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**Harmonization with the United Nations
Recommendations, International Maritime
Dangerous Goods Code, and International
Civil Aviation Organization's Technical
Instructions; Final Rule**

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

49 CFR Parts 171, 172, 173, 175, 176, 177, 178, 179 and 180

[Docket No. RSPA-2000-7702 (HM-215D)]

RIN 2137-AD41

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

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

ACTION: Final rule.

SUMMARY: This final rule amends the Hazardous Materials Regulations (HMR) to maintain alignment with international standards by incorporating various changes to proper shipping names, hazard classes, packing groups, special provisions, packaging authorizations, air transport quantity limitations and vessel stowage requirements. In addition, this final rule revises the requirements for intermediate bulk containers and UN portable tanks for alignment with international requirements. Because of recent changes to the International Maritime Dangerous Goods Code (IMDG Code), the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Technical Instructions), and the United Nations Recommendations on the Transport of Dangerous Goods (UN Recommendations), these revisions are necessary to facilitate the transport of hazardous materials in international commerce.

DATES: *Effective Date:* The effective date of these amendments is October 1, 2001.

Voluntary Compliance Date: With the exceptions of the ICAO Technical Instructions, 2001-2002 Edition and the International Atomic Energy Agency's (IAEA) Regulations for the Safe Transport of Radioactive Material, No. TS-R-1, which are authorized for use on July 1, 2001, RSPA is authorizing immediate voluntary compliance. However, persons voluntarily complying with these regulations should be aware that petitions for reconsideration may be received and as a result of RSPA's evaluation of those petitions, the amendments adopted in this final rule could be subject to further revision.

Delayed Compliance Date: Unless otherwise specified, compliance with

the amendments adopted in this final rule is required beginning on October 1, 2002.

Incorporation by Reference Date: The incorporation by reference of publications listed in these amendments in § 171.7 has been approved by the Director of the Federal Register as of October 1, 2001.

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SUPPLEMENTARY INFORMATION:

I. Background

On October 23, 2000, the Research and Special Programs Administration (RSPA) (hereafter, "we" and "our" means "RSPA") published a notice of proposed rulemaking (NPRM) (65 FR 63294) under Docket HM-215D. The NPRM proposed changing the Hazardous Materials Regulations (HMR), 49 CFR parts 171-180, based on the UN Recommendations, the IMDG Code and the ICAO Technical Instructions with respect to hazard communication, classification, and packaging requirements. The intended effect of the rule was to facilitate the international transportation of hazardous materials by ensuring a basic consistency between the HMR and international regulations, while at the same time ensuring the safe transportation of hazardous materials.

On February 1, 2001, we published a final rule under Docket HM-215D (66 FR 8644) authorizing the use of the updated editions of the IMDG Code, the UN Recommendations and the UN Recommendations Manual of Tests and Criteria as proposed in the October 23, 2000 NPRM. This final rule addresses all other proposals published in the NPRM.

The UN Recommendations are not regulations, but are recommendations issued by the UN Committee of Experts on the Transport of Dangerous Goods. These recommendations are amended and updated biennially by the UN Committee of Experts. They serve as the basis for national, regional, and international modal regulations (specifically, the IMDG Code, issued by the International Maritime Organization (IMO), and the ICAO Technical Instructions, issued by the ICAO Dangerous Goods Panel). In 49 CFR 171.12, the HMR authorize hazardous

materials shipments prepared in accordance with the IMDG Code if all or part of the transportation is by vessel, subject to certain conditions and limitations. In § 171.11, subject to certain conditions and limitations, the HMR authorizes the offering, acceptance and transport of hazardous materials by aircraft, in conformance with the ICAO Technical Instructions, and by motor vehicle either before or after being transported by aircraft.

On December 21, 1990, we published a final rule based on the UN Recommendations (Docket HM-181; 55 FR 52402) which comprehensively revised the Hazardous Materials Regulations (HMR), 49 CFR parts 171 to 180, for harmonization with international standards. Since publication of the 1990 final rule, we have issued three additional international harmonization final rules, (Dockets HM-215A, 59 FR 67390; HM-215B, 62 FR 24690; and HM-215C, 64 FR 10742). The rules provided additional harmonization with international air and sea transportation requirements by more fully aligning the HMR with the corresponding biennial updates of the UN Recommendations, the IMDG Code and the ICAO Technical Instructions.

The continually increasing amount of hazardous materials transported in international commerce warrants the harmonization of domestic and international requirements to the greatest extent possible. According to the American Chemistry Council, exports of chemicals totaled almost \$80 billion in the year 2000, while imports totaled nearly \$74 billion. Harmonization serves to facilitate international transportation and at the same time ensures the safety of people, property and the environment.

While the intent of the harmonization rulemakings is to align the HMR with international standards, we review and consider each amendment on its own merit. Each amendment is considered on the basis of the overall impact on transportation safety and the economic implications associated with its adoption into the HMR. Our goal is to harmonize without sacrificing the current HMR level of safety and without imposing undue burdens on the regulated public.

In our efforts to continue the alignment of the HMR with international requirements, this final rule makes changes to the HMR based on the eleventh revised edition of the UN Recommendations, Amendment 30 to the IMDG Code, which became effective January 1, 2001; and, the 2001-2002 ICAO Technical Instructions

which becomes effective July 1, 2001. Petitions for rulemaking pertinent to harmonization with international standards and the facilitation of international transportation are also addressed in this final rule and serve as the basis of certain amendments. Other amendments are based on feedback from the regulated industry, other DOT modal administrations and our initiative. Included are a few editorial clarifications. Certain commenters raised nonregulatory issues, issues that are beyond the scope of this rulemaking or suggested revisions that are now impractical (such as correcting the spelling of an entry that we removed). Such comments will not be addressed. Unless otherwise stated, the revisions are for harmonization with international standards.

II. Overview of Changes in This Final Rule

(See specific section for discussion of comments.)

Amendments to the HMR in this final rule include:

- Incorporation by reference of the updated ICAO Technical Instructions and addition of incorporation by reference of five current standards which include an International Atomic Energy Agency (IAEA) safety standard, three International Organization for Standardization (ISO) standards and one American Society for Testing Materials (ASTM) standard.
- Amendments to the Hazardous Materials Table (HMT) which add, revise or remove certain proper shipping names, hazard classes, packing groups, special provisions, packaging authorizations, bulk packaging requirements, and passenger and cargo aircraft maximum quantity limitations. Proper shipping name amendments include replacing the word “inhibited” with “stabilized.” