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**DEPARTMENT OF TRANSPORTATION**

**Pipeline and Hazardous Materials Safety Administration**

**49 CFR Parts 106, 107, 171, 172, 173, 174, 175, 176, 177, 178, 179, and 180**

**[Docket No. PHMSA-2018-0082 (HM-260A)]**

**RIN 2137-AF43**

**Hazardous Materials: Editorial Corrections and Clarifications**

**AGENCY:** Pipeline and Hazardous Materials Safety Administration (PHMSA),  
Department of Transportation (DOT).

**ACTION:** Final rule.

**SUMMARY:** This final rule corrects editorial errors and improves the clarity of certain provisions in the Hazardous Materials Regulations and PHMSA program and procedural regulations. The intended effect of this rulemaking is to enhance the accuracy and reduce misunderstandings of the regulations. The amendments contained in this final rule are non-substantive changes and do not impose new requirements.

**DATES:** This final rule is effective [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**FOR FURTHER INFORMATION CONTACT:** Yul B. Baker Jr., Standards and Rulemaking Division, Office of Hazardous Materials Safety, (202) 366-8553, PHMSA, East Building, PHH-10, 1200 New Jersey Avenue, SE, Washington, D.C. 20590.

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#### **I. Background**

PHMSA reviews annually the Hazardous Materials Regulations (HMR; 49 Code of Federal Regulations (CFR) parts 171-180), as well as its program and procedural regulations to cure typographical errors, outdated addresses or other contact information, incorrect reference citations, and similar errors, which introduce confusion and lack of clarity for the reader. In this final rule, PHMSA is correcting typographical errors, incorrect regulatory references and citations, inaccurate office address(es), inconsistent use of terminology, misstatements of certain regulatory requirements, and inadvertent omissions of information. Further, within the scope of this rulemaking, PHMSA is revising the HMR and procedural regulations to make them easier to understand. For example, PHMSA frequently issues letters of clarification on the HMR at the request of stakeholders. Where opportunities present themselves, PHMSA adopts non-substantive clarifications into the regulations for the general benefit of regulated entities. Finally, the intended effect of this final rule is to enhance accuracy and reduce misunderstandings of the regulations. The amendments contained in this final rule are non-substantive changes that do not impose new requirements such that solicitation of public comment is

unnecessary. Therefore, the final rule will be effective [30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

## **II. Clarifying the use of the term “movement” within the HMR**

Throughout the HMR, the term “movement” is used to describe a change in position or “shifting” of a package or its contents (i.e., inner packagings) in provisions that refer to handling or stowage on a transport vehicle to protect against damage to the package during transportation. However, “movement” is specifically defined in § 171.8 as “the physical transfer of a hazardous material from one geographic location to another by rail car, aircraft, motor vehicle, or vessel.” In this context, use of the term “movement” is not appropriate when prescribing requirements for the safe handling or stowage of packages during transportation. Therefore, PHMSA is revising each instance of “movement” to either “shifting” or—for §§ 173.31, 174.67, 176.89— “motion” where the intended meaning is a change in position of the package or its contents rather than physical transfer of the package to a different geographic location. These changes are in the following sections:

172.102(c)(1) and (c)(3)—Special Provisions 384, 386, and B131(d); 173.3;  
173.24; 173.31; 173.134; 173.150; 173.159; 173.166; 173.185; 173.219; 173.220;  
173.222; 173.301b; 173.306; 173.308; 173.315; 174.67; 175.10, 176.89, 176.200;  
and 176.906.

## **III. Section-by-Section Review of Changes**

In addition to the specific changes noted in Section II, the following is a section-by-section summary of the minor editorial corrections and clarifications made in this final

rule. PHMSA is also making minor technical corrections throughout the HMR to align cross-references with current practice.

### Part 106

The authority to transport hazardous materials (hazmat) under the Federal Hazmat Transportation law is codified in 49 U.S.C. 5101 *et seq.* (Federal hazmat law).

Previously, the statutory authority for HMR part 106 only referenced 49 U.S.C. 5101 through 5127. PHMSA is revising the referenced statutory authority for 49 CFR part 106 to include all sections of the Federal hazmat law, 49 U.S.C. 5101 through 5128.

Additionally, PHMSA is updating the reference to its delegated authority by deleting 49 CFR 1.53 and adding 49 CFR 1.81 and 1.97. These changes accurately reference the sections in 49 CFR part 1 where the Secretary delegates authority to the PHMSA Administrator.

### Part 107

#### Section 107.117

This section provides emergency processing information. PHMSA is updating the Federal Aviation Administration (FAA) office name and contact information in §§ 107.117(d)(1) and (d)(2).

#### Section 107.125

This section provides the criteria to submit an appeal to the Associate Administrator. Section 107.125(a)(1) ends by repeating the text of paragraph (a)(2).

PHMSA is removing the repetitive text from paragraph (a)(1). Specifically, the text “(2) state in detail any alleged errors of fact and law” is removed.

#### Section 107.329

This section establishes the maximum civil penalty requirements for violations of the Federal hazmat law. PHMSA created a new paragraph (c) to this section in the final rule, “Oil Spill Response Plans and Information Sharing for High-Hazard Flammable Trains,” 84 FR 6910 (Feb. 28, 2019). The final rule stated that “[a]ny owner, operator, or person found to have violated a response plan or provision of 33 U.S.C. 1321(j), or any regulation or order issued thereunder, is subject to an administrative civil penalty under 33 U.S.C. 1321(b)(6), as adjusted by 40 CFR 19.4.” However, paragraph (c) was inadvertently deleted in a subsequent Department-wide final rule, “Revisions to Civil Penalty Amounts,” 84 FR 37059 (Jul. 31, 2019), which was issued by the Office of the Secretary in accordance with the Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015, Pub. L. 114–74, 129 Stat. 599, codified at 28 U.S.C. 2461 note. PHMSA is reinserting paragraph (c) to correct for its inadvertent deletion.

#### Part 171

##### Section 171.8

This section contains definitions for terms used in the HMR. PHMSA is revising the definition of “reportable quantity” to include a reference to “Appendix A” to the Hazardous Materials Table (HMT) at § 172.101 and the specific table columns within Appendix A’s tables. The current definition refers to “the appendix;” however, there are two appendices to the HMT: Appendix A, List of Hazardous Substances and Reportable

Quantities, and Appendix B, List of Marine Pollutants. PHMSA now revises § 171.8 to clarify that it references “Appendix A” to the HMT. Further, since Appendix A to the HMT contains two tables that list reportable quantity in different column locations, PHMSA is making clear in § 171.8 that the reportable quantity in Table 1 comes from Column 2 and the reportable quantity in Table 2 comes from Column 3.

#### Section 171.16

This section provides the requirements for detailed hazardous materials incident reports. PHMSA is revising and updating the FAA office name and contact information. Specifically, in paragraph (b)(2), the office name has changed from “Security Field Office” to “Regional Office.” In addition, the contact and website information are included to make it easier to locate the nearest FAA Regional Office.

#### Part 172

##### Section 172.101

This section contains the HMT and explanatory text for each of the columns in the table. PHMSA makes corrections to the HMT information as follows:

- In a final rule published January 19, 2011, HM-215K [76 FR 3308], PHMSA amended “UN1655, Nicotine compounds, solid, n.o.s. *or* Nicotine preparations, solid, n.o.s.,” by adding a “G” in Column (1). However, there are now two table entries for “UN1655,” one with the “G” in Column (1) and one without. Because the entry for “UN1655” without the “G” and its assigned values was mistakenly added in the HMT, PHMSA is removing the table entry without the “G.” Furthermore, for the entry with the “G” in Column (1), PHMSA is revising the proper shipping name to include a period at

the end. As it reads currently, there is no period at the end of the “n.o.s” for “Nicotine preparations.”

- In a final rule published January 19, 2011, HM-215K [76 FR 3308], the table entry for “UN1810, Phosphorous oxychloride” was amended to harmonize with international regulations as a Division 6.1 primary hazard material. The spelling of the hazardous material, “Phosphorus oxychloride” was inadvertently changed to “Phosphorous oxychloride.” PHMSA is revising the spelling of the material back to “Phosphorus oxychloride” for consistency with other phosphorus compounds listed in the table, with international standards, and because the entry is assigned a “+” in Column (1) which fixes the proper shipping to what is listed in the table.

- For “UN3291, Regulated medical waste, n.o.s. *or* Clinical waste, unspecified, n.o.s. *or* (BIO) Medical waste, n.o.s., *or* Biomedical waste, n.o.s. *or* Medical waste, n.o.s.,” PHMSA is italicizing the “or(s)” in the hazardous materials description in Column (2) as the proper shipping name was removed and replaced with the current name featuring unitalicized “or(s)” in HM-215I [71 FR 78596], published December 29, 2006. The word “or” is not part of the proper shipping name and under § 172.101(c)(2), an “or” in italics indicates that there is a choice of proper shipping names.

- In a final rule published January 1, 2009, HM-215J [74 FR 2200], PHMSA amended the HMT entry for “UN1046, Helium, compressed,” by adding “307” to Column (8A) for reference to § 173.307 packaging exceptions for compressed gases, but the amendment contained formatting errors and “307” is still not in Column (8A). Therefore, in this final rule, PHMSA is adding “307” to Column (8A) for this table entry.

- In a final rule published June 2, 2016, HM-218H [81 FR 35483], PHMSA removed the packing group (PG) designation for “NA0337, Toy Caps.” However, in doing so, PHMSA inadvertently removed Special Provision 382, which was assigned to this entry in a final rule published on January 21, 2016, HM-233F [81 FR 3636]. Therefore, PHMSA is adding Special Provision 382 back to Column (7) for “NA0337” to correct the error.

- In a final rule published June 21, 2001, HM-215D [66 FR 33316], PHMSA amended the entry “NA8001, Dangerous Goods in Machinery *or* Dangerous Goods in Apparatus” to read “UN3363, Dangerous Goods in Machinery *or* Dangerous Goods in Apparatus” with a classification as a Class 9 hazard. However, PHMSA did not include a “9” for the label code in Column (6) of the HMT, which reflects the hazard Class or Division assigned in Column (3). Therefore, in the interest of clarity, consistency, and to harmonize with international standards and regulations, PHMSA is modifying this entry to reflect a Class 9 label code. In addition, PHMSA is addressing a typo by removing a period after the letter “A” in Column (10A).

- In a final rule published December 29, 1994, HM-215A [59 FR 67390], the Research and Special Programs Administration (RSPA), PHMSA’s predecessor agency, added “UN3252, Difluoromethane” to the HMT with a reference to “302” in Column (8B) for authorized non-bulk packaging. This reference was an inadvertent transcription error and should have instead referenced “304.” Section 173.302 outlines authorized packaging and filling requirements for *non-liquefied* (permanent) compressed or absorbed gases (e.g., Argon). However, “UN3252, Difluoromethane *or* Refrigerant gas R32” is a *liquefied* compressed gas and would therefore be subject to the packaging and

filling requirements found in § 173.304 for liquefied compressed gases and not the inapplicable requirements found in § 173.302. Therefore, PHMSA is correcting the table entry for “UN3252” to reflect “304” in Column (8B) and for consistency with other refrigerant gas entries in the table that refer to “304” (e.g., Refrigerant gas R 404A).

Further, PHMSA is making the following minor edits to HMT entries which include, but are not limited to, removing extra spaces, removing or adding punctuations, and adding the correct unit of measure:

- For “UN2672, Ammonia solution, *relative density between 0.880 and 0.957 at 15 degrees C in water, with more than 10 percent but not more than 35 percent ammonia,*” PHMSA is adding a space between “5” and “L” in Column (9A) and between “60” and “L” in Column (9B).

- For “UN1401, Calcium,” PHMSA is adding a space between “50” and “kg” for the unit of measure in Column in (9B).

- For “UN2240, Chromosulfuric acid,” PHMSA is adding a space between “0.5” and “L” in Column (9A) and between “2.5” and “L” in Column (9B).

- For “UN2209, Formaldehyde solutions, *with not less than 25% formaldehyde,*” PHMSA is adding an “L” to indicate liters for the unit of measure in Column (9B), which is consistent with the original intent of the entry in final rule HM-215A [59 FR 67390], published December 29, 1994.

- For “UN3169, Gas sample, non-pressurized, toxic, n.o.s., *not refrigerated liquid,*” PHMSA is removing the letter “D” in Column (10B) because it is not a code for vessel stowage or handling requirements for Column (10B) under § 176.84, but rather a stowage location code meant for Column (10A) pursuant to § 172.101(k).

- For “UN2814, Infectious substances, affecting humans,” PHMSA is removing the space between “UN” and “2814” in Column (4).

- For “UN1056, Krypton, compressed,” PHMSA is revising the table entry by shifting the information provided in the columns one column to the right starting with Column (7) to reflect the table entry as adopted in final rule HM-215J [73 FR 44804], published July 31, 2008. The information provided in Columns (7) through (10A) was inadvertently included in the wrong columns.

- For “UN3002, Phenyl urea pesticides, liquid, toxic,” PHMSA is adding a comma between special provisions TP2 and TP27 in Column (7).

- For “UN3352, Pyrethroid pesticide, liquid toxic, PGII,” PHMSA is adding a space between “5” and “L” in Column (9A) and between “60” and “L” in Column (9B); and for “UN3352, Pyrethroid pesticide, liquid toxic, PGIII,” PHMSA is adding a space between “60” and “L” in Column (9A) and between “220” and “L” in column (9B).

#### Section 172.102

PHMSA published a final rule, HM-215K [76 FR 3308] on January 19, 2011. In this final rule, PHMSA added and assigned to the entry “UN1267, Petroleum crude oil,” special provision 357 to clarify that petroleum crude oil containing hydrogen sulfide in sufficient concentration that vapors evolved from the crude oil can present an inhalation hazard and must be transported under the entry “Petroleum sour crude oil, flammable, toxic, UN3494” when transported internationally. In addition, PHMSA added and assigned to the new HMT entry “UN3494, Petroleum sour crude oil, flammable, toxic,” special provision 343, which states that this HMT entry must be used for petroleum crude oil containing hydrogen sulfide in sufficient concentration that vapors evolved from the

crude oil can present an inhalation hazard when transported internationally. When the final rule was published, PHMSA inadvertently left out specific language related to sour crude oil for special provision 343 and because of the omission, special provisions 343 and 357 contain duplicate language. Special provision 343 is only assigned to “Petroleum sour crude oil, flammable, toxic,” and so the reference to crude oil in that special provision could only apply to sour crude oil. Therefore, for clarity, PHMSA is revising special provision 343 to include a reference to “sour crude oil.”

#### Section 172.202

This section provides the requirements for describing hazardous materials on shipping papers. In § 172.202(b), the old shipping description sequence that started with the proper shipping name was authorized for use until January 1, 2013. The authorized period of use has ended and, therefore, PHMSA is removing the sunset provision from the paragraph as only the new sequence beginning with the UN number currently applies.

#### Section 172.322

This section provides the marking requirements for marine pollutants. In the § 172.322(e)(2)(i) introductory text, the U.S. standard unit for the length of each side of the marking for marine pollutants appearing after the metric unit is incorrectly converted to “4” inches. While U.S. standard units appearing in parenthesis are for informational purposes and are not intended to be the regulatory standard per § 171.10(a), PHMSA is nonetheless correcting the conversion so that it properly reads “3.9” inches for consistency with the same conversion throughout the HMR (see e.g., §§ 172.302(b)(1),

173.4a(g), 173.196(a)(3)). For the same reason, in § 172.322(e)(2)(ii), PHMSA is correcting the U.S. standard unit to read “9.8” inches.

#### Section 172.330

This section provides the marking requirements for tank cars and multi-unit tank car tanks. RSPA published a final rule on May 6, 1997, HM-215B [62 FR 24690], which revised numerous proper shipping names in the HMT by adding or removing the words “compressed,” “inhibited,” “liquefied,” and “solution” for consistency with proper shipping names used internationally, including removal of “liquefied” from the proper shipping name for “Ammonia, anhydrous.” However, in § 172.330(a)(1)(ii), the proper shipping name for “Ammonia, anhydrous” still contains the word “liquefied.” Therefore, for consistency with the HMT, PHMSA is revising “Ammonia, anhydrous, liquefied” to read “Ammonia, anhydrous.”

#### Section 172.400

This section provides the general labeling requirements for packages. In a final rule published January 23, 2008, [73 FR 3874], the U.S. Department of Health and Human Services (HHS) removed 42 CFR part 72. This part had governed the interstate shipment of etiologic agents and was removed because DOT already had in effect a more comprehensive set of regulations applicable to the transport in commerce of infectious substances, resulting in the etiologic agent label specified in the HHS regulations at 42 CFR 72.3 being discontinued. As such, PHMSA is removing the footnote for the label name “Infectious Substance,” which references the outdated etiologic agent label.

#### Section 172.446

This section describes the Class 9 label requirements for miscellaneous hazardous materials. In a final rule published July 20, 2011, HM-218F [76 FR 43510], PHMSA revised the Class 9 label design mandated in paragraph (a) by removing the horizontal line running across the label at its midpoint that had been previously required to harmonize with international standards and avoid delays or frustration of shipments. This new labeling requirement was to go into effect on August 19, 2011; however, to deplete existing stocks of labels with this horizontal line, PHMSA provided in paragraph (c) that labels meeting the requirements in effect before August 19, 2011 could continue to be used until October 1, 2014. That transition period has since expired. Furthermore, in paragraph (b), PHMSA provided the option of using a solid horizontal line dividing the lower and upper half of the label consistent with the transition period specified in paragraph (c) of this section. However, with the expiration of the transition period, the solid line is no longer optional or allowed. Therefore, in this rule, PHMSA is deleting the last sentence in § 172.446(b), which indicated the solid line was optional for consistency and to avoid confusion, and PHMSA is removing the paragraph (c) transition period.

#### Section 172.800

This section prescribes the requirements for development and implementation of plans to address security risks related to the transportation of hazardous materials in commerce. In § 172.800(b), PHMSA is revising paragraphs (b)(1) through (b)(14) by replacing the semicolons at the end of each paragraph with periods as each is a standalone criterion for being subject to security plan requirements.

#### Part 173

### Section 173.27

This section provides the general requirements for transportation by aircraft. PHMSA is removing reference to the effective date of October 1, 2006 associated with the certification statement requirement in § 173.27(i) because that date has passed. For the limited quantity combination package provisions found in § 173.27(f)(2)(ii), PHMSA is removing the effective date of January 1, 2012, for packages to be marked with the limited quantity “Y” mark prescribed in § 172.315 when conforming to Table 3 of § 173.27(f)(3). PHMSA is also removing the transition dates allowing a package to be marked with the proper shipping name “Consumer commodity” and “ORM-D-AIR”<sup>1</sup> (including “Charcoal, NA1361) if it contains a consumer commodity. The effective dates and transition period have since passed and, therefore, PHMSA is removing these dates from § 173.27.

### Section 173.29

This section provides exceptions and requirements for empty packagings. In a final rule published January 7, 2013, HM-215K [76 FR 3308], PHMSA adopted the new limited quantity provisions and the eventual phase out of the ORM-D hazard class to provide much of the same regulatory relief to limited quantities as was applied to consumer commodity ORM-D material (i.e., shipping papers, marking, packaging). Empty packagings of ORM-D material containing only the residue of a hazardous material are excepted from the HMR. However, PHMSA did not make this exception specifically applicable to empty packagings containing limited quantity material.

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<sup>1</sup> ORM-D-Air (other regulated materials for domestic transportation by air only) is an outdated marking reference that will be phased out December 31, 2020 in accordance with final rule HM-215K [78 FR 1101].

PHMSA is accordingly revising § 173.29(b)(2)(iv)(A) to include “a limited quantity or an ORM-D material.”

#### Section 173.62

This section provides the specific packing requirements for explosives. In a recent final rule published January 21, 2016, HM-233F [81 FR 3636], PHMSA modified Packing Instruction 139 in the paragraph (c) Table of Packing Methods to adopt special permit DOT-SP 12335. The adoption of the special permit allowed for detonating cord to be packed without sealed ends. However, in making this change, PHMSA inadvertently removed the list of authorized inner and outer packagings for Packing Instruction 139. Therefore, PHMSA is amending Packing Instruction 139 to include the list of inner and outer packagings previously authorized. Further review led to discovery of other errors or sources of confusion, such as the packing method for outer packagings in Packing Instruction 130, which is formatted incorrectly due to inaccurate spacing. PHMSA is making technical revisions to the table throughout to correct formatting issues, harmonize inconsistent language, eliminate any possible confusion, and aid in ease of understanding by the reader of what types of inner, intermediate, and outer packagings are authorized.

#### Section 173.121

This section provides the requirements for Class 3 assignment of packing groups. PHMSA is removing paragraph (c) because the transition deadline of January 1, 2012 has passed.

#### Section 173.134

This section provides definitions and exceptions for Class 6, Division 6.2 hazardous materials. PHMSA is correcting the authority citation of the Food, Drug, and Cosmetic Act to read “21 U.S.C. 301 *et seq.*” in §§ 173.134(b)(7) and 173.134(b)(16). PHMSA is also revising the term “Agricultural products and food” found in § 173.134(b)(16) to read “A raw agricultural commodity” consistent with the statutory definition in 21 U.S.C. § 321. The term “product” is not defined at 21 U.S.C § 321 and, therefore, is an ambiguous term, which may cause confusion when considering applicability of the exception.

#### Section 173.150

This section provides exceptions for Class 3 (flammable and combustible liquids). In a final rule published November 7, 2018, HM-219A [83 FR 55792], PHMSA converted the measurements in paragraphs (g)(1)(iii) and (g)(2)(iii) from U.S. standard units to the International Standard of Units. In doing so, however, PHMSA did not round to the nearest whole number as is done in the rest of the HMR (see e.g., §§ 173.151(b), 173.152(b), and 173.153(b)). Accordingly, in paragraphs (g)(1)(iii) and (g)(2)(iii), the unit of measurement for “14.9 kilograms” and “29.9 kilograms” is being rounded to read “15 kilograms” and “30 kilograms” to be consistent with other references to this unit of measurement and conversion in the HMR.

#### Section 173.156

This section provides exceptions for limited quantity and ORM-D. In the section title, PHMSA inadvertently omitted the hyphen and the letter “D” in “ORM;” therefore, PHMSA is revising the section title to correct this error.

### Section 173.176

This section provides requirements specific to capacitors. In § 173.176(g), PHMSA inadvertently left out the word “subject” in the sentence. PHMSA is therefore revising the paragraph to add the word “subject” following “more than 20 Wh are” to communicate the meaning of the paragraph requirements.

### Section 173.197

This section provides requirements for regulated medical waste (RMW). These include requirements for non-bulk packagings used as sharps containers of RMW (§ 173.197(b)), large packagings with an inner packaging used as sharps containers of RMW (Large Packagings) (§ 173.197(c)), and wheeled carts (Carts) or bulk outer packagings (BOPs) with an inner packaging used as sharps containers of RMW (§ 173.197(d)(1)(i)). Paragraph (e) of § 173.197 requires sharps packagings for Large Packagings, Carts, or BOPs to be capable of meeting the requirement in 49 CFR part 178, Subpart M “Testing of Non-bulk Packagings and Packages,” at the packing group II (PG II) level. Section 178.600 states that 49 CFR part 178, subpart M prescribes certain testing requirements for performance-oriented packagings identified in 49 CFR part 178, subpart L “Non-bulk Performance-Oriented Packaging Standards.”

The tests and packagings prescribed in the HMR are authorized for non-bulk packagings only. Therefore, the HMR effectively limits the size of sharps containers to non-bulk by relying on the testing requirements in 49 CFR part 178, subpart M. Recently, PHMSA has received inquiries from regulated entities asking if they can test bulk sharps packagings using the non-bulk PG II test and place these bulk sharps

packagings in Large Packagings, Carts, or BOPs. In response to these inquiries, PHMSA is amending this section to clarify that such testing is not consistent with the HMR.

PHMSA is revising the introductory text in § 173.197(e)(3) to state explicitly that only non-bulk sharps packagings may be transported in a Large Packaging, Cart, or BOP.

Furthermore, in the § 173.197(e) introductory text, PHMSA is deleting the transition date of “After September 30, 2003” as the date has passed.

Finally, PHMSA inadvertently included duplicate language in § 173.197(e)(2). PHMSA is removing the second occurrence of “conforming to the provisions of subpart B of this part.”

#### Section 173.199

This section provides the provisions for Category B infectious substances. In this final rule, PHMSA is providing clarity on § 173.199(a)(7). These requirements provide the name and telephone number of a person who is either knowledgeable about the material being shipped and has comprehensive emergency response and incident mitigation information for the material or who has immediate access to a person who possesses such knowledge and information on a written document or on the outer packaging. The paragraph (a)(7) requirements were first introduced in a NPRM published May 19, 2005 [70 FR 29170] as part of a harmonization effort with the 2005-2006 International Civil Aviation Organization Technical Instructions on the Transportation of Dangerous Good by Air (ICAO Technical Instructions), which require a telephone number of a person knowledgeable about the material be provided.

One commenter to the NPRM expressed concern at the potential costs of monitoring a telephone number while a shipment was in transit. In the final rule

published June 2, 2006, HM-226A [71 FR 32244], PHMSA clarified that its harmonization effort would not require that the telephone number be monitored at all times the hazardous material is in transportation, because that would be unduly burdensome, but that PHMSA did intend it to be monitored during a company's administrative office hours. Therefore, PHMSA is amending language in § 173.199(a)(7) to clarify the parameters of monitoring the required telephone number consistent with the preamble of HM-226A.

### Section 173.301

This section provides the general requirements for shipments of compressed gases and other hazardous materials in cylinders, United Nations (UN) pressure receptacles, and spherical pressure vessels.

On November 7, 2018, PHMSA published final rule HM-219A [83 FR 55792] responding to numerous petitions for rulemakings, including petition P-1641, which requested changes to cylinder valve requirements. In the final rule, PHMSA added § 173.301(a)(11) to require cylinder valves to comply with the Compressed Gas Association (CGA) publication V-9, "*Compressed Gas Association Standard for Compressed Gas Cylinder Valves*" (2012 edition). However, CGA V-9 is limited in scope and does not apply to cylinder valves used with certain cylinders, such as valves used with nonrefillable cylinders (e.g., DOT 39). In issuing the HM-219A final rule, PHMSA intended for the cylinder valve requirements in paragraph (a)(11) to apply only to cylinder valves within CGA V-9's scope. It is otherwise impractical for CGA V-9 standards to apply to types of valves excluded from coverage in V-9. Therefore, PHMSA is amending paragraph (a)(11) to clarify that cylinder valves must comply with the

applicable requirements in CGA V-9 and that the standard applies only to those cylinder valve types addressed in CGA V-9.

In addition, § 173.301(f)(3) currently incorrectly references a “3AXX” specification cylinder as an authorized cylinder. There is no such specification standard in 49 CFR part 178, but rather a specification for a “3AAX” cylinder, as found in § 178.37. PHMSA is revising the incorrect reference to read “3AAX.” PHMSA is also deleting the transitional provision associated with the first requalification due after December 31, 2003, because sufficient time has passed to ensure all specification cylinders have been requalified. The longest possible requalification for any of these specification is 12 years (see § 180.209).

#### Section 173.304a

This section provides additional requirements for shipments of liquefied compressed gases in specification cylinders. On June 13, 2005, PHMSA published final rule HM-218C [70 FR 34066] adopting miscellaneous amendments including removal of references in the § 173.304a(a)(2) table to DOT 4, 4A, 9, 38, 40, and 41 specification cylinders that were no longer authorized or part of the HMR. In the HM-218C final rule, PHMSA accordingly removed the phrase “DOT-4A480” from the entry “Hydrogen sulfide,” as a DOT-480 is a “4A” with a specific service pressure rating. The HM-218C final rule also meant to remove DOT-4A, but “DOT-4A” is still listed in the table for “Hydrogen sulfide;” therefore, PHMSA is removing it from the list of authorized DOT specification cylinders for “Hydrogen sulfide.” In addition, Note 14, which authorized the use of a DOT specification cylinder with a marked service of 480 psi until December

31, 2003, was only assigned to “Hydrogen sulfide” in the § 173.304a(a)(2) table; since the transition date of December 31, 2003 has passed, PHMSA is removing the note.

#### Section 173.307

This section provides exceptions for compressed gases. In a final rule published January 14, 2009, HM-215J [74 FR 2199], PHMSA amended § 173.307(a)(5) to except manufactured articles or apparatuses meeting certain conditions from the requirements of the HMR. The conversion factor of limiting the amount of gas per package to 1 gram (0.35 ounce) is incorrect. PHMSA is revising the customary unit to read “0.035 ounce.”

#### Section 173.314

This section provides the requirements for compressed gases in tank cars and multi-unit tank cars. In response to a Notice of Proposed Rulemaking (NPRM) [80 FR 3787] published January 23, 2015, PHMSA received comments from the National Propane Gas Association (NPGA) to clarify the use of the term “offeror” and “shipper” in § 173.314(h)(2) because they believed this paragraph creates confusion by suggesting the terms have different meanings. In the HMR, the terms “shipper” and “offeror (person who offers)” are synonymous and often used interchangeably. In § 173.314(h)(2) introductory text, PHMSA is replacing the word “shipper” with “offeror” to clarify that the responsibility for compliance with the odorant fade prevention requirements for liquefied petroleum gas applies to the person who offers the material into transportation. Since “offeror” is specifically defined in § 171.8 (whereas “shipper” is not defined in that provision), PHMSA is using only the term “offeror” in paragraph (h)(2) for clarity.

#### Section 173.315

This section provides the requirements for compressed gases in cargo tanks and portable tanks. In §§ 173.315(a)(2) and (h) tables, there are instances where the word “do” is listed in the respective tables without a clear understanding of what the word represents. For purposes of this section, PHMSA is clarifying that the word “do” is an abbreviation of the word “ditto” meaning “same as above.”

Additionally, as discussed for § 173.314 above, the NPGA asked PHMSA to clarify the use of the term “offeror” and “shipper” in § 173.315(b)(2) because they believed this paragraph creates confusion by suggesting the terms have different meanings. In the HMR, the terms “shipper” and “offeror (person who offers)” are synonymous and often used interchangeably. In § 173.315(b)(2) introductory text, PHMSA is replacing the word “shipper” with “offeror” to clarify that the responsibility for compliance with the odorant fade prevention requirements for liquefied petroleum gas applies to the person who offers the material into transportation. Since “offeror” is specifically defined in § 171.8, unlike “shipper,” in this instance, PHMSA is using only the term “offeror” in paragraph (b)(2) for clarity.

### Section 173.335

This section provides the requirements for chemicals under pressure. In the second sentence of § 173.335(a), cylinders filled with a chemical under pressure must be offered for transportation in accordance with the requirements of this section and § 172.301. The reference to § 172.301 is incorrect because it refers to Part 172 general marking requirements for non-bulk packagings rather than Part 173 general packaging requirements for shipments of compressed gases in § 173.301. PHMSA is therefore revising the reference to read § 173.301. Furthermore, PHMSA is moving the exception

that these materials are not subject to the cylinder valve cap requirements in §§ 173.301(a)(11) and (12) that was placed at the end of paragraph (a) up in the paragraph to be associated with the reference to § 173.301 for greater ease of understanding.

#### Section 173.415

This section provides requirements for authorized Type A packages for radioactive materials. In paragraph (a), until January 1, 2017, the HMR required an offeror of a Specification 7A package to maintain on file complete documentation of tests, engineering evaluations or comparative data showing construction methods, packaging designs, and construction materials complying with 7A specification requirements for at least one year from the latest shipment and to provide this to DOT upon request. After January 1, 2017, the offeror is subject to a two-year documentation requirement under one of two options specified in paragraphs (a)(1) and (a)(2). Because January 1, 2017, has passed, PHMSA is revising § 173.415(a) introductory text to remove the language associated with requirements prior to January 1, 2017, to avoid any confusion on applicability.

#### Section 173.435

This section provides the table for  $A_1$  and  $A_2$  values for radionuclides. On March 10, 1983, RSPA published final rule HM-169 [48 FR 10218], which changed the requirements for the transportation of radioactive materials by harmonizing the HMR with international regulations from the International Atomic Energy Agency (IAEA). These changes provided  $A_1$  and  $A_2$  values for radionuclides in a table along with their

respective specific activities in Curie/gram (Ci/g). The final rule provided the standard textbook specific activity for natural rubidium, listed as Rb (nat), as  $1.8 \times 10^{-8}$  Ci/g. On November 14, 1989, RSPA published an NPRM [54 FR 47454] under Docket HM-169A, proposing to expand the radionuclide list and include both Ci/g and TeraBequerel/gram (TBq/g) as units of measure for specific activity. These changes were in part due to the IAEA modifying its system for determining  $A_1$  and  $A_2$  values. Among the proposed changes, RSPA included an error for the specific activity of Rb (nat) in Ci/g with a positive exponent instead of a negative exponent. This led to PHMSA incorrectly converting to a value of  $6.7 \times 10^6$  for TBq/g). Thus, this error was codified under final rule HM-169A [60 FR 50292], published September 28, 1995, inaccurately stating a specific activity of  $1.8 \times 10^8$  Ci/g ( $6.7 \times 10^6$  TBq/g). To correct this publication error and state the standard textbook values for natural rubidium, PHMSA is revising the specific activity information in the table in TBq/g and Ci/g for Rb (nat) to  $6.7 \times 10^{-10}$  TBq/g and  $1.8 \times 10^{-8}$  Ci/g, respectively.

## Part 174

### Section 174.67

This section provides rules for tank car unloading. In the second sentence of § 174.67(a)(3), PHMSA is revising a typographical error by replacing the phrase “or other equipment that provides and equivalent level of safety” with “or other equipment that provides an equivalent level of safety.”

## Part 175

### Section 175.31

This section provides the requirements of reporting discrepancies for hazardous materials shipments. In § 175.31(a), PHMSA is updating the FAA contact information and including an electronic means of submitting the information to the FAA, which currently can be done at [http://www.faa.gov/hazmat/air\\_carriers/report\\_incident/](http://www.faa.gov/hazmat/air_carriers/report_incident/).

#### Section 175.75

This section provides the requirements for quantity limitations and cargo locations on aircraft. PHMSA is clarifying that in the context of § 175.75(e)(3)(i), “FAA Inspector” means an “FAA Flight Standards Inspector.”

#### Section 175.630

This section provides special requirements for Division 6.1 (poisonous) material and Division 6.2 (infectious substances) material by aircraft. In a final rule published January 8, 2015, HM-215M [80 FR 1075], PHMSA removed the segregation requirements for Division 6.1 and 6.2 hazardous materials based on the amendments to the 2013-2014 ICAO Technical Instructions. The final rule deleted and reserved paragraph (a) but did not make a subsequent amendment to § 175.630(b) to address the reference to the now deleted paragraph (a). Therefore, PHMSA is revising § 175.630(b) to delete the last sentence thereby removing the outdated reference to reserved paragraph (a).

### Part 177

#### Section 177.854

This section provides the requirements for disabled motor vehicles and broken or leaking packages as well as repairs. In § 177.854(c)(2), PHMSA authorizes packages of

hazardous materials that are damaged or found leaking during transportation and hazardous materials that have spilled or leaked during transportation to be forwarded to their destination or returned to the shipper in a salvage drum in accordance with the requirements in § 173.3(c). PHMSA published final rules HM-233 [70 FR 3302; January 24, 2005] and HM-215M [80 FR 1075; January 8, 2015], which amended § 173.3(d) to allow for salvage cylinders and amended § 173.3(f) to allow for shipments of large salvage packagings, respectively. Since both salvage cylinders and large salvage packagings are now authorized when packagings of hazardous materials are found to be damaged or leaking, PHMSA is revising § 177.854(c)(2) to reference § 173.3 for authorized salvage packaging.

## Part 178

### Section 178.338-10

This section provides the requirements for accident damage protection. Section 178.338-10(c)(2) addresses the rear-end tank protection for MC-338 specification cargo tank motor vehicles specifically. An MC-338 cargo tank must conform to the requirements found in § 178.345-8(d). However, § 178.338-10(c)(2) references § 178.345-8(b) inadvertently. Therefore, PHMSA is revising § 178.338-10(c)(2) to include the correct reference to § 178.345-8(d).

### Section 178.345-8

This section provides the requirements for cargo tank motor vehicle accident damage protection. Section 178.345.8(b)(1) discusses specifically the bottom damage protection device and the ability to withstand a force of 155,000 pounds (based on

ultimate strength of the material) from the front, side, or rear, distributed uniformly over each surface of the device. To eliminate confusion on the intent of the requirement, PHMSA is revising the first sentence of the paragraph by adding “applied in each direction of the device” and removing “over each surface” from the sentence.

## Part 179

### Section 179.201-6

This section provides the requirements for manways and manway closures on non-pressure rail tank cars. Based on historical review of the HMR, a typographical error discovered in paragraphs (b) and (c) regarding Specification DOT-111 tank cars was never corrected. These paragraphs reference a DOT 11A specification and no such specification exists in the HMR. PHMSA is revising references to “DOT 11A” to read “DOT 111A” in each instance it occurs in § 179.201-6. Also, in paragraph (a), PHMSA is deleting dashes from some of the listed specifications; in paragraph (b), PHMSA is adding the phrase “A manway” before the word “cover” for clarity; and in paragraph (c), PHMSA is revising “111360W7” to read “111A60W7” as no “111360W7” tank car specification exists nor is authorized.

### Section 179.202-13

This section provides retrofit standard requirements for specification DOT-117R rail tank cars. Based on a review of the HMR, a typographical error was discovered in paragraphs (h)(1) regarding specification DOT-117R tank cars. This paragraph states that top fittings must be located inside a protective housing not less than 12 inches in thickness. PHMSA made this error in final rule HM-251C [81 FR 53935; August 15,

2016]. In that rule, PHMSA intended to codify Section 7306(a) of the Fixing America's Surface Transportation (FAST) Act (Pub. L. 114-94), which mandated fittings on specification DOT 117R tank cars to be located inside a protective housing not less than ½-inch in thickness. The erroneous language of "12-inch-thickness" was never an acceptable requirement. Therefore, PHMSA is revising this section to "½-inch-thickness" to be consistent with the FAST Act's requirement.

## Part 180

### Section 180.407

This section provides the requirements for test and inspection of specification cargo tanks. Section 180.407(b)(1), (d)(5), and (e)(3) provide the requirements for thickness testing of corroded or abraded areas that might render it unsafe for hazardous materials service. These paragraphs only provide a reference to the minimum thickness standard for MC 300 series cargo tanks (except for MC 331) found in paragraph (i)(5). Minimum thickness standards for MC 331 cargo tanks and DOT 400 series cargo tanks are found in paragraphs (i)(9) and (i)(10). To assist with ease of understanding, PHMSA is revising §§ 180.407(b)(1), (d)(5), and (e)(3) to also include reference to paragraphs (i)(9) and (i)(10).

Additionally, in final rule HM-219A [83 FR 55792; November 7, 2018], for changes made to Table 1 to paragraph (g)(1)(iv), PHMSA made a copy-editing error in the second column of the first row and carried over inadvertently the phrase "or 1.5 times the maximum allowed working pressure (MAWP), whichever is greater" mirroring the other column entries. In the June 30, 2016, NPRM [81 FR 42609], PHMSA proposed that the provision would read, "the test pressure on the name plate or specification plate,

20.7 kPa (3 psig) or design pressure, whichever is greater.” No commenters provided comment on this provision, and PHMSA intended to keep the language as proposed in the NPRM when it published the HM-219A final rule. The change occurred erroneously when PHMSA sought to respond to a comment by the Truck Trailer Manufacturers Association (TTMA) over a minor error in the DOT 412 entry to Table 1 in paragraph (g)(1)(iv). As the DOT 412 entry in the NPRM read, “[t]he test pressure on the name plate or specification plate, 1.5 times the MAWP,” TTMA believed that this should read: “[t]he test pressure on the name plate or specification plate, *or* 1.5 times the MAWP, whichever is greater.” In making this change to the DOT 412 entry, however, PHMSA made this same change to the first row of Table 1 in paragraph (g)(1)(iv) inadvertently. Therefore, PHMSA is correcting this inadvertent error in this final rule. Also, PHMSA is revising the last sentence in paragraph (g)(1)(iv) to replace the phrase “identified in Table 1 to paragraph (g)(1)(iv)” with the phrase “identified in the following table” for further clarity.

#### **IV. Regulatory Analyses and Notices**

##### **A. Statutory/Legal Authority for This Rulemaking**

This final rule is published under the authority of the Federal hazmat law which authorizes the Secretary of Transportation to “prescribe regulations for the safe transportation, including security, of hazardous materials in intrastate, interstate, and foreign commerce.” The Secretary has delegated the authority granted in the Federal hazmat law to the PHMSA Administrator at § 1.97. This final rule amends twelve parts of the HMR, to correct mailing addresses, grammatical and typographical errors, and improve the clarity of certain provisions.

B. Executive Order 12866 and DOT Regulatory Policies and Procedures

This final rule is not a significant regulatory action under section 3(f) of Executive Order 12866 (“Regulatory Planning and Review”)<sup>2</sup> and, therefore, was not reviewed by the Office of Management and Budget. Nor is this final rule considered a significant rulemaking under the DOT rulemaking procedures at 49 CFR part 5.

Executive Order 12866 requires agencies to regulate in the “most cost-effective manner,” to make a “reasoned determination that the benefits of the intended regulation justify its costs,” and to develop regulations that “impose the least burden on society.” Similarly, DOT regulations require that regulations issued by PHMSA and other DOT Operating Administrations “should be designed to minimize burdens and reduce barriers to market entry whenever possible, consistent with the effective promotion of safety” and should generally “not be issued unless their benefits are expected to exceed their costs.” § 5.5(f)-(g).

This final rule does not impose new burdens as the amendments contained in this final rule are non-substantive changes that do not impose new requirements for hazardous materials shippers or carriers. Therefore, it is not necessary to prepare a regulatory impact analysis.

C. Executive Order 13771

This final rule is not a regulatory action under Executive Order 13771 (“Reducing Regulation and Controlling Regulatory Costs”)<sup>3</sup> because it is not a significant regulatory action as defined by Executive Order 12866.

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<sup>2</sup> 58 FR 51735, (Oc. 4, 1993).

<sup>3</sup> 82 FR 9339 (Feb. 24, 2017).

D. Executive Order 13132

This final rule has been analyzed in accordance with the principles and criteria in Executive Order 13132 (“Federalism”)<sup>4</sup> and the President’s memorandum (“Preemption”) that was published in the Federal Register on May 22, 2009 [74 FR 24693]. Executive Order 13132 requires agencies to assure meaningful and timely input by State and local officials in the development of regulatory policies that may have “substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.”

The HMR amendments in this final rule are non-substantive changes that do not impose any new requirements and will not have 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. Nor do the HMR amendments in this final rule impose direct compliance costs on State and local governments. Therefore, the consultation and funding requirements of Executive Order 13132 do not apply.

E. Executive Order 13175

This final rule was analyzed in accordance with the principles and criteria contained in Executive Order 13175 (“Consultation and Coordination with Indian Tribal Governments”)<sup>5</sup> and DOT Order 5301.1, “Department of Transportation Policies, Programs, and Procedures Affecting American Indians, Alaska Natives, and Tribes.”

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<sup>4</sup> 64 FR 43255 (Aug. 10, 1999).

<sup>5</sup> 65 FR 67249 (Nov. 9, 2000).

Executive Order 13175 and DOT Order 5301.1 require DOT Operating Administrations to assure meaningful and timely input from Indian Tribal government representatives in the development of rules that significantly or uniquely affect Tribal communities by imposing “substantial direct compliance costs” or “substantial direct effects” on such communities or the relationship and distribution of power between the Federal Government and Indian Tribes.

This final rule neither imposes direct compliance costs on Tribal communities, nor has a substantial direct effect on those communities. Therefore, the funding and consultation requirements of Executive Order 13175 and DOT Order 5301.1 do not apply.

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

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires agencies 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. There are no costs to small entities associated with this final rule. This final rule makes non-substantive changes that do not impose new requirements; thus, there are no direct or indirect adverse economic impacts for small units of government, businesses, or other organizations. Consequently, PHMSA certifies that this final rule does not have a significant economic impact on a substantial number of small entities.

G. Unfunded Mandates Reform Act

This final rule does not impose unfunded mandates under the Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1501 *et seq.*). It does not result in costs of \$100 million (\$164 million as of 2019 when 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.

#### H. Paperwork Reduction Act

Under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*) no person is required to respond to any information collection unless it has been approved by OMB and displays a valid OMB control number. Section 1320.8(d) of 5 CFR requires that PHMSA provide interested members of the public and affected agencies an opportunity to comment on information and recordkeeping requests. There are no new information collection requirements in this final rule.

#### I. Environmental Assessment

The National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. 4321 *et seq.*), and implementing regulations by the Council on Environmental Quality (40 CFR part 1500) require Federal agencies to consider the consequences of Federal actions and prepare a detailed statement on actions that significantly affect the quality of the human environment. DOT Order 5610.1C, “Procedures for Considering Environmental Impacts,” establishes departmental procedures for evaluation of environmental impacts under NEPA and its implementing regulations.

The purpose of this final rule is to introduce non-substantive changes that do not impose new requirements. The intended effect of this rule is to enhance the accuracy and

reduce misunderstandings of the regulations. Therefore, PHMSA has determined that the implementation of this final rule will not have a significant impact on the quality of the human environment.

J. Regulation Identifier Number (RIN)

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

K. Executive Order 13609 and International Trade Analysis

Under Executive Order 13609, “Promoting International Regulatory Cooperation,” [77 FR 26413; May 4, 2012] agencies must consider whether the impacts associated with significant variations between domestic and international regulatory approaches are unnecessary or may impair the ability of American business to export and compete internationally. In meeting shared challenges involving health, safety, labor, security, environmental, and other issues, international regulatory cooperation can identify approaches that are at least as protective as those that are or would be adopted in the absence of such cooperation. International regulatory cooperation can also reduce, eliminate, or prevent unnecessary differences in regulatory requirements.

Similarly, the Trade Agreements Act of 1979 (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. PHMSA has assessed the effects of the final rule to ensure that it does not cause unnecessary obstacles to foreign trade. The amendments contained in this rule are non-substantive changes and do not impose new requirements. Further, insofar as many of the amendments introduced by the final rule improve the clarity of the HMR for regulated entities, or better align the HMR with international (e.g., IAEA) standards, the final rule could reduce barriers to international trade. Therefore, this final rule does not present an obstacle to international trade.

### **List of Subjects**

#### 49 CFR Part 106

Administrative practice and procedure, Hazardous materials transportation

#### 49 CFR Part 107

Administrative practice and procedure; Hazardous materials transportation; Packaging and containers; Penalties; Reporting and recordkeeping requirements

#### 49 CFR Part 171

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

49 CFR Part 172

Education, Hazardous materials transportation, Hazardous waste, Labeling, Packaging and containers, Reporting and recordkeeping requirements.

49 CFR Part 173

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

49 CFR Part 174

Hazardous materials transportation, Incorporation by reference, Radioactive materials, Railroad safety, Railroads, Reporting and recordkeeping requirements, Security measures

49 CFR Part 175

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

49 CFR Part 176

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

49 CFR Part 177

Hazardous materials transportation, Motor 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

49 CFR Part 179

Hazardous materials transportation, Railroad safety, Reporting and recordkeeping requirements

49 CFR Part 180

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

In consideration of the foregoing, 49 CFR chapter I is amended as follows:

**PART 106—RULEMAKING PROCEDURES**

1. The authority citation for part 106 is revised to read as follows:

**Authority:** 49 U.S.C. 5101-5128; 49 CFR 1.81 and 1.97.

**PART 107—HAZARDOUS MATERIALS PROGRAM PROCEDURES**

2. The authority citation for part 107 continues to read as follows:

**Authority:** 49 U.S.C. 5101-5128, 44701; Pub. L. 101-410 Section 4; Pub. L. 104-121 Sections 212-213; Pub. L. 104-134 Section 31001; Pub. L. 114-74 Section 4 (28 U.S.C. 2461 note); 49 CFR 1.81 and 1.97; 33 U.S.C. 1321.

3. Amend § 107.117 by revising paragraphs (d)(1) and (2) to read as follows:

**§ 107.117 Emergency Processing.**

\* \* \* \* \*

(d) \* \* \*

(1) *Certificate-Holding Aircraft*: The Federal Aviation Administration (FAA) Director, Office of Hazardous Materials Safety is responsible for the aircraft operator's hazardous materials safety program. The Director, Office of Hazardous Materials Safety, may be reached by calling the FAA Washington Operations Center at 202-267-3333 (any hour), or visiting FAA's website.

(2) *Noncertificate-Holding Aircraft (Those Which Operate Under 14 CFR Part 91)*: The Federal Aviation Administration (FAA) Regional Office that serves the place where the flight will originate. The nearest Regional Office may be located by calling the FAA Washington Operations Center at 202-267-3333 or visiting FAA's website.

\* \* \* \* \*

4. Amend § 107.125 by revising paragraph (a)(1) to read as follows:

**§ 107.125 Appeal.**

(a) \* \* \*

(1) Be in writing or by electronic means and filed within 30 days of receipt of the Associate Administrator's decision on reconsideration;

\* \* \* \* \*

5. Amend § 107.329 by adding paragraph (c) to read as follows:

**§ 107.329 Maximum penalties.**

\* \* \* \* \*

(c) Any owner, operator, or person found to have violated a response plan or provision of 33 U.S.C. 1321(j), or any regulation or order issued thereunder, is subject to an administrative civil penalty under 33 U.S.C. 1321(b)(6), as adjusted by 40 CFR 19.4.

**PART 171—GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS**

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

**Authority:** 49 U.S.C. 5101-5128, 44701; Pub. L. 101-410 section 4; Pub. L. 104-134, section 31001; Pub. L. 114-74 section 4 (28 U.S.C. 2461 note); 49 CFR 1.81 and 1.97.

7. Amend § 171.8 by revising the definition of “Reportable quantity (RQ)” to read as follows:

**§ 171.8 Definitions and Abbreviations.**

\* \* \* \* \*

*Reportable quantity (RQ)* for the purposes of this subchapter, means the quantity specified in Column 2 of Table 1 or Column 3 of Table 2 of Appendix A to § 172.101 for any material identified in Column 1 of the tables.

\* \* \* \* \*

8. Amend § 171.16 by revising paragraph (b)(2) to read as follows:

**§ 171.16 Detailed hazardous materials incident reports.**

\* \* \* \* \*

(b) \* \* \*

(2) For an incident involving transportation by aircraft, submit a written or electronic copy of the Hazardous Materials Incident Report to the Federal Aviation Administration (FAA) Regional Office nearest the location of the incident. The nearest FAA Regional Office may be located by calling the FAA Washington Operations Center at 202-267-3333 (any hour) or visiting FAA’s website; and

\* \* \* \* \*

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

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

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

10. In § 172.101, the Hazardous Materials Table is amended by removing the entries under “[REMOVE],” by adding the entries under “[ADD],” and revising the entries under “[REVISE]” in the appropriate alphabetical order to read as follows:

§ 172.101 Purpose and use of hazardous materials table.

\* \* \* \* \*

§172.101 Hazardous Materials Table

(1) Sym-bols	(2) Hazardous materials descrip-tions and proper shipping names	(3) Hazard class or division	(4) Identi-fication Numbers	(5) PG	(6) Label Codes	(7) Special Provisions (§ 172.102)	(8) Packaging (§ 173.***)			(9) Quantity limitations (see §§ 173.27 and 175.75)		(10) Vessel stowage	
							Exceptions (8A)	Non-bulk (8B)	Bulk (8C)	Passenger aircraft/rail (9A)	Cargo air-craft only (9B)	Loca-tion (10A)	Other (10B)
							[REMOVE]						
	*		*		*		*		*		*		*
G	Nicotine compounds, solid, n.o.s. <i>or</i> Nicotine preparations, solid, n.o.s.	6.1	UN1655	I	6.1	IB7, IP1, T6, TP33	None	211	242	5 kg	50 kg	B	
				II	6.1	IB8, IP2, IP4, T3, TP33	153	212	242	25 kg	100 kg	A	
				III	6.1	IB8, IP3, T1, TP33	153	213	240	100 kg	200 kg	A	
	Nicotine compounds, solid, n.o.s. <i>or</i> Nicotine preparations, solid, n.o.s.	6.1	UN1655	I	6.1	IB7, IP1, T6, TP33	None	211	242	5 kg	50 kg	B	
				II	6.1	IB8, IP2, IP4, T3, TP33	153	212	242	25 kg	100 kg	A	
				III	6.1	IB8, IP3, T1, TP33	153	213	240	100 kg	200 kg	A	



	Ammonia solution, <i>relative density between 0.880 and 0.957 at 15 degrees C in water, with more than 10 percent but not more than 35 percent ammonia</i>	8	UN2672	III	8	336, IB3, IP8, T7, TP2	154	203	241	5 L	60 L	A	40, 52, 85
	*		*		*		*		*		*		*
	Calcium	4.3	UN1401	II	4.3	IB7, IP2, IP21, T3, TP33, W31, W40	151	212	241	15 kg	50 kg	E	13, 52, 148
	*		*		*		*		*		*		*
	Chromosulfuric acid	8	UN2240	I	8	A7, B4, B6, N34, T10, TP2, TP13	None	201	243	0.5 L	2.5 L	B	40, 53, 58, 66, 74, 89, 90
	*		*		*		*		*		*		*
	Dangerous Goods in Machinery <i>or</i> Dangerous Goods in Apparatus	9	UN3363		9	136, A105	None	222	None	See A105	See A105	A	
	*		*		*		*		*		*		*
	Difluoromethane <i>or</i> Refrigerant gas R 32	2.1	UN3252		2.1	T50	306	304	314, 315	Forbidden	150 kg	D	40
	*		*		*		*		*		*		*
	Formaldehyde solutions, <i>with not less than 25 percent formaldehyde</i>	8	UN2209	III	8	IB3, T4, TP1	154	203	241	5 L	60 L		
	*		*		*		*		*		*		*
	Gas sample, non-pressurized, toxic, n.o.s., <i>not refrigerated liquid</i>	2.3	UN3169		2.3	6	306	302, 304	None	Forbidden	1 L	D	
	*		*		*		*		*		*		*
	Helium, compressed	2.2	UN1046		2.2		306, 307	302	302, 314	75 kg	150 kg	A	85
	*		*		*		*		*		*		*
G	Infectious substances, affecting humans	6.2	UN2814		6.2	A82	134	196	None	50 mL or 50 g	4 L or 4 kg	B	40
	*		*		*		*		*		*		*
	Krypton, compressed	2.2	UN1056		2.2		306, 307	302	None	75 kg	150 kg	A	

	*		*		*		*		*		*		*
	Phenyl urea pesticides, liquid, toxic	6.1	UN3002	I	6.1	T14, TP2, TP27	None	201	243	1 L	30 L	B	40
				II	6.1	T7, TP2	None	202	243	5 L	60 L	B	40
				III	6.1	T4, TP1	153	203	241	60 L	220 L	A	40
	*		*		*		*		*		*		*
	Pyrethroid pesticide, liquid toxic	6.1	UN3352	I	6.1	T14, TP2, TP13, TP27	None	201	243	1 L	30 L	B	40
				II	6.1	IB2, T11, TP2, TP27	153	202	243	5 L	60 L	B	40
				III	6.1	IB3, T7, TP2, TP28	153	203	241	60 L	220 L	A	40
	*		*		*		*		*		*		*
D	Toy Caps	1.4S	NA0337		1.4S	382	None	62	None	25 kg	100 kg	01	25
	*		*		*		*		*		*		*

\* \* \* \* \*

11. In § 172.102, in paragraph (c)(1), revise special provisions 343, 384, 386, and in paragraph (c)(3), revise special provision B131 to read as follows:

**§ 172.102 Special provisions.**

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

343 A bulk packaging that emits hydrogen sulfide in sufficient concentration that vapors evolved from the sour crude oil can present an inhalation hazard must be marked as specified in § 172.327.

\* \* \* \* \*

384 For green graphite electrodes and shapes that are large single component solid objects not subject to shifting, transport in open rail flat cars, open bed motor vehicles, and intermodal containers is also authorized. The objects must be secured to the flat car, motor vehicle, intermodal container, or unitized by steel banding to wooden runners or pallets and the units secured to the flat car, motor vehicle, or freight container to prevent shifting, including relative motion between the objects, under conditions normally incident to transportation. Stacking is permitted two or more levels high to achieve maximum allowable utilization of the designated vehicle, rail car weight, or intermodal freight container weight or vessel hold volume.

\* \* \* \* \*

386 When transported by private motor carrier only, the following corrosive liquids may be packaged in polyethylene bottles with a capacity no greater than 3.785L (one gallon), further packed inside an open-top, heavy wall, high density polyethylene box (*i.e.*, crate) in a manner that the polyethylene bottles are not subjected to any superimposed weight, and the boxes must

be reasonably secured against shifting within the transport vehicle and loaded so as to minimize the possibility of coming in contact with other lading:

Compounds, cleaning liquid, NA1760, PG II or III;

Corrosive liquid, acidic, inorganic, n.o.s., UN3264, PG II;

Corrosive liquid, acidic, organic, n.o.s., UN 3265, PG III;

Corrosive liquid, basic, inorganic, n.o.s., UN3266, PG II;

Hypochlorite solutions, UN1791, PG III;

Hydrochloric acid solution, UN 1789, PG II; and

Sulfuric acid, UN2796, PG II.

a. No more than four bottles, securely closed with threaded caps, may be packed in each box.

b. Each empty bottle must have a minimum weight of not less than 140 grams and a minimum wall thickness of not less than 0.020 inch (0.508 mm).

c. The completed package must meet the Packing Group II performance level, as applicable for combination packagings with a plastic box outer packaging, in accordance with subpart M of part 178 of this subchapter.

(i) Tests must be performed on each type and size of bottle, for each manufacturing location.

Samples taken at random must withstand the prescribed tests without breakage or leakage.

(ii) One bottle for every two hours of production, or for every 2500 bottles produced, must be tested by dropping a bottle filled to 98 percent capacity with water from a height of 1.2 meters (3.9 feet) onto solid concrete directly on the closure.

(iii) A copy of the test results must be kept on file at each facility where packagings are offered for transportation, and must be made available to a representative of the Department upon request.

(iv) The name or symbol of the bottle producer, and the month and year of manufacture, must be marked by embossing, ink-jet printing of permanent ink, or other permanent means on the face or bottom of each bottle, in letters and numbers at least 6 mm (0.2 inch) high. Symbols, if used, must be registered with the Associate Administrator.

(v) The box must be constructed from high-density polyethylene in the density range 0.950-0.962, and be capable of holding liquid when in the upright position.

\* \* \* \* \*

(3) \* \* \*

B131 When transported by highway, rail, or cargo vessel, waste Paint and Paint related material (UN1263; PG II and PG III), when in plastic or metal inner packagings of not more than 26.5 L (7 gallons), are excepted from the marking requirements in § 172.301(a) and (c) and the labeling requirements in § 172.400(a), when further packed in the following specification and non-specification bulk outer packagings and under the following conditions:

a. Primary receptacles must conform to the general packaging requirements of subpart B of part 173 of this subchapter and may not leak. If they do leak, they must be overpacked in packagings conforming to the specification requirements of part 178 of this subchapter or in salvage packagings conforming to the requirements in § 173.12 of this subchapter.

b. Primary receptacles must be further packed in non-specification bulk outer packagings such as cubic yard boxes, plastic rigid-wall bulk containers, dump trailers, and roll-off containers. Bulk outer packagings must be liquid tight through design or by the use of lining materials.

c. Primary receptacles may also be further packed in specification bulk outer packagings.

Authorized specification bulk outer packagings are UN11G fiberboard intermediate bulk containers (IBC) and UN13H4 woven plastic, coated and with liner flexible intermediate bulk

containers (FIBCs) meeting the Packing Group II performance level and lined with a plastic liner of at least 6 mil thickness.

d. All inner packagings placed inside bulk outer packagings must be blocked and braced to prevent shifting during transportation that could cause the container to open or fall over.

Specification IBCs and FIBCs are to be secured to a pallet.

\* \* \* \* \*

12. In § 172.202, revise paragraph (b) to read as follows:

**§ 172.202 Description of hazardous material on shipping papers.**

\* \* \* \* \*

(b) Except as provided in this subpart, the basic description specified in paragraphs (a)(1), (2), (3), and (4) of this section must be shown in sequence with no additional information interspersed. For example, “UN2744, Cyclobutyl chloroformate, 6.1, (8, 3), PG II.” Shipping descriptions for hazardous materials offered or intended for transportation by rail that contain all the information required in this subpart and that are formatted and ordered in accordance with recognized electronic data interchange standards and, to the extent possible, in the order and manner required by this subpart are deemed to comply with this paragraph.

\* \* \* \* \*

13. In § 172.322, revise paragraphs (e)(2)(i) introductory text and (e)(2)(ii) to read as follows:

**§ 172.322 Marine Pollutants.**

(e) \* \* \*

(2) \* \* \*

(i) At least 100 mm (3.9 inches) as measured from the outside of the lines forming the border for marks applied to:

\* \* \* \* \*

(ii) At least 250 mm (9.8 inches) for marks applied to all other bulk packages.

\* \* \* \* \*

14. In § 172.330, revise paragraph (a)(1)(ii) to read as follows:

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

(a) \* \* \*

(1) \* \* \*

(ii) A tank car containing any of the following materials must be marked on each side with the key words of the proper shipping name specified for the material in the § 172.101 table, or with a common name authorized for the material in this subchapter (e.g., “Refrigerant Gas”):

Acrolein, stabilized

Ammonia, anhydrous

Ammonia solutions (more than 50% ammonia)

Bromine *or* Bromine solutions

Bromine chloride

Chloroprene, stabilized

Dispersant gas *or* Refrigerant gas (as defined in § 173.115 of this subchapter)

Division 2.1 materials

Division 2.2 materials (in Class DOT 107 tank cars only)

Division 2.3 materials

Formic acid

Hydrocyanic acid, aqueous solutions

Hydrofluoric acid, solution

Hydrogen cyanide, stabilized (less than 3% water)

Hydrogen fluoride, anhydrous

Hydrogen peroxide, aqueous solutions (greater than 20% hydrogen peroxide)

Hydrogen peroxide, stabilized

Hydrogen peroxide and peroxyacetic acid mixtures

Nitric acid (other than red fuming)

Phosphorus, amorphous

Phosphorus, white dry *or* Phosphorus, white, under water *or* Phosphorus white, in solution, *or* Phosphorus, yellow dry *or* Phosphorus, yellow, under water *or* Phosphorus, yellow, in solution

Phosphorus white, molten

Potassium nitrate and sodium nitrate mixtures

Potassium permanganate

Sulfur trioxide, stabilized

Sulfur trioxide, uninhibited

\* \* \* \* \*

15. In § 172.400, revise paragraph (b) to read as follows:

**§ 172.400 General labeling requirements.**

\* \* \* \* \*

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

Hazard class or division	Label name	Label design or section reference
1.1	EXPLOSIVES 1.1	172.411
1.2	EXPLOSIVES 1.2	172.411
1.3	EXPLOSIVES 1.3	172.411
1.4	EXPLOSIVES 1.4	172.411
1.5	EXPLOSIVES 1.5	172.411

1.6	EXPLOSIVES 1.6	172.411
2.1	FLAMMABLE GAS	172.417
2.2	NON-FLAMMABLE GAS	172.415
2.3	POISON GAS	172.416
3 Flammable Liquid (Combustible liquid)	FLAMMABLE LIQUID (none)	172.419
4.1	FLAMMABLE SOLID	172.420
4.2	SPONTANEOUSLY COMBUSTIBLE	172.422
4.3	DANGEROUS WHEN WET	172.423
5.1	OXIDER	172.426
5.2	ORGANIC PEROXIDE	172.427
6.1 (material poisonous by inhalation (see §171.8 of this subchapter))	POISON INHALATION HAZARD	172.429
6.1 (other than material poisonous by inhalation)	POISON	172.430
6.1 (inhalation hazard, Zone A or B)	POISON INHALATION HAZARD	172.429
6.1 (other than inhalation hazard, Zone A or B)	POISON	172.430
6.2	INFECTIOUS SUBSTANCE	172.432
7 (see § 172.403)	RADIOACTIVE WHITE-I	172.436
7	RADIOACTIVE YELLOW-II	172.438
7	RADIOACTIVE YELLOW-III	172.440
7 (fissile radioactive material; see § 172.402)	FISSILE	172.441
7 (empty packages, see § 173.428 of this subchapter)	EMPTY	172.450
8	CORROSIVE	172.442
9	CLASS 9	172.446

16. In § 172.446, revise paragraph (b) and remove paragraph (c) 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.

17. In § 172.800, revise paragraphs (b)(1) through (14) to read as follows:

**§ 172.800 Purpose and applicability.**

\* \* \* \* \*

(b) \* \* \*

(1) Any quantity of a Division 1.1, 1.2, or 1.3 material.

(2) A quantity of a Division 1.4, 1.5, or 1.6 material requiring placarding in accordance with subpart F of this part.

(3) A large bulk quantity of Division 2.1 material.

(4) A large bulk quantity of Division 2.2 material with a subsidiary hazard of 5.1.

(5) Any quantity of a material poisonous by inhalation, as defined in § 171.8 of this subchapter.

(6) A large bulk quantity of a Class 3 material meeting the criteria for Packing Group I or II.

(7) A quantity of desensitized explosives meeting the definition of Division 4.1 or Class 3 material requiring placarding in accordance with subpart F of this part.

(8) A large bulk quantity of a Division 4.2 material meeting the criteria for Packing Group I or II.

(9) A quantity of a Division 4.3 material requiring placarding in accordance with subpart F of this part.

(10) A large bulk quantity of a Division 5.1 material in Packing Groups I and II; perchlorates; or ammonium nitrate, ammonium nitrate fertilizers, or ammonium nitrate emulsions, suspensions, or gels.

(11) Any quantity of organic peroxide, Type B, liquid or solid, temperature controlled.

(12) A large bulk quantity of Division 6.1 material (for a material poisonous by inhalation see paragraph (5) above).

(13) A select agent or toxin regulated by the Centers for Disease Control and Prevention under 42 CFR part 73 or the U.S. Department of Agriculture under 9 CFR part 121.

(14) A quantity of uranium hexafluoride requiring placarding under § 172.505(b).

\* \* \* \* \*

**PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS  
AND PACKAGINGS**

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

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

19. In § 173.3, revise paragraph (d)(2)(i) to read as follows:

**§ 173.3 Packaging and Exceptions.**

\* \* \* \* \*

(d) \* \* \*

(2) \* \* \*

(i) Must be designed, constructed and marked in accordance with Section VIII, Division I of the ASME Code (IBR, *see* § 171.7 of this subchapter) with a minimum design margin of 4 to

1. Salvage cylinders may not be equipped with a pressure relief device. Damaged cylinders must be securely positioned in the salvage cylinder to prevent excessive shifting. The overpack requirements of § 173.25 do not apply to salvage cylinders used in accordance with this section.

\* \* \* \* \*

20. In § 173.24, revise paragraph (c)(2) to read as follows:

**§ 173.24 General requirements for packagings and packages.**

\* \* \* \* \*

(c) \* \* \*

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

\* \* \* \* \*

21. In § 173.27, revise paragraphs (f)(2)(ii) and (i) to read as follows:

**§ 173.27 General requirements for transportation by aircraft.**

\* \* \* \* \*

(f) \* \* \*

(2) \* \* \*

(ii) Packages must be marked with the limited quantity “Y” mark as prescribed in § 172.315 of this subchapter when conforming to Table 3 of this paragraph.

\* \* \* \* \*

(i) Each person who offers a hazardous material for transportation by aircraft must include the certification statement specified in § 172.204(c)(3) of this subchapter.

22. In § 173.29, revise paragraph (b)(2)(iv)(A) to read as follows:

**§ 173.29 Empty packagings.**

\* \* \* \* \*

(b) \* \* \*

(2) \* \* \*

(iv) \* \* \*

(A) A limited quantity or an ORM-D material; or

\* \* \* \* \*

23. In § 173.31, revise paragraphs (g) introductory text and (g)(3) to read as follows:

**§ 173.31 Use of tank cars.**

\*\*\*\*\*

(g) *Tank car loading and unloading.* When placed for loading or unloading and before unsecuring any closure, a tank car must be protected against shifting or coupling as follows:

\* \* \*

(3) At least one wheel on the tank car must be blocked against motion in both directions, and the hand brakes must be set. If multiple tank cars are coupled together, sufficient hand brakes must be set and wheels blocked to prevent motion in both directions.

24. In § 173.62, amend paragraph (c)(5) by revising the table to read as follows:

**§ 173.62 Specific packaging requirements for explosives.**

\* \* \* \* \*

(c) \* \* \*

(5) \* \* \*

**Table 2 to paragraph (c)(5): Table of Packing Methods**

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
101	<p>This Packing Instruction may be used as an alternative to a specifically assigned packing method with the approval of the Associate Administrator prior to transportation. When this packing instruction is used, the following must be marked on the shipping documents:</p> <p>“Packaging approved by the Competent Authority of the United States of America (USA)”.</p>		
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <p>1. Samples of new or existing explosive substances or articles may be transported as directed by the Associate Administrator for purposes including: testing, classification, research and development, quality control, or as a commercial sample. Explosive samples which are wetted or desensitized must be limited to 25 kg. Explosive samples which are not wetted or desensitized must be limited to 10 kg in small packages as specified by the Associate Administrator for Hazardous Materials Safety</p>			
110(a)	Bags, Receptacles	Bags, Receptacles	Drums
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <p>1. The Intermediate packagings must be filled with water saturated material such as an anti-freeze solution or wetted cushioning</p> <p>2. Outer packagings must be filled with water saturated material such as an anti-freeze solution or wetted cushioning. Outer packagings must be constructed and sealed to prevent evaporation of the wetting solution, except when 0224 is being carried dry</p>	<p><i>Bags.</i> plastics, textile, plastic coated or lined rubber textile, rubberized textile <i>Receptacles.</i> Wood</p>	<p><i>Bags.</i> plastics, textile, plastic coated or lined rubber textile, rubberized <i>Receptacles.</i> plastics metal wood</p>	<p>steel (1A1 or 1A2) other metal (1N1 or 1N2) plastics (1H1 or 1H2)</p>
110(b)	Bags, Receptacles	Dividing partitions	Boxes
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS</p> <p>For UN 0074, 0113, 0114, 0129, 0130, 0135 and 0224, the following conditions must be satisfied:</p> <p>a. inner packagings must not contain more than 50 g of explosive substance (quantity corresponding to dry substance);</p> <p>b. each inner packaging must be separated from other inner packagings by dividing partitions; and</p> <p>c. the outer packaging must not be partitioned with more than 25 compartments</p>	<p><i>Bags.</i> rubber, conductive plastics, conductive <i>Receptacles.</i> metal wood rubber, conductive plastics, conductive</p>	<p>metal wood plastics fiberboard</p>	<p>natural wood, sift-proof wall (4C2) plywood (4D) reconstituted wood (4F)</p>
111	Bags, Sheets, Receptacles	Not necessary	Boxes, Drums
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p>	<p><i>Bags.</i> paper, waterproofed plastics</p>		<p><i>Boxes.</i> steel (4A) aluminum (4B)</p>

For UN0159, inner packagings are not required when metal (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2) or plastics (1H1 or 1H2) drums are used as outer packagings	textile, rubberized <i>Sheets.</i> plastics textile, rubberized <i>Receptacles.</i> wood		other metal (4N) natural wood, ordinary (4C1) natural wood, sift proof (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) plastics, expanded (4H1) plastics, solid (4H2) <i>Drums.</i> steel (1A1 or 1A2) aluminum (1B1 or 1B2) other metal (1N1 or 1N2) plywood (1D) fiberboard (1G) plastics (1H1 or 1H2)
112(a)	Bags, Receptacles	Bags, Receptacles	Boxes, Drums
PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 1. For UN 0004, 0076, 0078, 0154, 0219 and 0394, packagings must be lead free 2. Intermediate packagings are not required if leakproof drums are used as the outer packaging 3. For UN0072 and UN0226, intermediate packagings are not required	<i>Bags.</i> paper, multiwall, water resistant plastics textile textile, rubberized woven plastics <i>Receptacles.</i> metal plastics wood	<i>Bags.</i> plastics textile, plastic coated or lined <i>Receptacles.</i> metal plastics wood	<i>Boxes.</i> steel (4A) aluminum (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift proof (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) plastics, expanded (4H1) plastics, solid (4H2) <i>Drums.</i> steel (1A1 or 1A2) aluminum (1B1 or 1B2) other metal (1N1 or 1N2) plywood (1D) fiber (1G) plastics (1H1 or 1H2)
112(b)	Bags	Bags	Bags, Boxes, Drums
This packing instruction applies to dry solids other than powders PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 1. For UN 0004, 0076, 0078, 0154, 0216, 0219 and 0386, packagings must be lead free 2. For UN0209, bags, sift-proof (5H2) are recommended for flake or prilled TNT in the dry state and a maximum net mass of 30 kg. 3. For UN0222, inner packagings are not required	paper, kraft, paper, multiwall, water resistant plastics textile textile, rubberized plastics woven plastics	(for UN0150 only) plastics textile, plastic coated or lined	<i>Bags.</i> woven plastics sift-proof (5H2/3) plastics, film (5H4) textile, sift-proof (5L2) textile, water resistant (5L3) paper, multiwall, water resistant (5M2) <i>Boxes.</i> steel (4A) aluminum (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift proof (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) plastics, expanded (4H1)

			plastics, solid (4H2) <i>Drums.</i> steel (1A1 or 1A2) aluminum (1B1 or 1B2) plywood (1D) other metal (1N1 or 1N2) fiber (1G) plastics (1H1 or 1H2)
112(c)	Bags, Receptacles	Bags, Receptacles	Boxes, Drums
This packing instruction applies to solid dry powders <b>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</b> 1. For UN 0004, 0076, 0078, 0154, 0216, 0219 and 0386, packagings must be lead free 2. For UN0209, bags, sift-proof (5H2) are recommended for flake or prilled TNT in the dry state. Bags must not exceed a maximum net mass of 30 kg. 3. Inner packagings are not required if drums are used as the outer packaging. 4. At least one of the packagings must be sift-proof 5. For UN 0504, metal packagings must not be used. Packagings of other material with a small amount of metal, for example metal closures or other metal fittings such as those mentioned in part 178 of this subchapter, are not considered metal packagings.	<i>Bags.</i> paper, multiwall, water resistant plastics woven plastics <i>Receptacles.</i> fiberboard metal plastics wood	<i>Bags.</i> paper, multiwall, water resistant with inner lining plastics <i>Receptacles.</i> metal plastics wood	<i>Boxes.</i> steel (4A) aluminum (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift proof (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) plastics, solid (4H2) <i>Drums.</i> plastics (1H1 or 1H2) steel (1A1 or 1A2) aluminum (1B1 or 1B2) other metal (1N1 or 1N2) plywood (1D) fiber (1G)
113	Bags, Receptacles, Sheets	Not necessary	Boxes, Drums
<b>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</b> 1. For UN0094 and UN0305, no more than 50 g of substance must be packed in an inner packaging 2. For UN0027, inner packagings are not necessary when drums are used as the outer packaging 3. At least one of the packagings must be sift-proof 4. Sheets must only be used for UN0028	<i>Bags.</i> paper plastics textile, rubberized <i>Receptacles.</i> fiberboard metal plastics wood <i>Sheets.</i> paper, kraft paper, waxed		<i>Boxes.</i> steel (4A) aluminum (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) plastics, solid (4H2) <i>Drums.</i> plastics (1H1 or 1H2) steel (1A1 or 1A2) aluminum (1B1 or 1B2) other metal (1N1 or 1N2) plywood (1D) fiber (1G)
114(a)	Bags, Receptacles	Bags, Receptacles, Dividing Partitions	Boxes, Drums
This packing instruction applies to wetted solids <b>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</b>	<i>Bags.</i> plastics textile	<i>Bags.</i> plastics	<i>Boxes.</i> steel (4A) other metal (4N)

<p>1. For UN 0077, 0234, 0235 and 0236, packagings must be lead free</p> <p>2. For UN0342, inner packagings are not required when metal (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2) or plastics (1H1 or 1H2) drums are used as outer packagings</p> <p>3. Intermediate packagings are not required if leakproof removable head drums are used as the outer packaging</p>	<p>woven plastics <i>Receptacles.</i> metal plastics wood</p>	<p>textile, plastic coated or lined <i>Receptacles.</i> metal plastics <i>Dividing partitions.</i> wood</p>	<p>natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) plastics, solid (4H2) <i>Drums.</i> steel (1A1 or 1A2) aluminum (1B1 or 1B2) other metal (1N1 or 1N2) plywood (1D) fiber (1G) plastics (1H1 or 1H2)</p>
114(b)	Bags, Receptacles	Not necessary	Boxes, Drums
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <p>1. For UN Nos. 0077, 0132, 0234, 0235 and 0236, packagings must be lead free</p> <p>2. For UN0160 and UN0161, when metal drums (1A2, 1B2 or 1N2) 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.</p> <p>3. For UN0160, UN0161, and UN0508, inner packagings are not necessary if drums are used as the outer packaging</p> <p>4. For UN0508 and UN0509, metal packagings must not be used. Packagings of other material with a small amount of metal, for example metal closures or other metal fittings such as those mentioned in part 178 of this subchapter, are not considered metal packagings</p>	<p><i>Bags.</i> paper, kraft, plastics textile, sift-proof woven plastics, sift-proof <i>Receptacles.</i> fiberboard metal paper plastics wood plastics, sift-proof</p>		<p><i>Boxes.</i> natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) <i>Drums.</i> steel (1A1 or 1A2) aluminum (1B1 or 1B2) other metal (1N1 or 1N2) plywood (1D) fiber (1G) plastics (1H1 or 1H2)</p>
115	Receptacles	Bags, Drums, Receptacles	Boxes, Drums
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <p>1. For liquid explosives, inner packagings must be surrounded with non-combustible absorbent cushioning material in sufficient quantity to absorb the entire liquid content. Metal receptacles should be cushioned from each other. The net mass of explosive per package may not exceed 30 kg when boxes are used as outer packaging. The net volume of explosive in each package other than boxes must not exceed 120 liters</p> <p>2. For UN 0075, 0143, 0495 and 0497 when boxes are used as the outer packaging, inner packagings must have taped screw cap closures and be not more than 5 liters capacity each. A composite packaging consisting of a plastic receptacle in a metal drum (6HA1) may be used in lieu of combination packagings. Liquid substances must not freeze at temperatures above <math>-15\text{ }^{\circ}\text{C}</math> (<math>+5\text{ }^{\circ}\text{F}</math>)</p>	<p><i>Receptacles.</i> metal plastics wood</p>	<p><i>Bags.</i> plastics in metal receptacles <i>Drums.</i> metal <i>Receptacles.</i> Wood</p>	<p><i>Boxes.</i> natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) <i>Drums.</i> plastics (1H1 or 1H2) steel (1A1 or 1A2) aluminum (1B1 or 1B2) other metal (1N1 or 1N2) plywood (1D) fiber (1G)  Specification MC-200 containers may be used for transport by motor vehicle.</p>

<p>3. For UN0144, intermediate packagings are not necessary. Aluminum drums (1B1 and 1B2) and metal, other than steel or aluminum, drums (1N1 and 1N2) must not be used.</p>			
<p>116</p>	<p>Bags, Receptacles, Sheets</p>	<p>Not necessary</p>	<p>Bags, Boxes, Drums, Jerricans</p>
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:  1. For UN 0082, 0241, 0331 and 0332, inner packagings are not necessary if leakproof removable head drums are used as the outer packaging.  2. For UN 0082, 0241, 0331 and 0332, inner packagings are not required when the explosive is contained in a material impervious to liquid.  3. For UN 0081, inner packagings are not required when contained in rigid plastic that is impervious to nitric esters.  4. For UN 0331, inner packagings are not required when bags (5H2, 5H3 or 5H4) are used as outer packagings.  5. For UN0081, bags must not be used as outer packagings.</p>	<p><i>Bags.</i>  paper, water and oil resistant plastics  textile, plastic coated or lined  woven plastics, sift-proof  <i>Receptacles.</i>  fiberboard, water resistant metal  plastics  wood, sift-proof  <i>Sheets.</i>  paper, water resistant  paper, waxed  plastics</p>		<p><i>Bags.</i>  woven plastics (5H1/2/3)  paper, multiwall, water resistant (5M2)  plastics, film (5H4)  textile, sift-proof (5L2)  textile, water resistant (5L3)  <i>Boxes.</i>  steel (4A)  aluminum (4B)  other metal (4N)  wood, natural, ordinary (4C1)  natural wood, sift-proof walls (4C2)  plywood (4D)  reconstituted wood (4F)  fiberboard (4G)  plastics, solid (4H2)  <i>Drums.</i>  steel (1A1 or 1A2)  aluminum (1B1 or 1B2)  other metal (1N1 or 1N2)  plywood (1D)  fiber (1G)  plastics (1H1 or 1H2)  <i>Jerricans.</i>  steel (3A1 or 3A2)  plastics (3H1 or 3H2)</p>
<p>117</p>	<p>Not necessary</p>	<p>Not necessary</p>	<p>IBCs</p>
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:  1. This packing instruction may only be used for explosives of UN 0082 when they are mixtures of ammonium nitrate or other inorganic nitrates with other combustible substances that are not explosive ingredients. Such explosives must not contain nitroglycerin, similar liquid organic nitrates, liquid or solid nitrocarbons, or chlorates.  2. This packing instruction may only be used for explosives of UN 0241 that consist of water as an essential ingredient and high proportions of ammonium nitrate or other oxidizers, some or all of which are in solution. The other constituents may include hydrocarbons or aluminum powder, but must not include nitro-derivatives such as trinitrotoluene.  3. Metal IBCs must not be used for UN 0082, UN 0222 and UN 0241.</p>			<p><i>metal</i>  (11A), (11B), (11N), (21A), (21B), (21N), (31A), (31B), (31N).  <i>flexible</i>  (13H2), (13H3), (13H4), (13L2), (13L3), (13L4), (13M2).  <i>rigid plastics</i>  (11H1), (11H2), (21H1), (21H2), (31H1), (31H2).  <i>composite</i>  (11HZ1), (11HZ2), (21HZ1), (21HZ2), (31HZ1), (31HZ2).</p>

