. The unit must be capable of withstanding, without damage, a superimposed weight equal to two times the weight of the unit or, if the weight of the unit exceeds 907 kg (2000 pounds), a superimposed weight of 1814 kg (4000 pounds). Battery terminals must not be relied upon to support any part of the superimposed weight and must not short out if a conductive material is placed in direct contact with them.

(2) Electric storage batteries weighing 225 kg (500 pounds) or more, consisting of carriers' equipment, may be shipped by rail when mounted on suitable skids. Such shipments may not be offered in interchange service.

(3) One to three batteries not over 11.3 kg (25 pounds) each, packed in strong outer boxes. The maximum authorized gross weight is 34 kg (75 pounds).

(4) Not more than four batteries not over 7 kg (15 pounds) each, packed in strong outer fiberboard or wooden boxes. The maximum authorized gross weight is 30 kg (65 pounds).

(5) Not more than five batteries not over 4.5 kg (10 pounds) each, packed in strong outer fiberboard or wooden boxes. The maximum authorized gross weight is 30 kg (65 pounds).

(6) Single batteries not exceeding 34 kg (75 pounds) each, packed in 5-sided slip covers or in completely closed fiberboard boxes. Slip covers and boxes must be of solid or double-faced corrugated fiberboard of a least 91 kg (200 pounds) Mullen test strength. The slip cover or fiberboard box must fit snugly and provide inside top clearance of at least 1.3 cm (0.5 inch) above battery terminals and filler caps with reinforcement in place. Assembled for shipment, the bottom edges of the slipcover must come to within 2.5 cm (1 inch) of the bottom of the battery. The completed package (battery and box or slip cover) must be capable of withstanding a top-to-bottom compression test of at least 225 kg (500 pounds) without damage to battery terminal caps, cell covers or filler caps.

(7) Single batteries exceeding 34 kg (75 pounds) each may be packed in completely closed fiberboard boxes. Boxes must be of double-wall corrugated fiberboard of at least 181 kg (400 pounds) test, or solid fiberboard testing at least 181 kg (400 pounds); a box may have hand holes in its ends provided that the hand holes will not materially weaken the box. Sides and ends of the box must have cushioning between the battery and walls of the box; combined thickness of cushioning material and walls of the box must not be less than 1.3 cm (0.5 inch); and cushioning must be excelsior pads, corrugated fiberboard, or other suitable cushioning material. The bottom of the battery must be protected by a minimum of one excelsior pad or by a double-wall corrugated fiberboard pad. The top of the battery must be protected by a wood frame, corrugated trays or scored sheets of corrugated fiberboard having minimum test of 91 kg (200 pounds), or other equally effective cushioning material. Top protection must bear evenly on connectors and/or edges of the battery cover to facilitate stacking of batteries. No more than one battery may be placed in one box. The maximum authorized gross weight is 91 kg (200 pounds).

(e) When transported by highway or rail, electric storage batteries containing electrolyte or corrosive battery fluid are not subject to any other requirements of this subchapter, if all of the following are met:

- (1) No other hazardous materials may be transported in the same vehicle;
- (2) The batteries must be loaded or braced so as to prevent damage and short circuits in transit;
- (3) Any other material loaded in the same vehicle must be blocked, braced, or otherwise secured to prevent contact with or damage to the batteries; and

(4) The transport vehicle may not carry material shipped by any person other than the shipper of the batteries.

(f) Batteries can be considered as non-spillable provided they are capable of withstanding the following two tests, without leakage of battery fluid from the battery:

(1) *Vibration test.* The battery must be rigidly clamped to the platform of a vibration machine, and a simple harmonic motion having an amplitude of 0.8 mm (0.03 inches) with a 1.6 mm (0.063 inches) maximum total excursion must be applied. The frequency must be varied at the rate of 1 Hz/min between the limits of 10 Hz to 55 Hz. The entire range of frequencies and return must be traversed in 95±5 minutes for each mounting position (direction of vibrator) of the battery. The battery must be tested in three mutually perpendicular positions (to include testing with fill openings and vents, if any, in an inverted position) for equal time periods.

(2) *Pressure differential test.* Following the vibration test, the battery must be stored for six hours at 24 °C±4 °C (75 °F±7 °F) while subjected to a pressure differential of at least 88 kPa (13 psig). The battery must be tested in three mutually perpendicular positions (to include testing with fill openings and vents, if any, in an inverted position) for at least six hours in each position.

(g) Electrolyte, acid or alkaline corrosive battery fluid, packed with batteries wet or dry, must be packed in one of the following specification packagings:

(1) In 4C1, 4C2, 4D, or 4F wooden boxes with inner receptacles of glass, not over 4.0 L (1 gallon) each with not over 8.0 L (2 gallons) total in each outside container. Inside containers must be well-cushioned and separated from batteries by a strong solid wooden partition. The completed package must conform to Packing Group III requirements.

(2) Electrolyte, acid, or alkaline corrosive battery fluid included with electric storage batteries and filling kits may be packed in strong rigid outer packagings when shipments are made by, for, or to the Departments of the Army, Navy, or Air Force of the United States. Packagings must conform to military specifications. The electrolyte, acid, or alkaline corrosive battery fluid must be packed in polyethylene bottles of not over 1.0 L (0.3 gallon) capacity each. Not more than 24 bottles, securely separated from electric storage batteries and kits, may be offered for transportation or transported in each package.

(3) In 4G fiberboard boxes with not more than 12 inside packagings of polyethylene or other material resistant to the lading, each not over 2.0 L (0.5 gallon) capacity each. Completed packages must conform to Packing Group III requirements. Inner packagings must be adequately separated from the storage battery. The maximum authorized gross weight is 29 kg (64 pounds). These packages are not authorized for transportation by aircraft.

(h) Dry batteries or battery charger devices may be packaged in 4G fiberboard boxes with inner receptacles containing battery fluid. Completed packagings must conform to Packing Group III requirements. Not more than 12 inner receptacles may be packed in one outer box. The maximum authorized gross weight is 34 kg (75 pounds).

(i) When approved by the Associate Administrator, electric storage batteries, containing electrolyte or corrosive battery fluid in a separate reservoir from which fluid is injected into the battery cells by a power device cartridge assembled with the battery, and which meet the criteria of paragraph (f) are not subject to any other requirements of this subchapter.

30. A new § 173.159a is added to read as follows:

§ 173.159a Exceptions for non-spillable batteries.

(a) Exceptions for hazardous materials shipments in the following paragraphs are permitted only if this section is referenced for the specific hazardous material in the § 172.101 table or in a packaging section in this part.

(b) Non-spillable batteries offered for transportation or transported in accordance with this section are subject to the incident reporting requirements of §§ 171.15 and 171.16 when applicable.

(c) Non-spillable batteries are excepted from the packaging requirements of § 173.159 under the following conditions:

(1) Non-spillable batteries must be securely packed in strong outer packagings and meet the requirements of § 173.159(a). A non-spillable battery which is an integral part of and necessary for the operation of mechanical or electronic equipment must be securely fastened in the battery holder on the equipment;

(2) For batteries manufactured after September 30, 1995, the battery and outer packaging must be plainly and durably marked "NONSPILLABLE" or "NONSPILLABLE BATTERY". The requirement to mark the outer package does not apply when the battery is

installed in a piece of equipment that is transported unpackaged.