<p>4. Flexible IBCs may only be used for solids.</p> <p>5. For UN 0222, when other than metal or rigid plastics IBCs are used, they must be offered for transportation in a closed freight container or a closed transport vehicle.</p> <p>6. For UN 0222, flexible IBCs must be sift-proof and water-resistant or must be fitted with a sift-proof and water-resistant liner.</p>			
<p>130</p>	<p>Not necessary</p>	<p>Not necessary</p>	<p>Boxes, Drums, Large Packagings</p>
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <p>1. The following applies to UN 0006, 0009, 0010, 0015, 0016, 0018, 0019, 0034, 0035, 0038, 0039, 0048, 0056, 0137, 0138, 0168, 0169, 0171, 0181, 0182, 0183, 0186, 0221, 0238, 0243, 0244, 0245, 0246, 0254, 0280, 0281, 0286, 0287, 0297, 0299, 0300, 0301, 0303, 0321, 0328, 0329, 0344, 0345, 0346, 0347, 0362, 0363, 0370, 0412, 0424, 0425, 0434, 0435, 0436, 0437, 0438, 0451, 0459, 0488, 0502 and 0510. Large and robust explosives articles, normally intended for military use, without their means of initiation or with their means of initiation containing at least two effective protective features, may be carried unpackaged. When such articles have propelling charges or are self-propelled, their ignition systems must be protected against stimuli encountered during normal conditions of transport. A negative result in Test Series 4 on an unpackaged article indicates that the article can be considered for transport unpackaged. Such unpackaged articles may be fixed to cradles or contained in crates or other suitable handling devices.</p> <p>2. Subject to approval by the Associate Administrator, large explosive articles, as part of their operational safety and suitability tests, subjected to testing that meets the intentions of Test Series 4 of the UN Manual of Tests and Criteria with successful test results, may be offered for transportation in accordance with the requirements of this subchapter.</p>			<p><i>Boxes.</i>  steel (4A)  aluminum (4B)  other metal (4N)  wood natural, ordinary (4C1)  wood natural, sift-proof walls (4C2)  plywood (4D)  reconstituted wood (4F)  fiberboard (4G)  plastics, expanded (4H1)  plastics, solid (4H2)  <i>Drums.</i>  steel (1A1 or 1A2)  aluminum (1B1 or 1B2)  other metal (1N1 or 1N2)  plywood (1D)  fiber (1G)  plastics (1H1 or 1H2)  <i>Large Packagings.</i>  steel (50A)  aluminum (50B)  metal other than steel or aluminum (50N)  rigid plastics (50H)  natural wood (50C)  plywood (50D)  reconstituted wood (50F)  rigid fiberboard (50G)</p>
<p>131</p>	<p>Bags, Receptacles, Reels</p>	<p>Not necessary</p>	<p>Boxes, Drums</p>
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <p>1. For UN 0029, 0267 and 0455, bags and reels may not be used as inner packagings.</p> <p>2. For UN 0030, 0255 and 0456, inner packagings are not required when detonators are packed in pasteboard tubes, or when their leg wires are wound on spools with the caps either placed inside the spool or securely taped to the wire on the spool, so as to restrict free moving of the caps and to protect them from impact forces.</p>	<p><i>Bags.</i>  paper  plastics  <i>Receptacles.</i>  fiberboard  metal  plastics  wood  <i>Reels.</i></p>		<p><i>Boxes.</i>  steel (4A)  aluminum (4B)  other metal (4N)  wood, natural, ordinary (4C1)  natural wood, sift-proof walls (4C2)  plastics, solid (4H2)  plywood (4D)  reconstituted wood (4F)  fiberboard (4G)</p>

3. For UN 0360, 0361 and 0500, detonators are not required to be attached to the safety fuse, metal-clad mild detonating cord, detonating cord, or shock tube. Inner packagings are not required if the packing configuration restricts free moving of the caps and protects them from impact forces.			<i>Drums.</i> steel (1A1 or 1A2) Aluminum (1B1 or 1B2) other metal (1N1 or 1N2) Plywood (1D) fiber (1G) plastics (1H1 or 1H2)
132(a)	Not necessary	Not necessary	Boxes
For articles consisting of closed metal, plastic or fiberboard casings that contain detonating explosives, or consisting of plastics-bonded detonating explosives.			<i>Boxes.</i> steel (4A) aluminum (4B) other metal (4N) wood, natural; ordinary (4C1) wood, natural, sift proof walls (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) plastics, solid (4H2)
132(b)	Receptacles, Sheets	Not necessary	Boxes
For articles without closed casings	<i>Receptacles.</i> fiberboard metal plastics wood <i>Sheets.</i> paper plastics		<i>Boxes.</i> steel (4A) aluminum (4B) other metal (4N) wood, natural, ordinary (4C1) wood, natural, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) plastics, solid (4H2)
133	Receptacles, Trays	Intermediate packagings are only needed when trays are used as inner packagings	Boxes
PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 1. For UN 0043, 0212, 0225, 0268 and 0306 trays are not authorized as inner packagings	<i>Receptacles.</i> fiberboard metal plastics wood <i>Trays, fitted with dividing partitions.</i> fiberboard plastics wood	<i>Receptacles.</i> fiberboard metal plastics wood	<i>Boxes.</i> steel (4A) aluminum (4B) other metal (4N) wood, natural, ordinary (4C1) wood, natural, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) plastics, solid (4H2)
134	Bags, Receptacles, Sheets, Tubes	Not necessary	Boxes, Drums
	<i>Bags.</i>		<i>Boxes.</i>

	<p>water resistant <i>Receptacles.</i> fiberboard metal plastics wood <i>Sheets.</i> fiberboard, corrugated <i>Tubes.</i> fiberboard</p>		<p>steel (4A) aluminum (4B) other metal (4N) wood, natural, ordinary (4C1) wood, natural, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) plastics, expanded (4H1) plastics, solid (4H2) <i>Drums.</i> fiberboard (1G) plastics (1H1 or 1H2) steel (1A1 or 1A2) aluminum (1B1 or 1B2) other metal (1N1 or 1N2) plywood (1D)</p>
135	Bags, Receptacles, Sheets	Not necessary	Boxes, Drums
	<p><i>Bags.</i> paper plastics <i>Receptacles.</i> fiberboard metal plastics wood <i>Sheets.</i> paper plastics</p>		<p><i>Boxes.</i> steel (4A) aluminum (4B) other metal (4N) wood, natural, ordinary (4C1) wood, natural, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) plastics, expanded (4H1) plastics, solid (4H2) <i>Drums.</i> steel (1A1 or 1A2) aluminum (1B1 or 1B2) other metal (1N1 or 1N2) plywood (1D) fiber (1G) plastics (1H1 or 1H2)</p>
136	Bags, Boxes, Dividing partitions	Not necessary	Boxes, Drums
	<p><i>Bags.</i> plastics textile <i>Boxes.</i> fiberboard plastics wood <i>Dividing partitions</i> in the outer packagings.</p>		<p><i>Boxes.</i> steel (4A) aluminum (4B) other metal (4N) wood, natural, ordinary (4C1) wood, natural, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) plastics, solid (4H2) <i>Drums.</i></p>

			steel (1A1 or 1A2) aluminum (1B1 or 1B2) other metal (1N1 or 1N2) plywood (1D) fiber (1G) plastics (1H1 or 1H2)
137	Bags, Boxes, Tubes, Dividing partitions	Not necessary	Boxes, Drums
PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: For UN 0059, 0439, 0440 and 0441, when the shaped charges are packed singly, the conical cavity must face downwards and the package marked with orientation markings meeting the requirements of §172.312(a)(2) of this subchapter. When the shaped charges are packed in pairs, the conical cavities must face inwards to minimize the jetting effect in the event of accidental initiation	<i>Bags.</i> plastics <i>Boxes.</i> fiberboard wood <i>Tubes.</i> fiberboard metal plastics <i>Dividing partitions</i> in the outer packagings.		<i>Boxes.</i> steel (4A) aluminum (4B) other metal (4N) wood, natural, ordinary (4C1) wood, natural, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) plastics, solid (4H2) <i>Drums.</i> steel (1A1 or 1A2). aluminum (1B1 or 1B2). other metal (1N1 or 1N2) plywood (1D) fiber (1G). plastics (1H1 or 1H2)
138	Bags	Not necessary	Boxes, Drums
PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: If the ends of the articles are sealed, inner packagings are not necessary	plastics		<i>Boxes.</i> steel (4A) aluminum (4B) other metal (4N) wood, natural, ordinary (4C1) wood, natural, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) plastics, solid (4H2) <i>Drums.</i> fiberboard (1G) plastics, solid (1H1 or 1H2) steel (1A1 or 1A2) aluminum (1B1 or 1B2) other metal (1N1 or 1N2)
139	Bags, Receptacles, Reels, Sheets	Not necessary	Boxes, Drums
PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 1. For UN0065, 0102, 0104, 0289 and 0290, the ends of the detonating cord must be sealed, for example, by a plug firmly fixed so that the explosive cannot	<i>Bags.</i> plastics <i>Receptacles.</i> fiberboard metal		<i>Boxes.</i> steel (4A) aluminum (4B) other metal (4N) wood, natural, ordinary (4C1)

<p>escape. The ends of CORD DETONATING flexible must be fastened securely.</p> <p>2. For UN0065, 0104, 0289, 0290 the ends of the detonating cord are not required to be sealed provided the inner packaging containing the detonating cord consists of a static-resistant plastic bag of at least 3 mil thickness and the bag is securely closed.</p> <p>3. For UN0065 and UN0289, inner packagings are not required when they are fastened securely in coils.</p>	<p>plastics wood <i>Reels.</i> <i>Sheets.</i> paper plastics</p>		<p>wood, natural, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) plastics, solid (4H2) <i>Drums.</i> steel (1A1 or 1A2) aluminum (1B1 or 1B2) other metal (1N1 or 1N2) plywood (1D) fiber (1G) plastics (1H1 or 1H2)</p>
140	Bags, Reels, Sheets, Receptacles	Not necessary	Boxes, Drums
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <p>1. If the ends of UN0105 are sealed, no inner packagings are required</p> <p>2. For UN0101, the packaging must be sift-proof except when the fuse is covered by a paper tube and both ends of the tube are covered with removable caps</p> <p>3. For UN0101, steel or aluminum boxes or drums must not be used</p>	<p><i>Bags.</i> plastics <i>Reels.</i> <i>Sheets.</i> paper, kraft plastics <i>Receptacles.</i> wood</p>		<p><i>Boxes.</i> steel (4A) aluminum (4B) other metal (4N) wood, natural, ordinary (4C1) wood, natural, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) plastics, solid (4H2) <i>Drums.</i> steel (1A1 or 1A2) aluminum (1B1 or 1B2) other metal (1N1 or 1N2) plywood (1D) fiber (1G) plastics (1H1 or 1H2)</p>
141	Receptacles, Trays, Dividing partitions	Not necessary	Boxes, Drums
	<p><i>Receptacles.</i> fiberboard metal plastics wood <i>Trays, fitted with dividing partitions.</i> plastics wood <i>Dividing partitions in the outer packagings.</i></p>		<p><i>Boxes.</i> steel (4A) aluminum (4B) other metal (4N) wood, natural, ordinary (4C1) wood, natural, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) plastics, solid (4H2) <i>Drums.</i> steel (1A1 or 1A2) aluminum (1B1 or 1B2) other metal (1N1 or 1N2) plywood (1D) fiber (1G) plastics (1H1 or 1H2)</p>

142	Bags, Receptacles, Sheets, Trays	Not necessary	Boxes, Drums
	<i>Bags.</i> paper plastics <i>Receptacles.</i> fiberboard metal plastics wood <i>Sheets.</i> paper <i>Trays, fitted with dividing partitions.</i> plastics		<i>Boxes.</i> steel (4A) aluminum (4B) other metal (4N) wood, natural, ordinary (4C1) wood, natural, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) plastics, solid (4H2) <i>Drums.</i> steel (1A1 or 1A2) aluminum (1B1 or 1B2) other metal (1N1 or 1N2) plywood (1D) fiber (1G) plastics (1H1 or 1H2)
143	Bags, Receptacles, Trays	Not necessary	Boxes, Drums
PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 1. For UN 0271, 0272, 0415 and 0491 when metal packagings are used, metal packagings must be so constructed that the risk of explosion, by reason of increase in internal pressure from internal or external causes is prevented 2. Composite packagings (6HH2) (plastic receptacle with outer solid box) may be used in lieu of combination packagings	<i>Bags.</i> paper, kraft plastics textile textile, rubberized <i>Receptacles.</i> fiberboard metal plastics wood <i>Trays, fitted with dividing partitions.</i> plastics wood		<i>Boxes.</i> steel (4A) aluminum (4B) other metal (4N) wood, natural, ordinary (4C1) wood, natural, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fiberboard (4G) plastics, solid (4H2) <i>Drums.</i> steel (1A1 or 1A2) aluminum (1B1 or 1B2) other metal (1N1 or 1N2) plywood (1D) fiber (1G) plastics (1H1 or 1H2)
144	Receptacles, Dividing partitions	Not necessary	Boxes, Drums
PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: For UN0248 and UN 0249, packagings must be protected against the ingress of water. When CONTRIVANCES, WATER ACTIVATED are transported unpackaged, they must be provided with at least two independent protective features that prevent the ingress of water	<i>Receptacles.</i> fiberboard metal plastics wood <i>Dividing partitions in the outer packagings.</i>		<i>Boxes.</i> steel (4A) aluminum (4B) other metal (4N) wood, natural, ordinary (4C1) with metal liner plywood (4D) with metal liner reconstituted wood (4F) with metal liner plastics, expanded (4H1)

			plastics, solid (4H2) <i>Drums.</i> steel (1A1 or 1A2) aluminum (1B1 or 1B2) other metal (1N1 or 1N2) plastics (1H1 or 1H2) plywood (1D)
US 1			
1. A jet perforating gun, charged, oil well may be transported under the following conditions:			
a. Initiation devices carried on the same motor vehicle or offshore supply vessel must be segregated; each kind from every other kind, and from any gun, tool or other supplies, unless approved in accordance with §173.56. Segregated initiation devices must be carried in a container having individual pockets for each such device or in a fully enclosed steel container lined with a non-sparking material. No more than two segregated initiation devices per gun may be carried on the same motor vehicle.			
b. Each shaped charge affixed to the gun may not contain more than 112 g (4 ounces) of explosives.			
c. Each shaped charge if not completely enclosed in glass or metal, must be fully protected by a metal cover after installation in the gun.			
d. A jet perforating gun classed as 1.1D or 1.4D may be transported by highway by private or contract carriers engaged in oil well operations.			
(i) A motor vehicle transporting a gun must have specially built racks or carrying cases designed and constructed so that the gun is securely held in place during transportation and is not subject to damage by contact, one to the other or any other article or material carried in the vehicle; and			
(ii) The assembled gun packed on the vehicle may not extend beyond the body of the motor vehicle.			
e. A jet perforating gun classed as 1.4D may be transported by a private offshore supply vessel only when the gun is carried in a motor vehicle as specified in paragraph (d) of this packing method or on offshore well tool pallets provided that:			
(i) All the conditions specified in paragraphs (a), (b), and (c) of this packing method are met;			
(ii) The total explosive contents do not exceed 95 kg (209.43 pounds) per tool pallet;			
(iii) Each cargo vessel compartment may contain up to 95 kg (209.43 pounds) of explosive content if the segregation requirements in §176.83(b) of this subchapter are met; and			
(iv) When more than one vehicle or tool pallet is stowed “on deck” a minimum horizontal separation of 3 m (9.8 feet) must be provided.			