(d) Non-spillable batteries are excepted from all other requirements of this subchapter when offered for transportation and transported in accordance with paragraph (c) of this section and:

(1) At a temperature of 55 °C (131 °F), the battery must not contain any unabsorbed free-flowing liquid, and must be designed so that electrolyte will not flow from a ruptured or cracked case; and

(2) When transported by aircraft:

(i) The airway bill must contain the words "not restricted"; and

(ii) Any battery-powered device, equipment or vehicle must be prepared and packaged for transport so as to prevent unintentional activation.

31. In § 173.162, paragraph (c) is revised to read as follows:

§ 173.162 Gallium.

* * * * *

(c) Manufactured articles or apparatuses containing gallium are not subject to the requirements of this subchapter except for the following:

(1) For transportation by aircraft:

(i) Each manufactured article or apparatus contains no more than 100 mg (0.0035 ounce) of gallium and is packaged so that the quantity of gallium per package does not exceed 1 g (0.35 ounce);

(ii) The incident reporting requirements of § 171.15 of this subchapter; and

(iii) The airway bill must contain the words "not restricted."

(2) For transportation by motor vehicle, rail, or vessel, each manufactured article or apparatus, must contain no more than 100 mg (0.0035 ounce) of gallium and is packaged so that the quantity of gallium per package does not exceed 1 g (0.35 ounce).

32. In § 173.164, paragraph (b) is revised to read as follows:

§ 173.164 Mercury (metallic and articles containing mercury).

* * * * *

(b) Manufactured articles or apparatuses containing mercury are not subject to the requirements of this subchapter except for the following:

(1) For transportation by aircraft:

(i) Each manufactured article or apparatus contains no more than 100 mg (0.0035 ounce) of mercury and is packaged so that the quantity of mercury per package does not exceed 1 g (0.35 ounce);

(ii) The incident reporting requirements of § 171.15 of this subchapter; and

(iii) The airway bill must contain the words "not restricted."

(2) For transportation by motor vehicle, rail, or vessel, each manufactured article or apparatus, must contain no more than 100 mg (0.0035 ounce) of mercury and is packaged so that the quantity of mercury per package does not exceed 1 g (0.35 ounce).

* * * * *

33. In § 173.166, paragraph (d)(1) is revised to read as follows:

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

* * * * *

(d) * * *

(1) An air bag module or seat-belt pretensioner that has been 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 except for transportation by air:

(i) The incident reporting requirements of § 171.15 of this subchapter; and

(ii) The air waybill must contain the words "not restricted."

* * * * *

34. In § 173.186, paragraph (c) is revised to read as follows:

§ 173.186 Matches.

* * * * *

(c) Safety matches and wax "Vesta" matches must be tightly packed in securely closed inner packagings to prevent accidental ignition under conditions normally incident to transportation, and further packed in outer fiberboard, wooden, or other equivalent-type packagings. These matches in outer packagings not exceeding 23 kg (50 pounds) gross weight are not subject to any other requirement of this subchapter except for marking, and for transportation by aircraft, the incident reporting requirements of § 171.15 of this subchapter and the air waybill must contain the words "not restricted." These matches may be packed in the same outer packaging with materials not subject to this subchapter.

* * * * *

35. In § 173.189, paragraph (e) is revised to read as follows:

§ 173.189 Batteries containing sodium or cells containing sodium.

* * * * *

(e) Vehicles, machinery and equipment powered by sodium batteries must be consigned under the entry "Battery-powered vehicle or Battery-powered equipment."

36. In § 173.196, paragraphs (a)(1) and (a)(2) are revised to read as follows:

§ 173.196 Category A infectious substances.

(a) * * *

(1) A leakproof primary receptacle.

(2) A leakproof secondary packaging.

If multiple fragile primary receptacles are placed in a single secondary packaging, they must be either wrapped individually or separated to prevent contact between them.

* * * * *

37. In subpart E of part 173, a new § 173.206 is added to read as follows:

§ 173.206 Packaging requirements for chlorosilanes.

(a) When § 172.101 of this subchapter specifies that a hazardous material be packaged under this section, only non-bulk packagings prescribed in this section may be used for its transportation. Each packaging must conform to the general packaging requirements of subpart B of part 173, to the requirements of part 178 of this subchapter at the Packing Group I or II performance level (unless otherwise excepted), and to the particular requirements of the special provisions of Column (7) of the § 172.101 Table.

(b) The following combination packagings are authorized:

Outer packagings:

Steel drum: 1A2
Plastic drum: 1H2
Plywood drum: 1D
Fiber drum: 1G
Steel box: 4A
Natural wood box: 4C1 or 4C2
Plywood box: 4D
Reconstituted wood box: 4F
Fiberboard box: 4G
Expanded plastic box: 4H1
Solid plastic box: 4H2

Inner packagings:

Glass or Steel receptacle

(c) Except for transportation by passenger aircraft, the following single packagings are authorized:

Steel drum: 1A1
Steel jerrican: 3A1
Plastic receptacle in steel drum: 6HA1

38. In § 173.220, paragraphs (a)(2), (c), (d), and (e)(1), and the last two sentences of paragraph (g)(2) are revised to read as follows:

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

(a) * * *

(2) It is equipped with a wet battery (including a non-spillable battery), a sodium battery or lithium battery; or

* * * * *

(c) *Battery-powered or installed.* Batteries must be securely installed, and wet batteries must be fastened in an upright position. Batteries must be protected against short circuits and leakage or removed and packaged separately under § 173.159. Battery-powered vehicles, machinery or equipment including battery-powered wheelchairs and mobility aids are not subject to any other requirements of this subchapter except § 173.21 when transported by rail, highway or vessel.

(d) *Lithium batteries.* Except as provided in § 173.185 of this subchapter, vehicles, engines and machinery powered by lithium metal batteries that are transported with these batteries installed are forbidden aboard passenger-carrying aircraft. Lithium batteries contained in vehicles, engines or mechanical equipment must be securely fastened in the battery holder of the vehicle, engine or mechanical equipment and be protected in such a manner as to prevent damage and short circuits (e.g., by the use of non-conductive caps that cover the terminals entirely). Lithium batteries must be of a type that have successfully passed each test in the UN Manual of Tests and Criteria as specified in § 173.185, unless approved by the Associate Administrator. Equipment (other than vehicles, engines or mechanical equipment) containing lithium batteries, must be described as "Lithium batteries contained in equipment" and transported in accordance with

§ 173.185 and applicable special provisions.

(e) *Other hazardous materials.* (1) Items containing hazardous materials, such as, fire extinguishers, compressed gas accumulators, safety devices and other hazardous materials which are integral components of the motor vehicle, engine or mechanical equipment and are necessary for the operation of the vehicle, engine or mechanical equipment, or for the safety of its operator or passengers must be securely installed in the motor vehicle, engine or mechanical equipment. Such items are not otherwise subject to the requirements of this subchapter. Equipment (other than vehicles, engines or mechanical equipment) containing lithium batteries must be described as "Lithium batteries contained in equipment" and transported in accordance with § 173.185 and applicable special provisions.

* * * * *

(g) * * *

(2) * * * For transportation by aircraft, the provisions of § 173.159(d)(2) as applicable, other applicable requirements of this subchapter, including shipping papers, emergency response information, notification of pilot-in-command, general packaging requirements, and the requirements specified in § 173.27 must be met. For transportation by vessel, additional exceptions are specified in § 176.905 of this subchapter.

39. In § 173.222, the section heading and paragraph (c)(3) are revised to read as follows:

§ 173.222 Dangerous goods in equipment, machinery or apparatus.

* * * * *

(c) * * *

(3) 0.5 kg (1.1 pounds) in the case of Division 2.2 gases. For transportation by aircraft, Division 2.2 gases with subsidiary risks and refrigerated liquefied gases are not authorized; and

* * * * *

40. a. In § 173.225, in paragraph (c)(8), the Organic Peroxide Table is amended by removing and adding the following entries in the appropriate order; and in the "NOTES" immediately following the Table, a new Note "29," "30" and "31" are added in the appropriate numerical order.

b. In paragraph (e), the Organic Peroxide IBC Table is amended by removing and adding the following entries in the appropriate order.

c. In paragraph (g), the Organic Peroxide Portable Tank Table is amended by adding and revising the following entries in the appropriate order.

§ 173.225 Packaging requirements and other provisions for organic peroxides.

* * * * *

(c) * * *

(8) * * *

ORGANIC PEROXIDE TABLE

Technical name	ID No.	Concent. (mass %)	Diluent (mass %) A	Diluent (mass %) B	Diluent (mass %) I	Water (mass %)	Packing method	Temp control	Temp emergency	Notes
(1)	(2)	(3)	(4a)	(4b)	(4c)	(5)	(6)	(7a)	(7b)	(8)
[REMOVE]										
tert-Amyl peroxy-3,5,5-trimethylhexanoate ..	3101	≤100 .....	.....	.....	.....	.....	OP5.		*	
Cyclohexanone peroxide(s)	Exempt ..	.....	.....	.....	≥68 .....	.....	Exempt.		*	
Dibenzoyl peroxide	Exempt ..	≤35 .....	.....	.....	≥65 .....	.....	Exempt.		*	
Di-(2-tert-butylperoxyisopropyl) benzene(s)	Exempt ..	≤42 .....	.....	.....	≥58 .....	.....	Exempt.		*	
Di-4-chlorobenzoyl peroxide	Exempt ..	≤32 .....	.....	.....	≥68 .....	.....	Exempt.		*	
Dicumyl peroxide	Exempt ..	≤52 .....	.....	.....	≥48 .....	.....	Exempt.		*	
Di-(2-ethylhexyl) peroxydicarbonate [as a stable dispersion in water].	3117	≤62 .....	.....	.....	.....	.....	OP8	- 15		- 5
[ADD]										
tert-Amyl peroxyneodecanoate	3119	≤47	≥53 .....	.....	.....	.....	OP8	0		+10

ORGANIC PEROXIDE TABLE—Continued

Technical name	ID No.	Concent. (mass %)	Diluent (mass %) A	Diluent (mass %) B	Diluent (mass %) I	Water (mass %)	Packing method	Temp control	Temp emer- gency	Notes
(1)	(2)	(3)	(4a)	(4b)	(4c)	(5)	(6)	(7a)	(7b)	(8)
tert-Amyl peroxyvalate	3119	≤32	≥68 .....	.....	.....	.....	OP8	+10	+15	
tert-Amyl peroxy-3,5,5-trimethylhexanoate ..	3105	≤100 .....	.....	.....	.....	.....	OP7.			
tert-Butyl peroxy-3,5,5-trimethylhexanoate ..	3106	≤42 .....	.....	.....	≥58 .....	.....	OP7.			
Cumyl peroxyneodecanoate	3115	≤87	≥13 .....	.....	.....	.....	OP7	− 10	0	
Cyclohexanone peroxide(s)	Exempt ..	≤32 .....	.....	.....	≥68 .....	.....	Exempt ..			29
2,2-DI-(tert-amylperoxy)-butane	3105	≤57	≥43 .....	.....	.....	.....	OP7.			
Dibenzoyl peroxide	Exempt ..	≤35 .....	.....	.....	≥65 .....	.....	Exempt ..			29
tert-Butyl peroxybenzoate	3109	≤32	≥68 .....	.....	.....	.....	OP8.			
1,1-DI-(tert-butylperoxy)-cyclohexane	3103	≤72 .....	.....	≥28 .....	.....	.....	OP5			30
1,1-Di-(tert-Butylperoxy) cyclohexane	3109	≤37	≥63 .....	.....	.....	.....	OP8.			
1,1-DI-(tert-butylperoxy)-Cyclohexane + tert-butyl peroxy-2-ethylhexanoate.	3105	≤43+≤16	≥41 .....	.....	.....	.....	OP7.			
Di-(2-tert-butylperoxyisopropyl) benzene(s)	Exempt ..	≤42 .....	.....	.....	≥58 .....	.....	Exempt ..			29
1,1-DI-(tert-butylperoxy)-3,3,5-trimethylcyclohexane.	3103	≤90 .....	.....	≥10 .....	.....	.....	OP5			30
DI-2,4-dichlorobenzoyl peroxide [as a paste]	3118	≤52 .....	.....	.....	.....	.....	OP8	+20	+25	
Di-4-chlorobenzoyl peroxide	Exempt ..	≤32 .....	.....	.....	≥68 .....	.....	Exempt ..			29
Dicumyl peroxide	Exempt ..	≤52 .....	.....	.....	≥48 .....	.....	Exempt ..			29
Di-(2-ethylhexyl) peroxydicarbonate [as a stable dispersion in water].	3119	≤62 .....	.....	.....	.....	.....	OP8	− 15	− 5	
Di-(2-neodecanoyl-peroxyisopropyl) benzene, as stable dispersion in water.	3119	<42 .....	.....	.....	.....	.....	OP8	− 15	− 5	
3-Hydroxy-1,1-dimethylbutyl peroxyneodecanoate.	3115	≤77	≥23 .....	.....	.....	.....	OP7	− 5	+5	
3-Hydroxy-1,1-dimethylbutyl peroxyneodecanoate [as a stable dispersion in water].	3119	≤52 .....	.....	.....	.....	.....	OP8	− 5	+5	
3-Hydroxy-1,1-dimethylbutyl peroxyneodecanoate.	3117	≤52	≥48 .....	.....	.....	.....	OP8	− 5	+5	
Methyl isopropyl ketone peroxide(s)	3109	(See remark 31).	≥70 .....	.....	.....	.....	OP8			31
3,3,5,7,7-Pentamethyl-1,2,4-Trioxepane	3107	≤100 .....	.....	.....	.....	.....	OP8.			