**§ 173.121 [Amended]**

25. In § 173.121, remove paragraph (c).

26. In § 173.134, revise paragraphs (b)(7), (b)(12)(ii)(C), and (b)(16) to read as follows:

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

\* \* \* \* \*

(b) \* \* \*

(7) Blood collected for the purpose of blood transfusion or the preparation of blood products; blood products; plasma; plasma derivatives; blood components; tissues or organs intended for use in transplant operations; and human cell, tissues, and cellular and tissue-based products regulated under authority of the Public Health Service Act (42 U.S.C. 264-272) and/or the Food, Drug, and Cosmetic Act (21 U.S.C. 301 *et seq.*).

\* \* \* \* \*

(12) \* \* \*

(ii) \* \* \*

(C) The secondary container must be placed inside an outer packaging with sufficient cushioning material to prevent shifting between the secondary container and the outer packaging. An itemized list of the contents of the primary container and information concerning possible contamination with a Division 6.2 material, including its possible location on the product, must be placed between the secondary container and the outside packaging.

\* \* \* \* \*

(16) A raw agricultural commodity as defined in the Federal Food, Drug, and Cosmetics Act (21 U.S.C. 301 *et seq.*).

\* \* \* \* \*

27. In § 173.150, revise paragraphs (g)(1)(iii) and (g)(2)(iii) to read as follows:

**§ 173.150 Exceptions for Class 3 (flammable and combustible liquids).**

\* \* \* \* \*

(g) \* \* \*

(1) \* \* \*

(iii) The net liquid contents of all inner packagings in any single outer packaging may not exceed 5.6 liters (1.5 gallons). The net solid contents of all inner packagings in any single outer packaging may not exceed 15 kilograms (33 pounds). The gross weight of any single outer package shipped may not exceed 30 kilograms (66 pounds); Inner packagings must be secured and cushioned within the outer package to prevent breakage, leakage, and shifting.

(2) \* \* \*

(iii) The net liquid contents of all inner packagings in any single outer packaging may not exceed 5.6 liters (1.5 gallons). The net solid contents of all inner packagings in any single outer packaging may not exceed 15 kilograms (33 pounds). The gross weight of any single outer package shipped may not exceed 30 kilograms (66 pounds). Inner packagings must be secured and cushioned within the outer package to prevent breakage, leakage, and shifting.

\* \* \* \* \*

**§ 173.156 Exceptions for limited quantity and ORM-D.**

28. In § 173.156, revise the section title to read as set forth above:

29. In § 173.159, revise paragraph (k)(1)(iv) to read as follows:

**§ 173.159 Batteries, wet.**

\* \* \* \* \*

(k) \* \* \*

(1) \* \* \*

(iv) When packaged with other batteries or materials (e.g., on pallets or non-skid rails) and secured to prevent shifting during transport, pack the battery in leakproof packaging to prevent leakage of battery fluid from the packaging under conditions normally incident to transportation.

\* \* \* \* \*

30. In § 173.166, revise paragraphs (d)(4), (e) introductory text, (e)(4)(i)(C), and (e)(6)(ii) to read as follows:

**§ 173.166 Safety devices.**

\* \* \* \* \*

(d) \* \* \*

(4) *Shipments to recycling or waste disposal facilities.* When offered for domestic transportation by highway, rail freight, cargo vessel or cargo aircraft, a serviceable safety device classed as either Class 9 (UN3268) or Division 1.4G removed from a motor vehicle that was manufactured as required for use in the United States may be offered for transportation and transported without compliance with the shipping paper requirement prescribed in paragraph (c) of this section. However, when these articles are shipped to a recycling facility, the word “Recycled” must be entered on the shipping paper immediately after the basic description prescribed in § 172.202 of this subchapter. No more than one device is authorized in the packaging prescribed in paragraphs (e)(1), (2) or (3) of this section. The device must be cushioned and secured within the package to prevent shifting during transportation.

\* \* \* \* \*

(e) *Packagings.* Rigid, outer packagings, meeting the general packaging requirements of part 173 are authorized as follows. Additionally, the UN specification packagings listed in paragraphs (e)(1), (2), and (3) of this section must meet the packaging specification and performance requirements of part 178 of this subchapter at the Packing Group III performance level. The packagings must be designed and constructed to prevent shifting of the articles and inadvertent activation. Further, if the Class 9 designation is contingent upon packaging specified

by the authorized testing agency, shipments of the safety device must be in compliance with the prescribed packaging.

\* \* \* \* \*

(4) \* \* \*

(i) \* \* \*

(C) Internal dunnage must be sufficient to prevent shifting of the devices within the container.

\* \* \* \* \*

(6) \* \* \*

(ii) Outer packaging consisting of 4H2 solid plastic boxes or non-specification rugged reusable plastic outer packaging and inner static-resistant plastic bags or trays. If not completely enclosed by design, the container or handling device must be covered with plastic, fiberboard, metal or other suitable material. The covering must be secured to the container by banding or other comparable methods. The articles must be packed to prevent shifting within the container during transportation.

\* \* \* \* \*

31. In § 173.176, revise paragraph (g) to read as follows:

**§ 173.176 Capacitors.**

\* \* \* \* \*

(g) Asymmetric capacitors containing an electrolyte meeting the definition of one or more hazard class or division as defined in this part, that are not installed in equipment, and with an energy storage capacity of more than 20 Wh are subject to the requirements of this subchapter.

\* \* \* \* \*

32. In § 173.185, revise paragraphs (b)(2)(ii), (b)(4)(ii), (b)(5), (e)(2), and (e)(5) to read as follows:

**§ 173.185 Lithium cells and batteries.**

\* \* \* \* \*

(b) \* \* \*

(2) \* \* \*

(ii) Damage caused by shifting or placement within the package; and

\* \* \* \* \*

(4) \* \* \*

(ii) Equipment must be secured to prevent damage caused by shifting within the outer packaging and be packed so as to prevent accidental operation during transport; and

\* \* \* \* \*

(5) Lithium batteries that weigh 12 kg (26.5 pounds) or more and have a strong, impact-resistant outer casing and assemblies of such batteries, may be packed in strong outer packagings; in protective enclosures (for example, in fully enclosed or wooden slatted crates); or on pallets or other handling devices, instead of packages meeting the UN performance packaging requirements in paragraphs (b)(3)(ii) and (b)(3)(iii) of this section. Batteries or battery assemblies must be secured to prevent inadvertent shifting, and the terminals may not support the weight of other superimposed elements. Batteries or battery assemblies packaged in accordance with this paragraph may be transported by cargo aircraft if approved by the Associate Administrator.

\* \* \* \* \*

(e) \* \* \*

(2) Appropriate measures shall be taken to minimize the effects of vibration and shocks and prevent shifting of the cells or batteries within the package that may lead to damage and a dangerous condition during transport. Cushioning material that is non-combustible and electrically non-conductive may be used to meet this requirement;

\* \* \* \* \*

(5) Lithium batteries, including lithium batteries contained in equipment, that weigh 12 kg (26.5 pounds) or more and have a strong, impact-resistant outer casing or assemblies of such batteries, may be packed in strong outer packagings, in protective enclosures (for example, in fully enclosed or wooden slatted crates), or on pallets or other handling devices, instead of packages meeting the UN performance packaging requirements in paragraphs (b)(3)(ii) and (iii) of this section. The battery or battery assembly must be secured to prevent inadvertent shifting, and the terminals may not support the weight of other superimposed elements;

\* \* \* \* \*

33. In § 173.197, revise paragraphs (e) introductory text, (e)(2) and (e)(3) introductory text to read as follows:

**§ 173.197 Regulated Medical Waste.**

\* \* \* \* \*

(e) *Inner packagings authorized for Large Packagings, Carts, and BOPs.* Inner packagings must be durably marked or tagged with the name and location (city and state) of the offeror, except when the entire contents of the Large Packaging, Cart, or BOP originates at a single location and is delivered to a single location.

\* \* \* \* \*

(2) *Liquids*. Liquid regulated medical waste or clinical waste or (bio) medical waste transported in a Large Packaging, Cart, or BOP must be packaged in a rigid inner packaging conforming to the provisions of subpart B of this part. Liquid materials are not authorized for transportation in inner packagings having a capacity greater than 19 L (5 gallons).

(3) *Sharps*. Sharps transported in a Large Packaging, Cart, or BOP must be packaged in a puncture-resistant, non-bulk inner packaging (sharps container). Each sharps container must be securely closed to prevent leaks or punctures in conformance with instructions provided by the packaging manufacturer. Each sharps container exceeding 76 L (20 gallons) in volume must be capable of passing the performance tests in part 178, subpart M, of this subchapter at the Packing Group II performance level. A sharps container may be reused only if it conforms to the following criteria:

\* \* \* \* \*

34. In § 173.199, revise paragraph (a)(7) to read as follows:

**§ 173.199 Category B infectious substances.**

(a) \* \* \*

(7) The name and telephone number of a person who is either knowledgeable about the material being shipped and has comprehensive emergency response and incident mitigation information for the material, or has immediate access to a person who possesses such knowledge and information, must be included on a written document (such as an air waybill or bill of lading) or on the outer packaging. The telephone number must be monitored during a company's administrative hours (i.e., company's operational business hours).

\* \* \* \* \*

35. In § 173.219, revise paragraph (c)(3) to read as follows:

**§ 173.219 Life-saving appliances.**

\* \* \* \* \*

(c) \* \* \*

(3) Strike-anywhere matches must be cushioned to prevent shifting or friction in a metal or composition receptacle with a screw-type closure in a manner that prevents them from being inadvertently activated;

\* \* \* \* \*

36. In § 173.220, revise paragraphs (c), (d), and (e) to read as follows:

**§ 173.220 Internal combustion engines, vehicles, machinery containing, internal combustion engines, battery-powered equipment or machinery, fuel cell-powered equipment or machinery.**

\* \* \* \* \*

(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 a dangerous evolution of heat, short circuits, and damage to terminals in conformance with § 173.159(a) and leakage; or must be 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. Where a vehicle could possibly be handled in other than an upright position, the vehicle must be secured in a strong, rigid outer packaging. The vehicle must be secured by means capable of restraining the vehicle in the outer packaging to prevent any shifting during transport which would change the orientation or cause the vehicle to be damaged.

(d) *Lithium batteries.* Except as provided in § 172.102, special provision A101, 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 using non-conductive caps that cover the terminals entirely). Except for vehicles, engines, or machinery transported by highway, rail, or vessel with prototype or low production lithium batteries securely installed, each lithium battery must be of a type that has successfully passed each test in the UN Manual of Tests and Criteria (IBR, see § 171.7 of this subchapter), as specified in § 173.185, unless approved by the Associate Administrator. Where a vehicle could possibly be handled in other than an upright position, the vehicle must be secured in a strong, rigid outer packaging. The vehicle must be secured by means capable of restraining the vehicle in the outer packaging to prevent any shifting during transport which would change the orientation or cause the vehicle to be damaged. Where the lithium battery is removed from the vehicle and is packed separate from the vehicle in the same outer packaging, the package must be consigned as “UN 3481, Lithium ion batteries packed with equipment” or “UN 3091, Lithium metal batteries packed with equipment” and prepared in accordance with the requirements specified in § 173.185.

(e) *Fuel cells.* A fuel cell must be secured and protected in a manner to prevent damage to the fuel cell. Equipment (other than vehicles, engines or mechanical equipment) such as consumer electronic devices containing fuel cells (fuel cell cartridges) must be described as “Fuel cell cartridges contained in equipment” and transported in accordance with § 173.230. Where a vehicle could possibly be handled in other than an upright position, the vehicle must be

secured in a strong, rigid outer packaging. The vehicle must be secured by means capable of restraining the vehicle in the outer packaging to prevent any shifting during transport which would change the orientation or cause the vehicle to be damaged.

\* \* \* \* \*

37. In § 173.222, revise paragraph (b)(2) to read as follows:

**§ 173.222 Dangerous goods in equipment, machinery, or apparatus.**

\* \* \* \* \*

(b) \* \* \*

(2) Receptacles containing hazardous materials must be secured and cushioned to prevent their breakage or leakage and so as to control their shifting within the machinery or apparatus during normal conditions of transportation. Cushioning material must not react dangerously with the content of the receptacles. Any leakage of the contents must not substantially impair the protective properties of the cushioning material.

\* \* \* \* \*

38. In § 173.301, revise paragraphs (a)(11) and (f)(3) to read as follows:

**§ 173.301 General requirements for shipment of compressed gases and other hazardous materials in cylinders, UN pressure receptacles and spherical pressure vessels.**

(a) \* \* \*

(11) Cylinder valves manufactured on or after November 7, 2019, used on cylinders to transport compressed gases must conform to the applicable requirements in CGA V-9 (IBR; see § 171.7 of this subchapter). A valve for a UN pressure receptacle must conform to the requirements of § 173.301b(c)(1). Cylinder valves used on cylinders in liquefied petroleum gas

(LPG) service are permitted to comply with the requirements of NFPA 58 (IBR; see § 171.7 of this subchapter).

\* \* \* \* \*

(f) \* \* \*

(3) For a specification 3, 3A, 3AA, 3AL, 3AX, 3AAX, 3B, 3BN, or 3T cylinder filled with gases in other than Division 2.2 (except oxygen and oxidizing gases transported by aircraft, see §§ 173.302(f) and 173.304(f)), the burst pressure of a CG-1, CG-4, or CG-5 pressure relief device must be at test pressure with a tolerance of plus zero to minus 10 percent. An additional 5 percent tolerance is allowed when a combined rupture disk is placed inside a holder. This requirement does not apply if a CG-2, CG-3, or CG-9 thermally activated relief device or a CG-7 reclosing pressure valve is used on the cylinder.

\* \* \* \* \*

39. In § 173.301b, revise paragraph (a)(4) to read as follows:

**§ 173.301b Additional requirements for shipments of UN pressure receptacles.**

(a) \* \* \*

(4) When a strong outer packaging is prescribed, for example as provided by paragraphs (c)(2)(vi) or (d)(1) of this section, the UN pressure receptacles must be protected to prevent shifting. Unless otherwise specified in this part, more than one UN pressure receptacle may be enclosed in the strong outer packaging.

\* \* \* \* \*

40. In § 173.304a, amend the table in paragraph (a)(2) by:

a. Revising the entry for “Hydrogen sulfide;” and

b. Removing Note 14.

The revision reads as follows:

**§ 173.304a Additional requirements for shipment of liquefied compressed gases in specification cylinders.**

- (a) \* \* \*
- (2) \* \* \*

Kind of gas	Maximum permitted filling density (percent) (see Note 1)	Packaging marked as shown in this column or of the same type with higher service pressure must be used, except as provided in §§173.301(l), 173.301a(e), and 180.205(a) (see notes following table)
* *	* *	* * *
Hydrogen sulfide (see Note 10)	62.5	DOT-3A; DOT-3AA; DOT-3B; DOT-4B; DOT-4BA; DOT-4BW; DOT-3E1800; DOT-3AL.
* *	* *	* * *

\* \* \* \* \*

41. § 173.306, revise paragraph (h)(1) to read as follows:

**§ 173.306 Limited quantities of compressed gases.**

\* \* \* \* \*

(h) \* \* \* (1) Lighter refills (see § 171.8 of this subchapter) must not contain an ignition element but must contain a release device. Lighter refills offered for transportation under this section may not exceed 4 fluid ounces capacity (7.22 cubic inches) or contain more than 65 grams of a Division 2.1 fuel. For transportation by highway or rail, lighter refills must be tightly packed and secured against shifting in strong outer packagings. For transportation by aircraft or vessel, lighter refills must be tightly packed and secured against shifting in any rigid specification outer packaging authorized in subpart L of part 178 of this subchapter at the Packing Group II performance level.

\* \* \* \* \*

42. In § 173.307, revise paragraph (a)(5) to read as follows:

**§ 173.307 Exceptions for compressed gases.**

(a) \* \* \*

(5) Manufactured articles or apparatuses, other than light bulbs 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 (0.035 ounce).