ORGANIC PEROXIDE TABLE—Continued

Technical name	ID No.	Concent. (mass %)	Diluent (mass %) A	Diluent (mass %) B	Diluent (mass %) I	Water (mass %)	Packing method	Temp control	Temp emer- gency	Notes
(1)	(2)	(3)	(4a)	(4b)	(4c)	(5)	(6)	(7a)	(7b)	(8)
*	*	*		*	*		*		*	

NOTES

* * * * *

29. Not subject to the requirements of this subchapter for Division 5.2.

30. Diluent type B with boiling point >130 °C (266 °F).

31. Available oxygen ≤6.7%.

* * * * *

(e) * * *

ORGANIC PEROXIDE IBC TABLE

UN No.	Organic peroxide	Type of IBC	Maximum quantity (litres)	Control temperature	Emergency temperature
[REMOVE]					
3109	ORGANIC PEROXIDE, TYPE F, LIQUID.				
	tert-Butyl peroxy-3,5,5-trimethylhexanoate, not more than 32% in diluent type A.	31A	1250		
		31HA1	1000		
3119	ORGANIC PEROXIDE, TYPE F, LIQUID, TEMPERATURE CONTROLLED.				
	tert-Butyl peroxyneodecanoate, not more than 42%, stable dispersion, in water.	31A	1250	−5 °C	+5 °C
	Di-(2-ethylhexyl) peroxydicarbonate, not more than 52%, staple dispersion, in water.	31A	1250	−20 °C	−10 °C
[ADD]					
3109	ORGANIC PEROXIDE, TYPE F, LIQUID.				
	tert-Butyl peroxybenzoate, not more than 32% in diluent type A.	31A	1250		
	tert-Butyl peroxy-3,5,5-trimethylhexanoate, not more than 37% in diluent type A.	31A	1250		
		31HA1	1000		
	1,1-Di-(tert-Butylperoxy) cyclohexane, not more than 37% in diluent type A.	31A	1250		
3119	ORGANIC PEROXIDE, TYPE F, LIQUID, TEMPERATURE CONTROLLED.				
	tert-Amyl peroxy-pivalate, not more than 32% in diluent type A.	31A	1250	+10 °C	+15 °C
	tert-Butyl peroxyneodecanoate, not more than 52%, stable dispersion, in water.	31A	1250	−5 °C	+5 °C
	Di-(2-ethylhexyl) peroxydicarbonate, not more than 62%, staple dispersion, in water.	31A	1250	−20 °C	−10 °C

ORGANIC PEROXIDE IBC TABLE—Continued

UN No.	Organic peroxide	Type of IBC	Maximum quantity (litres)	Control temperature	Emergency temperature
*	Di-(2-neodecanoylperoxyisopropyl) benzene, not more than 42%, stable dispersion, in water.	31A	1250	– 15 °C	– 5 °C
*	3-Hydroxy-1,1-dimethylbutyl peroxy-neodecanoate, not more than 52%, stable dispersion, in water.	31A	1250	– 15 °C	– 5 °C
*					

* * * * *

(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
[REMOVE].								
3119	ORGANIC PEROXIDE, TYPE F, LIQUID, TEMPERATURE CONTROLLED.	*	*	*	*	*	*	*
	Di-(3,5,5-trimethylhexanoyl) peroxide, not more than 38% in diluent type A.	4	§ 178.274(d)(2)	§ 178.275(d)(3)	§ 178.275(g)(1)	Not more than 90% at 59 °F (15 °C).	0 °C	+5 °C
	*	*	*	*	*	*	*	*
[ADD]								
3119	ORGANIC PEROXIDE, TYPE F, LIQUID, TEMPERATURE CONTROLLED.	*	*	*	*	*	*	*
	tert-Amyl peroxyneodecanoate, not more than 47% in diluent type A.	4	§ 178.274(d)(2)	§ 178.275(d)(3)	§ 178.275(g)(1)	Not more than 90% at 59 °F (15 °C).	– 10 °C	– 5 °C
	*	*	*	*	*	*	*	*
	Di-(3,5,5-trimethylhexanoyl) peroxide, not more than 38% in diluent type A or type B.	4	§ 178.274(d)(2)	§ 178.275(d)(3)	§ 178.275(g)(1)	Not more than 90% at 59 °F (15 °C).	0 °C	+5 °C
	*	*	*	*	*	*	*	*

41. In § 173.226, paragraph (c) is revised to read as follows:

§ 173.226 Materials poisonous by inhalation, Division 6.1, Packing Group I, Hazard Zone A.

* * * * *

(c) In combination packagings, consisting of an inner packaging system and an outer packaging, as follows:

(1) Outer packagings:

Steel drum: 1A2

Aluminum drum: 1B2

Metal drum, other than steel or aluminum: 1N2
 Plywood drum: 1D
 Fiber drum: 1G
 Plastic drum: 1H2
 Steel box: 4A
 Aluminum box: 4B
 Natural wood box: 4C1 or 4C2
 Plywood box: 4D
 Reconstituted wood box: 4F
 Fiberboard box: 4G
 Expanded plastic box: 4H2
 Solid plastic box: 4H2

(2) Inner packaging system. The inner packaging system consists of two packagings:

(i) An impact-resistant receptacle of glass, earthenware, plastic or metal securely cushioned with a non-reactive, absorbent material, and

(A) Capacity of each inner receptacle may not exceed 4 L (1 gallon).

(B) An inner receptacle that has a closure must have a closure which is physically held in place by any means capable of preventing back-off or

loosening of the closure by impact or vibration during transportation.

(ii) Packed within a leak-tight packaging of metal or plastic.

(iii) This combination packaging in turn is packed within the outer packaging.

(3) Additional requirements:

(i) The total amount of liquid contained in the outer packaging must not exceed 16 L (4 gallons).

(ii) The inner packaging system must conform to the performance test requirements of subpart M of part 178 of this subchapter, at the Packaging Group I performance level when subjected to the following tests:

(A) § 178.603—Drop Test

(B) § 178.604—Leakproofness Test

(C) § 178.605—Hydrostatic Pressure Test

(iii) The inner packaging system must meet the above tests without the benefit of the outer packaging.

(iv) The leakproofness and hydrostatic pressure test may be conducted on either the inner receptacle or the outer packaging of the inner packaging system.

(v) The outer package must conform to the performance test requirements of subpart M of part 178 of this subchapter, at the Packaging Group I performance level as applicable for the type of package being used.

* * * * *

42. Section 173.230 is revised to read as follows:

§ 173.230 Fuel cell cartridges containing hazardous material.

(a) *Requirements for fuel cell cartridges.* Fuel cell cartridges, including when contained or packed with equipment, must be designed and constructed to prevent fuel leakage under normal conditions of transportation and be free of electric charge generating components. Fuel cell cartridge design types using liquids as fuels must pass an internal pressure test at a gauge pressure of 100 kPa (15 psig) without leakage. Except for fuel cell cartridges containing hydrogen in metal hydride which must be in conformance with paragraph (d) of this section, each fuel cell cartridge design type including when contained in or packed with equipment, must pass a 1.2 meter (3.9 feet) drop test onto an unyielding surface in the orientation most likely to result in the failure of the containment system with no loss of contents. Fuel cells installed in or integral to a fuel cell system are regarded as contained in equipment. Fuel cell cartridges containing a Division 2.1, Division 4.3 or Class 8 material must meet the following additional requirements.

(b) A fuel cell cartridge designed to contain a Division 4.3 or a Class 8 material may contain an activator provided it is fitted with two independent means of preventing unintended mixing with the fuel during transport.

(c) Each fuel cell cartridge designed to contain a liquefied flammable gas must:

(1) Be capable of withstanding, without leakage or bursting, a pressure of at least two times the equilibrium pressure of the contents at 55 °C (131 °F);

(2) Contain no more than 200 mL of liquefied flammable gas with a vapor pressure not exceeding 1,000 kPa (150 psig) at 55 °C (131 °F); and

(3) Pass the hot water bath test prescribed in accordance with § 173.306(a)(3)(v).

(d) Each fuel cell cartridge designed to contain hydrogen in a metal hydride must conform to the following:

(1) Each fuel cell cartridge must have a water capacity less than or equal to 120 mL (4 fluid ounces).

(2) Each fuel cell cartridge must be capable of withstanding, without leakage or bursting, a pressure of at least two times the design pressure of the cartridge at 55 °C (131 °F) or 200 kPa (30 psig) more than the design pressure of the cartridge at 55 °C (131 °F), whichever is greater. The pressure within the fuel cell cartridge must not exceed 5 MPa (650 psig) at 55 °C (131 °F). The pressure at which the test is conducted is referred to as the “minimum shell burst pressure.”

(3) Each fuel cell cartridge must be filled in accordance with the procedure provided by the manufacturer. The manufacturer must provide the following information with each fuel cell cartridge:

(i) Inspection procedures to be carried out before initial filling and before refilling of the fuel cell cartridge;

(ii) Safety precautions and potential hazards to be aware of;

(iii) A method of determining when the rated capacity has been achieved;

(iv) Minimum and maximum pressure range;

(v) Minimum and maximum temperature range; and

(vi) Any other requirements to be met for initial filling and refilling including the type of equipment to be used.

(4) Each fuel cell cartridge must be permanently marked with the following information:

(i) The rated charging pressure in megapascals (MPa);

(ii) The manufacturer's serial number of the fuel cell cartridges or unique identification number; and

(iii) The expiration date based on the maximum service life (yyyy/mm).

(5) Each fuel cell cartridge design type must be subjected to and pass the following tests (this includes cartridges integral to a fuel cell):

(i) *Drop test.* A 1.8 m (5.9 feet) drop test onto an unyielding surface must be performed. There must be no leakage. Leakage must be determined using a soap bubble solution or other equivalent means on all possible leak locations, when the fuel cell cartridge is charged to its rated charging pressure. The fuel cell cartridge must then be hydrostatically pressurized to destruction. The burst pressure must be greater than 85% of the minimum shell burst pressure. The drop must be performed in the following four different orientations:

(A) Vertically, on the end containing the shut-off valve assembly;

(B) Vertically, on the end opposite to the shut-off valve assembly;

(C) Horizontally, onto a steel apex with a diameter of 3.8 cm (9.7 in), with the steel apex in the upward position; and

(D) At a 45° angle on the end containing the shut-off valve assembly.

(ii) *Fire test.* Each fuel cell cartridge filled (with hydrogen) to rated capacity must be subjected to a fire engulfment test. The cartridge design (including design types with an integral vent feature) is deemed to pass the fire test if:

(A) The internal pressure vents to zero gauge pressure without the rupture of the cartridge; or

(B) The cartridge withstands the fire for a minimum of 20 minutes without rupture.

(iii) *Hydrogen cycling test.* Each fuel cell cartridge must be subjected to a hydrogen cycling test to ensure that the design stress limits are not exceeded during use. The fuel cell cartridge must be cycled from not more than 5% rated hydrogen capacity to not less than 95% rated hydrogen capacity and back to not more than 5% rated hydrogen capacity. The rated charging pressure used for charging and temperatures must be within the operating temperature range. The cycling must be continued for at least 100 cycles. Following the cycling test the fuel cell cartridge must be charged and the water volume displaced by the cartridge must be measured. The design is deemed to pass the test if the water volume displaced by the cycled cartridge does not exceed the water volume displaced by an uncycled cartridge charged to 95% rated capacity and pressurized to 75% of its minimum shell burst pressure.

(iv) *Production leak test.* Each fuel cell cartridge must be tested for leaks at 15 °C ± 5 °C (59 °F ± 20 °F) while

pressurized to its rated charging pressure. There must be no leakage. Leakage must be determined using a soap bubble solution or other equivalent means on all possible leak locations.

(e) The following packagings are authorized provided the general packaging requirements subpart B of part 173 of this subchapter are met:

(1) For fuel cell cartridges, rigid packagings conforming to the requirements of part 178 of this subchapter at the packing group II performance level; and

(2) Strong outer packagings for fuel cell cartridges contained in equipment or packed with equipment. Large equipment containing fuel cell cartridges may be transported unpackaged if the equipment provides an equivalent level of protection.

(i) Fuel cell cartridges packed with equipment must be packed in inner packagings and placed in the outer packaging along with the equipment they are capable of powering or placed in the outer packaging with cushioning material or dividers. The fuel cell cartridges must be protected against damage that may be caused by the shifting or placement of the equipment and cartridges within the outer packaging; and

(ii) Fuel cell cartridges installed in equipment must be protected against short circuit and unintentional activation.

(f) For transportation by aircraft, the following additional provisions apply:

(1) The package must comply with the applicable provisions of § 173.27 of this subchapter;

(2) For fuel cells contained in equipment, fuel cell systems must not charge batteries during transport;

(3) For transportation aboard passenger aircraft, each fuel cell system and fuel cell cartridge must conform to IEC PAS 62282-6-1 Ed. 1 (IBR, see § 171.7 of this subchapter) or a standard approved by the Associate Administrator;

(4) For fuel cells packed with equipment, the fuel cell cartridges must be packed in inner packagings and placed in the outer packaging along with the equipment they are capable of powering;

(5) The maximum number of fuel cell cartridges in the intermediate packaging must be the minimum number required to power the equipment, plus 2 spares;

(6) Fuel cell cartridges must not charge batteries during transport; and

(7) Large robust articles containing fuel cells may be transported unpackaged when approved by the Associate Administrator.

(8) Fuel cells intended for transportation in carry-on baggage on board passenger aircraft must also comply with the applicable provisions prescribed in § 175.10 of this subchapter.

(g) *Limited quantities.* Limited quantities of hazardous materials contained in fuel cell cartridges are excepted from the labeling, placarding and the specification packaging requirements of this subchapter when packaged according to this section. Each package must conform to the packaging requirements of subpart B of this part and may not exceed 30 kg (66 pounds) gross weight. Limited quantities of fuel cell cartridges are not permitted for transportation by aircraft. For transportation by highway, rail and vessel, the following combination packagings are authorized:

(1) For flammable liquids, in fuel cell cartridges not over 1.0 L (0.3 gallon) net capacity each, packed in strong outer packaging.

(2) For water-reactive substances (Division 4.3 Dangerous when wet material), in fuel cell cartridges not over 0.5 L (16.9 fluid ounces) net capacity each for liquids or not over 0.5 kg (1.1 pound) net capacity each for solids, packed in strong outer packaging.

(3) For corrosive materials, in fuel cell cartridges not over 1.0 L (0.3 gallon) net capacity each for liquids or not over 1.0 kg (2.2 pounds) net capacity each for solids packed in strong outer packaging.

(4) For liquefied (compressed) flammable gas, in fuel cell cartridges not over 120 mL (4 fluid ounces) net capacity each, packed in strong outer packaging.

(5) For hydrogen in metal hydride, in fuel cell cartridges not over 120 mL (4 fluid ounces) net capacity each, packed in strong outer packaging.

(h) *Consumer commodities.* A limited quantity which conforms to the provisions of paragraph (g) of this section and is a "consumer commodity" as defined in § 171.8 of this subchapter may be renamed "Consumer commodity" and reclassified as ORM-D. In addition to the exceptions provided in paragraph (g) of this section, shipments of ORM-D materials are 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, and are eligible for the exceptions provided in § 173.156.