\* \* \* \* \*

43. In § 173.308, revise paragraphs (c), (e)(2)(ii), and (e)(2)(iii) to read as follows:

**§ 173.308 Lighters.**

\* \* \* \* \*

(c) *Packaging requirements*—(1) *Inner containment*. Lighters must be placed in an inner packaging that is designed to prevent shifting of the lighters and inadvertent ignition or leakage. The ignition device and gas control lever of each lighter must be designed, or securely sealed, taped, or otherwise fastened or packaged to protect against accidental functioning or leakage of the contents during transport. If lighters are packed vertically in a plastic tray, a plastic, fiberboard or paperboard partition must be used to prevent friction between the ignition device and the inner packaging.

(2) *Outer packaging*. Lighters and their inner packagings must be tightly packed and secured against shifting in any rigid specification outer packaging authorized in subpart L of part 178 of this subchapter at the Packing Group II performance level.

\* \* \* \* \*

(e) \* \* \*

(2) \* \* \*

(ii) Lighters must be placed in an inner packaging that is designed to prevent accidental activation of the ignition device or valve, release of gas, and shifting of the lighters (*e.g.*, tray, blister pack, etc.);

(iii) Inner packagings must be placed in a securely closed rigid outer packaging that limits shifting of the inner packagings and protects them from damage;

\* \* \* \* \*

44. In § 173.314, revise paragraph (h)(2) introductory text:

**§ 173.314 Compressed gases in tank cars and multi-unit tank cars.**

\* \* \* \* \*

(h) \* \* \*

(2) *Odorant fade*. In addition to paragraph (h)(1)(i) of this section, the offeror must ensure that enough odorant will remain in the tank car during the course of transportation. The offeror must have procedures in place to:

\* \* \* \* \*

45. In § 173.315, revise paragraph (a)(2) introductory text, paragraph (b)(2) introductory text, paragraph (h) introductory text, and paragraph (j)(2)(viii) to read as follows:

**§ 173.315 Compressed gases in cargo tanks and portable tanks.**

(a) \* \* \*

(2) *Cargo tanks and DOT specification portable tanks*: Cargo tanks and DOT specification portable tanks must be loaded and offered for transportation in accordance with the

following table (for purposes of the following table, a column entry with “do” indicates “same as above”):

\* \* \* \* \*

(b) \* \* \*

(2) *Odorant fade*. For cargo tanks or portable tanks being transported from a refinery, gas plant or pipeline terminal and in addition to paragraph (b)(1)(i) of this section, the offeror must ensure that enough odorant will remain in the cargo tank or portable tank during the course of transportation. The offeror must have procedures in place to:

\* \* \* \* \*

(h) Each cargo tank and portable tank, except a tank filled by weight, must be equipped with one or more of the gauging devices described in the following table which indicate accurately the maximum permitted liquid level (for purposes of the following table, a column entry with “do” indicates “same as above”). Additional gauging devices may be installed but may not be used as primary controls for filling of cargo tanks and portable tanks. Gauge glasses are not permitted on any cargo tank or portable tank. Primary gauging devices used on cargo tanks of less than 3500 gallons water capacity are exempt from the longitudinal location requirements specified in paragraphs (h)(2) and (3) of this section provided: The tank length does not exceed three times the tank diameter; and the cargo tank is unloaded within 24 hours after each filling of the tank.

\* \* \* \* \*

(j) \* \* \*

(2) \* \* \*

(viii) The storage container must be secured against shifting during transportation.

Bracing must conform with the requirements of paragraph (j)(1)(iii) of this section and § 177.834(a) of this subchapter and with Section 6-5.2 of NFPA 58, Liquefied Petroleum Gas Code. Straps or chains used as tie-downs must be rated to exceed the maximum load to be transported and conform to the requirements in §§ 393.100 through 393.106 of this title.

\* \* \* \* \*

46. In § 173.335, revise paragraph (a) to read as follows:

**§ 173.335 Chemicals under pressure n.o.s.**

(a) *General requirements.* A cylinder filled with a chemical under pressure must be offered for transportation in accordance with the requirements of this section and § 173.301 (except for the cylinder valve cap requirements in §§ 173.301(a)(11) and (12)). In addition, a DOT specification cylinder must meet the requirements in §§ 173.301a, 173.302, 173.302a, and 173.305, as applicable. UN pressure receptacles must meet the requirements in §§ 173.301b, 173.302b, and 173.304b, as applicable. Where more than one section applies to a cylinder, the most restrictive requirements must be followed.

\* \* \* \* \*

47. In § 173.415, revise paragraph (a) introductory text to read as follows:

**§ 173.415 Authorized Type A packages.**

\* \* \* \* \*

(a) DOT Specification 7A (see § 178.350 of this subchapter) Type A general packaging. Each offeror of a Specification 7A package must maintain on file for at least two years after the offeror's latest shipment, and shall provide to DOT on request, one of the following:

\* \* \* \* \*

48. In § 173.435, revise table entry for “Rb (nat)” to read as follows:

**§ 173.435 Table of A<sub>1</sub> and A<sub>2</sub> values of radionuclides.**

\* \* \* \* \*

Symbol of radionuclide	Element and atomic number	A <sub>1</sub> (TBq)	A <sub>1</sub> (Ci) <sup>b</sup>	A <sub>2</sub> (TBq)	A <sub>2</sub> (Ci) <sup>b</sup>	Specific activity	
						(TBq/g)	(Ci/g)
*	*	*	*	*	*	*	*
Rb(nat)		Unlimited	Unlimited	Unlimited	Unlimited	6.7 × 10 <sup>-10</sup>	1.8 × 10 <sup>-8</sup>
*	*	*	*	*	*	*	*

\* \* \* \* \*

**PART 174— CARRIAGE BY RAIL**

49. The authority citation for part 174 continues to read as follows:

**Authority:** 49 U.S.C. 5101-5128; 49 CFR 1.81 and 1.97.

50. In § 174.67, revise paragraphs (a)(2) and (3) to read as follows:

**§ 174.67 Tank car unloading.**

\* \* \* \* \*

(a) \* \* \*

(2) Each hazmat employee who is responsible for unloading must apply the handbrake and block at least one wheel to prevent motion in any direction. If multiple tank cars are coupled together, sufficient hand brakes must be set and wheels blocked to prevent motion in both directions.

(3) Each hazmat employee who is responsible for unloading must secure access to the track to prevent entry by other rail equipment, including motorized service vehicles. This requirement may be satisfied by lining each switch providing access to the unloading area

against shifting and securing each switch with an effective locking device, or by using derails, portable bumper blocks, or other equipment that provides an equivalent level of safety.

\* \* \* \* \*

## PART 175—CARRIAGE BY AIRCRAFT

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

**Authority:** 49 U.S.C. 5101-5128; 44701; 49 CFR 1.81 and 1.97.

52. In § 175.10, revise paragraph (a)(17)(iv), to read as follows:

### § 175.10 Exceptions for passengers, crew members, and air operators.

(a) \* \* \*

(17) \* \* \*

(iv) The wheelchair or other mobility aid must be protected from damage by the shifting of baggage, mail, service items, or other cargo;

\* \* \* \* \*

53. In § 175.31, revise paragraph (a) introductory text to read as follows:

### § 175.31 Reports of discrepancies.

(a) Each person who discovers a discrepancy, as defined in paragraph (b) of this section, relative to the shipment of a hazardous material following its acceptance for transportation aboard an aircraft shall, as soon as practicable, notify the nearest FAA Regional Office by telephone or electronically. The nearest Regional Office may be located by calling the FAA Washington Operations Center 202-267-3333 (any hour). Electronic notifications may be submitted by following instructions on the FAA's website. The following information must be provided:

\* \* \* \* \*

54. In § 175.75, revised paragraph (e)(3)(i) to read as follows:

**§ 175.75 Quantity limitations and cargo location.**

\* \* \* \* \*

(e) \* \* \*

(3) \* \* \*

(i) No person is carried on the aircraft other than the pilot, an FAA Flight Standards inspector, the shipper or consignee of the material, a representative of the shipper or consignee so designated in writing, or a person necessary for handling the material;

\* \* \* \* \*

55. In § 175.630, revise paragraph (b) to read as follows:

**§ 175.630 Special requirements for Division 6.1 (poisonous) material and Division 6.2 (infectious substances) materials.**

\* \* \* \* \*

(b) No person may operate an aircraft that has been used to transport any package required to bear a POISON or POISON INHALATION HAZARD label unless, upon removal of such package, the area in the aircraft in which it was carried is visually inspected for evidence of leakage, spillage, or other contamination. All contamination discovered must be either isolated or removed from the aircraft.

\* \* \* \* \*

**PART 176—CARRIAGE BY VESSEL**

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

**Authority:** 49 U.S.C. 5101-5128; 49 CFR 1.81 and 1.97.

57. In § 176.89, revise paragraph (a)(3) to read as follows:

**§ 176.89 Control of transport vehicles.**

(a) \* \* \*

(3) The parking brakes of the vehicle shall be set securely to prevent motion;

\* \* \* \* \*

58. In § 176.200, revise paragraph (c) to read as follows:

**§ 176.200 General stowage requirements.**

\* \* \* \* \*

(c) When cylinders of Class 2 (compressed gas) materials being transported by vessel are stowed in a vertical position they must be stowed in a block and cribbed or boxed-in with suitable sound lumber and the box or crib dunnaged to provide clearance from a steel deck at least 10 cm (3.9 inches) off any metal deck. Pressure receptacles in the box or crib must be braced to prevent any shifting of the pressure receptacles. The box or crib (gas rack) must be securely chocked and lashed to prevent shifting in any direction.

\* \* \* \* \*

59. In § 176.906, revise paragraph (i)(2)(ii) to read as follows:

**§ 176.906 Stowage of engines and machinery.**

\* \* \* \* \*

(i) \* \* \*

(2) \* \* \*

(ii) The engines or machinery must be oriented to prevent inadvertent leakage of dangerous goods and secured by means capable of restraining the engines or machinery to prevent any shifting during transport which would change the orientation or cause them to be damaged;

\* \* \* \* \*

**PART 177—CARRIAGE BY PUBLIC HIGHWAY**

60. The authority citation for part 177 continues to read as follows:

**Authority:** 49 U.S.C. 5101-5128; sec. 112 of Pub. L. 103-311, 108 Stat. 1673, 1676 (1994); sec. 32509 of Pub. L. 112-141, 126 Stat. 405, 805 (2012); 49 CFR 1.81 and 1.97.

61. In § 177.854, revise paragraph (c)(2) to read as follows:

**§ 177.854 Disabled vehicles and broken or leaking packages; repairs.**

\* \* \* \* \*

(c) \* \* \*

(2) Packages of hazardous materials that are damaged or found leaking during transportation, and hazardous materials that have spilled or leaked during transportation, may be forwarded to destination or returned to the shipper in a salvage packaging in accordance with the requirements of § 173.3, as applicable, of this subchapter.

\* \* \* \* \*

**PART 178—SPECIFICATIONS FOR PACKAGINGS**

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

**Authority:** 49 U.S.C. 5101-5128; 49 CFR 1.81 and 1.97.

63. In § 178.338-10, revise paragraph (c)(2) to read as follows:

**§ 178.338-10 Accident damage protection.**

\* \* \* \* \*

(c) \* \* \*

(2) Conform to the requirements of § 178.345-8(d).

\* \* \* \* \*

64. In § 178.345-8, revise the first sentence of paragraph (b)(1) to read as follows:

**§ 178.345-8 Accident damage protection.**

\* \* \* \* \*

(b) \* \* \*

(1) Any bottom damage protection device must be able to withstand a force of 155,000 pounds (based on the ultimate strength of the material), from the front, side, and rear uniformly distributed, applied in each direction of the device, over an area not to exceed 6 square feet, and a width not to exceed 6 feet. \* \* \*

\* \* \* \* \*

**PART 179—SPECIFICATIONS FOR TANK CARS**

65. The authority citation for part 179 continues to read as follows:

**Authority:** 49 U.S.C. 5101-5128; 49 CFR 1.81 and 1.97.

66. Revise § 179.201-6 to read as follows:

**§ 179.201-6 Manways and manway closures.**

(a) The manway cover for spec. DOT 104W, 111A60ALW1, 111A60W1, 111A100ALW1, 111A100W1, 111A100W3, or 111A100W6 must be designed to make it impossible to remove the cover while the interior of the tank is subjected to pressure.

(b) The manway cover for spec. DOT 111A60W5, or 111A100W5 must be made of a suitable metal. The top, bottom and edge of manway cover must be acid resistant material covered as prescribed in § 179.201-3. Through-bolt holes must be lined with acid resistant material at least one-eighth inch in thickness. A manway cover made of metal not affected by the lading need not be acid resistant material covered.

(c) The manway ring and cover for specifications DOT-103CW, 103DW, 103EW, 111A60W7, or 111A100W6 must be made of the metal and have the same inspection procedures specified in AAR Specifications for Tank Cars, appendix M, M3.03 (IBR, see § 171.7 of this subchapter).

67. Revise § 179.202-13(h)(1) introductory text to read as follows:

**§ 179.202-13 Retrofit Standard Requirements (DOT-117R).**

\* \* \* \* \*

(h) *Top fittings protection*— (1) *Protective housing*. Except as provided in §§179.202-13(h)(2) and (3) of this paragraph, top fittings on DOT Specification 117R tank cars must be located inside a protective housing not less than 1/2-inch in thickness and constructed of a material having a tensile strength not less than 65 kpsi and must conform to all of the following conditions:

\* \* \* \* \*

**PART 180—CONTINUING QUALIFICATION AND MAINTENANCE**

**OF PACKAGINGS**

68. The authority citation for part 180 continues to read as follows:

**Authority:** 49 U.S.C. 5101-5128; 49 CFR 1.81 and 1.97.

69. In § 180.407, revise paragraphs (b)(1), (d)(5), (e)(3) and (g)(1)(iv) to read as follows:

**§ 180.407 Requirements for test and inspection of specification cargo tanks.**

\* \* \* \* \*

(b) \* \* \*

(1) The cargo tank shows evidence of dents, cuts, gouges, corroded or abraded areas, leakage, or any other condition that might render it unsafe for hazardous materials service. At a minimum, any area of a cargo tank showing evidence of dents, cuts, digs, gouges, or corroded or abraded areas must be thickness tested in accordance with the procedures set forth in paragraphs (i)(2), (i)(3), (i)(5), (i)(6), (i)(9), and (i)(10) of this section and evaluated in accordance with the criteria prescribed in § 180.411. Any signs of leakage must be repaired in accordance with § 180.413. The suitability of any repair affecting the structural integrity of the cargo tank must be determined either by the testing required in the applicable manufacturing specification or in paragraph (g)(1)(iv) of this section.

\* \* \* \* \*

(d) \* \* \*

\* \* \* \* \*

(5) Corroded or abraded areas of the cargo tank wall must be thickness tested in accordance with the procedures set forth in paragraphs (i)(2), (i)(3), (i)(5), (i)(6), (i)(9), and (i)(10) of this section.

\* \* \* \* \*

(e) \* \* \*

\* \* \* \* \*

(3) Corroded or abraded areas of the cargo tank wall must be thickness tested in accordance with paragraphs (i)(2), (i)(3), (i)(5), (i)(6), (i)(9), and (i)(10) of this section.

\* \* \* \* \*

(g) \* \* \*

(1) \* \* \*

(iv) Each cargo tank must be tested hydrostatically or pneumatically to the internal pressure specified in the following table. At no time during the pressure test may a cargo tank be subject to pressures that exceed those identified in the following table:

Table 1 to Paragraph (g)(1)(iv)

Specification	Test pressure
MC 300, 301, 302, 303, 305, 306	The test pressure on the name plate or specification plate, 20.7 kPa (3 psig) or design pressure, whichever is greater.
MC 304, 307	The test pressure on the name plate or specification plate, 275.8 kPa (40 psig) or 1.5 times the design pressure, whichever is greater.
MC 310, 311, 312	The test pressure on the name plate or specification plate, 20.7 kPa (3 psig) or 1.5 times the design pressure, whichever is greater.
MC 330, 331	The test pressure on the name plate or specification plate, 1.5 times either the MAWP or the re-rated pressure, whichever is applicable.
MC 338	The test pressure on the name plate or specification plate, 1.25 times either the MAWP or the re-rated pressure, whichever is applicable.
DOT 406	The test pressure on the name plate or specification plate, 34.5 kPa (5 psig) or 1.5 times the MAWP, whichever is greater.
DOT 407	The test pressure on the name plate or specification plate, 275.8 kPa (40 psig) or 1.5 times the MAWP, whichever is greater.
DOT 412	The test pressure on the name plate or specification plate, or 1.5 times the MAWP, whichever is greater.

\* \* \* \* \*

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**Howard R. Elliott**  
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