43. Section 173.304b is revised to read as follows:

§ 173.304b Additional requirements for shipment of liquefied compressed gases in UN pressure receptacles.

(a) *General.* Liquefied gases and gas mixtures must be offered for transportation in UN pressure receptacles subject to the requirements in this section and § 173.304. In addition, the general requirements applicable to UN pressure receptacles in §§ 173.301 and 173.301b must be met.

(b) *UN pressure receptacle filling limits.* A UN pressure receptacle is authorized for the transportation of liquefied compressed gases and gas mixtures as specified in this section. When a liquefied compressed gas or gas mixture is transported in a UN pressure receptacle, the filling ratio may not exceed the maximum filling ratio prescribed in this section and the applicable ISO standard. Compliance with the filling limits may be determined by referencing the numerical values and data in Table 2 of P200 of the UN Recommendations (IBR, see § 171.7 of this subchapter). Alternatively, the maximum allowable filling limits may be determined as follows:

(1) For high pressure liquefied gases, in no case may the filling ratio of the settled pressure at 65 °C (149 °F) exceed the test pressure of the UN pressure receptacle.

(2) For low pressure liquefied gases, the filling factor (maximum mass of contents per liter of water capacity) must be less than or equal to 95 percent of the liquid phase at 50 °C. In addition, the UN pressure receptacle may not be liquid full at 60 °C. The test pressure of the pressure receptacle must be equal to or greater than the vapor pressure of the liquid at 65 °C.

(3) For high pressure liquefied gases or gas mixtures, the maximum filling ratio may be determined using the formulas in (3)(b) of P200 of the UN Recommendations.

(4) For low pressure liquefied gases or gas mixtures, the maximum filling ratio may be determined using the formulas in (3)(c) of P200 of the UN Recommendations.

(c) Tetrafluoroethylene, stabilized, UN1081 must be packaged in a pressure receptacle with a minimum test pressure of 200 bar and a working pressure not exceeding 5 bar.

(d) Fertilizer ammoniating solution with free ammonia, UN1043 is not authorized in UN tubes or MEGCs.

44. In § 173.306, new paragraph (a)(5) is added; and paragraphs (b)(1), (b)(2), (b)(3), (i), and (j) are revised to read as follows:

§ 173.306 Limited quantities of compressed gases.

(a) * * *

(5) For limited quantities of Division 2.2 gases with no subsidiary risk, when in a plastic container for the sole purpose of expelling a liquid, paste or powder, provided all of the following conditions are met. Special exceptions for shipment of aerosols in the ORM-D class are provided in paragraph (i) of this section.

(i) Capacity must not exceed 1 L (61.0 cubic inches).

(ii) Pressure in the container must not exceed 160 psig at 130 °F. If the pressure in the container is less than 140 psig at 130 °F, a non-DOT specification container may be used. If the pressure in the container exceeds 140 psig at 130 °F but does not exceed 160 psig at 130 °F, the container must conform to specification DOT 2S. All non-DOT specification and specification DOT 2S containers must be capable of withstanding, without bursting, a pressure of one and one-half times the equilibrium pressure of the contents at 130 °F.

(iii) Liquid content of the material and gas must not completely fill the container at 130 °F.

(iv) The container must be packed in strong outside packagings.

(v) Each container must be subjected to a test performed in a hot water bath; the temperature of the bath and the duration of the test must be such that the internal pressure reaches that which would be reached at 55 °C (131 °F) or 50 °C (122 °F) if the liquid phase does not exceed 95% of the capacity of the container at 50 °C (122 °F). If the contents are sensitive to heat, the temperature of the bath must be set at between 20 °C (68 °F) and 30 °C (86 °F) but, in addition, one container in 2,000 must be tested at the higher temperature. No leakage or permanent deformation of a container may occur.

(vi) Each outside packaging must be marked "INSIDE CONTAINERS COMPLY WITH PRESCRIBED REGULATIONS."

* * *

(b) * * *

(1) Foodstuffs or soaps in a nonrefillable metal or plastic container not exceeding 1 L (61.0 cubic inches), with soluble or emulsified compressed gas, provided the pressure in the container does not exceed 140 psig at 130 °F. Plastic containers must only contain Division 2.2 non-flammable soluble or emulsified compressed gas. The metal or plastic container must be capable of withstanding, without bursting, a pressure of one and one-half

times the equilibrium pressure of the contents at 130 °F.

(i) Containers must be packed in strong outside packagings.

(ii) Liquid content of the material and the gas must not completely fill the container at 130 °F.

(iii) Each outside packaging must be marked "INSIDE CONTAINERS COMPLY WITH PRESCRIBED REGULATIONS."

(2) Cream in refillable metal or plastic containers with soluble or emulsified compressed gas. Plastic containers must only contain Division 2.2 non-flammable soluble or emulsified compressed gas. Containers must be of such design that they will hold pressure without permanent deformation up to 375 psig and must be equipped with a device designed so as to release pressure without bursting of the container or dangerous projection of its parts at higher pressures. This exception applies to shipments offered for transportation by refrigerated motor vehicles only.

(3) Nonrefillable metal or plastic containers charged with a Division 6.1 Packing Group III or nonflammable solution containing biological products or a medical preparation which could be deteriorated by heat, and compressed gas or gases. Plastic containers must only contain 2.2 non-flammable soluble or emulsified compressed gas. The capacity of each container may not exceed 35 cubic inches (19.3 fluid ounces). The pressure in the container may not exceed 140 psig at 130 °F, and the liquid content of the product and gas must not completely fill the containers at 130 °F. One completed container out of each lot of 500 or less, filled for shipment, must be heated, until the pressure in the container is equivalent to equilibrium pressure of the contents at 130 °F. There must be no evidence of leakage, distortion, or other defect. The container must be packed in strong outside packagings.

* * *

(i) A limited quantity which conforms to the provisions of paragraph (a)(1), (a)(3), (a)(5), or (b) of this section and is a "consumer commodity" as defined in § 171.8 of this subchapter, may be renamed "consumer commodity" and reclassified as ORM-D material. Each package may not exceed 30 kg (66 pounds) gross weight. In addition to the exceptions provided by paragraphs (a) and (b) of this section—

(1) Outside packagings are not required to be marked "INSIDE CONTAINERS COMPLY WITH PRESCRIBED REGULATIONS";

(2) Shipments of ORM-D materials are not subject to the shipping paper

requirements of subpart C of part 172 of this subchapter, unless the material meets the definition of a hazardous substance, a hazardous waste, or a marine pollutant or unless offered for transportation or transported by aircraft; and

(3) Shipments of ORM-D materials are eligible for the exceptions provided in § 173.156.

(j) *Aerosols and receptacles small, containing gas with a capacity of less than 50 mL.* Aerosols, as defined in § 171.8 of this subchapter, and receptacles small, containing gas, with a capacity not exceeding 50 mL (1.7 oz.) and with a pressure not exceeding 970 kPa (141 psig) at 55 °C (131 °F), containing no hazardous materials other than a Division 2.2 gas, are not subject to the requirements of this subchapter except for transportation by aircraft, the incident reporting requirements of § 171.15 of this subchapter and the air waybill must contain the words "not restricted." The pressure limit may be increased to 2000 kPa (290 psig) at 55 °C (131 °F) provided the aerosols are transported in outer packages that conform to the packaging requirements of Subpart B of this part. This paragraph (j) does not apply to a self-defense spray (e.g., pepper spray).

45. In § 173.307, new paragraph (a)(5) is added to read as follows:

§ 173.307 Exceptions for compressed gases.

(a) * * *

(5) Manufactured articles or apparatuses, 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) except for transportation by aircraft, the incident reporting requirements of § 171.15 of this subchapter and the air waybill must contain the words "not restricted."

* * *

46. In § 173.322, paragraph (d) is revised to read as follows:

§ 173.322 Ethyl chloride.

* * *

(d) In specification cylinders as prescribed for any compressed gas except acetylene and cylinders made of aluminum alloy.

PART 175—CARRIAGE BY AIRCRAFT

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

Authority: 49 U.S.C. 5101–5128; 44701; 49 CFR 1.45 and 1.53.

48. In § 175.10, paragraph (a) introductory text, and paragraphs (a)(10) and (a)(15) are revised and new

paragraphs (a)(18) and (c) are added to read as follows:

§ 175.10 Exceptions for passengers, crewmembers, and air operators.

(a) This subchapter does not apply to the following hazardous materials when carried by aircraft passengers or crewmembers provided the requirements of §§ 171.15 and 171.16 of this subchapter (see paragraph (c) of this section) and the requirements of this section are met:

* * * *

(10) Dry ice (carbon dioxide, solid), with the approval of the operator:

(i) Quantities may not exceed 2.5 kg (5.5 pounds) per person when used to pack perishables not subject to the HMR. The package must permit the release of carbon dioxide gas; and

(ii) When carried in checked baggage, each package is marked "DRY ICE" or "CARBON DIOXIDE, SOLID," and marked with the net weight of dry ice or an indication the net weight is 2.5 kg (5.5 pounds) or less.

* * * *

(15) * * *

(i) The battery meets the requirements of § 173.159a(d) of this subchapter for non-spillable batteries;

(ii) Visual inspection including removal of the battery, where necessary, reveals no obvious defects (removal of the battery from the housing should be performed by qualified airline personnel only);

(iii) The battery is disconnected unless the wheelchair or mobility aid design provides an effective means of preventing unintentional activation;

(iv) The battery terminals are protected to prevent short circuits; and

(v) The battery is securely attached to the wheelchair or mobility aid; or,

(A) Is removed and placed in a strong, rigid packaging marked

"NONSPILLABLE BATTERY" (unless fully enclosed in a rigid housing that is properly marked), and

(B) Is handled in accordance with paragraph (a)(16)(iv) of this section.

* * * *

(18) Portable electronic devices (for example, cameras, cellular phones, laptop computers, and camcorders) powered by fuel cell systems, and not more than two spare fuel cell cartridges per passenger or crew member, when transported in carry-on baggage by aircraft under the following conditions:

(i) Fuel cell cartridges may contain only Division 2.1 liquefied flammable gas, or hydrogen in a metal hydride, Class 3 flammable liquids (including methanol), Division 4.3 water reactive substances, or Class 8 corrosive materials;

(ii) The maximum quantity of fuel in any fuel cell cartridge may not exceed:

(A) 200 mL (6.76 ounces) for liquids,

(B) 120 mL (4 fluid ounces) for liquefied gases in non-metallic fuel cell cartridges, or 200 mL (6.76 ounces) for liquefied gases in metal fuel cell cartridges;

(C) 200 g (7 ounces) for solids; or

(D) 120 mL (4 fluid ounces) for hydrogen in a metal hydride.

(iii) No more than two spare fuel cell cartridges may be carried by a passenger;

(iv) Fuel cell systems containing fuel and fuel cell cartridges including spare cartridges are permitted in carry-on baggage only;

(v) Fuel cell cartridges containing hydrogen in a metal hydride must meet the requirements in § 173.230(d);

(vi) Fuel cell cartridges may not be refillable by the user. Refueling of fuel cell systems is not permitted except that the installation of a spare cartridge is allowed. Fuel cell cartridges that are used to refill fuel cell systems but that are not designed or intended to remain installed (fuel cell refills) in a portable electronic device are not permitted;

(vii) Fuel cell systems and fuel cell cartridges must conform to IEC/PAS 62282-6-1 (IBR; see § 171.7 of this subchapter);

(viii) Interaction between fuel cells and integrated batteries in a device must conform to IEC/PAS 62282-6-1 (IBR, see § 171.7 of this subchapter). Fuel cell systems for which the sole function is to charge a battery in the device are not permitted;

(ix) Fuel cell systems must be of a type that will not charge batteries when the portable electronic device is not in use; and

(x) Each fuel cell cartridge and system that conforms to the requirements in this paragraph (a)(18) must be durably marked by the manufacturer with the wording: "APPROVED FOR CARRIAGE IN AIRCRAFT CABIN ONLY" to certify that the fuel cell cartridge or system meets the specifications in IEC/PAS 62282-6-1 (IBR, see § 171.7 of this subchapter) and with the maximum quantity and type of fuel contained in the cartridge or system.

* * * *

(c) The requirements to submit incident reports as required under §§ 171.15 and 171.16 of this subchapter must be provided by the air carrier.

49. In § 175.33, paragraphs (a)(1)(i) and (c)(4) are revised and a new paragraph (a)(11) is added to read 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, any additional description requirements provided in §§ 172.202, and 172.203 of this subchapter must also be shown on the notification.

* * * *

(11) For UN1845, Carbon dioxide, solid (dry ice), only the UN number, proper shipping name, hazard class, total quantity, exact location aboard the aircraft, and the airport at which the package(s) is to be unloaded must be provided.

* * * *

(c) * * *

(4) Make available, upon request, to an authorized official of a Federal, State, or local government agency (including an emergency responder(s)) at reasonable times and locations, the documents or information required to be retained by this paragraph. In the event of a reportable incident, as defined in § 171.15 of this subchapter, make immediately available to an authorized official of a Federal, State, or local government agency (including an emergency responders), the documents or information required to be retained by this paragraph.

* * * *

50. In § 175.75, paragraph (d) is revised to read as follows:

§ 175.75 Quantity limitations and cargo location.

* * * *

(d) Each package containing a hazardous material acceptable only for cargo aircraft must be:

(1) Loaded in such a manner that a crew member or other authorized person can access, handle and when size and weight permit, separate such packages from other cargo during flight; or

(2) Loaded in a cargo compartment that has an FAA-approved fire or smoke detection system and a fire-suppression system.

* * * *

51. In § 175.88, paragraph (c) is revised to read as follows:

§ 175.88 Inspection, orientation and securing packages of hazardous materials.

* * * *

(c) Packages containing hazardous materials must be secured in an aircraft in a manner that will prevent any shifting or any change in the position of

the packages. Packages containing Class 7 (radioactive) materials must be secured in a manner that ensures that the separation requirements of §§ 175.701 and 175.702 will be maintained at all times during flight.

PART 176—CARRIAGE BY VESSEL

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

Authority: 49 U.S.C. 5101–5128; 49 CFR 1.53.

53. In § 176.2, the definition for “Commandant” is revised to read as follows:

§ 176.2 Definitions.

* * * * *

Commandant (CG–522), USCG means the Chief, Office of Operating and Environmental Standards, United States Coast Guard, Washington, DC 20593–0001.

* * * * *

54. In § 176.3, paragraph (a) is revised to read as follows:

§ 176.3 Unacceptable hazardous materials shipments.

(a) A carrier may not transport by vessel any shipment of a hazardous material that is not prepared for transportation in accordance with parts 173 and 173 of this subchapter, or as authorized by part 171, subchapter C.

* * * * *

55. In § 176.84, in paragraph (b), in the Table of provisions, Code “134”, Code “139” and Code “140” are removed; and new Codes “145” and “146” are added in the appropriate numerical order to read as follows:

* * * * *

(b) * * *

Code	Provisions
* * * * *	
145	Stow “separated from” ammonium compounds except for UN1444.
146	Category B stowage applies for unit loads in open cargo transport units.

* * * * *

56. In § 176.172, paragraph (a) introductory text is revised to read as follows:

§ 176.172 Structural serviceability of freight containers and vehicles carrying Class 1 (explosive) materials on ships.

(a) *Except for Division 1.4 materials*, a freight container may not be offered for the carriage of Class 1 (explosive) materials, unless the container is

structurally serviceable as evidenced by a current CSC (International Convention for Safe Containers) approval plate and verified by a detailed visual examination as follows:

* * * * *

PART 178—SPECIFICATIONS FOR PACKAGINGS

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

Authority: 49 U.S.C. 5101–5128; 49 CFR 1.53.

58. In subpart B of part 178, new §§ 178.33b through 178.33b–9 are added to read as follows:

§ 178.33b Specification 2S; inner nonrefillable plastic receptacles.

§ 178.33b–1 Compliance.

- (a) Required in all details.
- (b) [Reserved]

§ 178.33b–2 Type and size.

- (a) Single-trip inside containers.
- (b) The maximum capacity of containers in this class shall not exceed one liter (61.0 cubic inches). The maximum inside diameter shall not exceed 3 inches.

§ 178.33b–3 Inspection.

- (a) By competent inspector.
- (b) [Reserved]

§ 178.33b–4 Duties of inspector.

- (a) To inspect material and completed containers and witness tests, and to reject defective materials or containers.
- (b) [Reserved]

§ 178.33b–5 Material.

- (a) The receptacles must be constructed of polyethylene terephthalate (PET), polyethylene naphthalate (PEN), polyamide (Nylon) or a blend of PET, PEN, ethyl vinyl alcohol (EVOH) and/or Nylon.
- (b) Material with seams, cracks, laminations or other injurious defects are forbidden.

§ 178.33b–6 Manufacture.

- (a) Each container must be manufactured by thermoplastic processes that will assure uniformity of the completed container. No used material other than production residues or regrind from the same manufacturing process may be used. The packaging must be adequately resistant to aging and to degradation caused either by the substance contained or by ultraviolet radiation.
- (b) [Reserved]

§ 178.33b–7 Design qualification test.

- (a) Drop testing.

(1) To ensure that creep does not affect the ability of the container type to retain the contents, each container type shall be drop tested as follows: three groups of twenty-five filled containers shall be dropped from 1.8m on to a rigid, non-resilient, flat and horizontal surface. One group must be conditioned at 38 °C (100 °F) for 26 weeks, the second group for 100 hours at 50 °C (122 °F) and the third group for 18 hours at 55 °C (131 °F), prior to performing the drop test.

(2) Criteria for passing the drop test: the containers must not break or leak.

(b) [Reserved]

§ 178.33b–8 Production Tests.

(a) Burst testing.

(1) One out of each lot of 5,000 containers or less, successively produced per day must be pressure tested to destruction and must not burst below 240 psig. The container tested must be complete as intended for transportation.

(2) Each such 5,000 containers or less, successively produced per day, shall constitute a lot and if the test container shall fail, the lot shall be rejected or ten additional containers may be selected at random and subjected to the test under which failure occurred. These containers shall be complete as intended for transportation. Should any of the ten containers thus tested fail, the entire lot must be rejected. All containers constituting a lot shall be of like material, size, design construction, finish, and quality.

(b) Leak testing.

(1) Each empty container must be subjected to a pressure equal to or in excess of the maximum expected in the filled containers at 55 °C (131 °F) 50 °C (122 °F) if the liquid phase does not exceed 95 percent of the capacity of the container at 50 °C (122 °F). This must be at least two-thirds of the design pressure of the aerosol dispenser. If any container shows evidence of leakage at a rate equal to or greater than 3.3×10^{-2} mbar.l.s⁻¹ at 20 °C (68 °F), at the test pressure, distortion or other defect, it must be rejected.

(2) Prior to filling, the filler must ensure that the crimping equipment is set appropriately and the specified propellant is used. Once filled, each container must be weighed and leak tested. The leak detection equipment must be sufficiently sensitive to detect at least a leak rate of 2.0×10^{-3} mbar.l.s⁻¹ at 20 °C (68 °F). Any filled container which shows evidence of leakage, deformation, or excessive weight must be rejected.

§ 178.33b–9 Marking.

(a) Each container must be clearly and permanently marked to show:

(1) DOT–2S.

(2) Name or symbol of person making the mark specified in paragraph (a)(1) of this section. Symbol, if used, must be registered with the Associate Administrator.

(b) [Reserved]

59. In § 178.502, paragraph (d) is revised and a note to the section is added to read as follows:

§ 178.502 Identification codes for packagings.

* * * * *

(d) Identification codes are set forth in the standards for packagings in §§ 178.504 through 178.523 of this subpart.

Note to § 178.502: Plastics materials include other polymeric materials such as rubber.

60. In § 178.703, paragraph (a)(1)(vii) is revised to read as follows:

§ 178.703 Marking of IBCs.

* * * * *

(a) * * *

(1) * * *

(vii) (A) The stacking test load in kilograms (kg). For IBCs not designed for stacking, the figure “0” must be shown. For IBCs designed for stacking, the maximum permitted stacking load applicable when the IBC is in use shall be displayed on a symbol for all IBCs manufactured, repaired or remanufactured after January 1, 2011 as follows:



IBC

capable of being stacked

IBC

NOT capable of being stacked

(B) The symbol shall be not less than 100 mm (3.9 inches) × 100 mm (3.9 inches), be durable and clearly visible. The letters and numbers shall be at least 12 mm high (.48 inches). The mass marked above the symbol shall not exceed the load imposed during the design test divided by 1.8.

* * * * *

61. In § 178.801, paragraph (f)(1)(i) is revised to read as follows:

§ 178.801 General requirements.

* * * * *

(f) * * *

(1) * * *

(i) The IBC need not have its closures fitted, except that the IBC must be fitted with its primary bottom closure.

* * * * *

62. In § 178.810, paragraph (e) is revised to read as follows:

§ 178.810 Drop test.

* * * * *

(e) *Criteria for passing the test.* For all IBC design types, there may be no damage which renders the IBC unsafe to be transported for salvage or for disposable, and no loss of contents. The IBC shall be capable of being lifted by an appropriate means until clear of the floor for five minutes. A slight discharge from a closure upon impact is not

considered to be a failure of the IBC provided that no further leakage occurs. A slight discharge (e.g., from closures or stitch holes) upon impact is not considered a failure of the flexible IBC provided that no further leakage occurs after the IBC has been raised clear of the ground.

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Theodore L. Willke,
Associate Administrator for Hazardous Materials Safety.

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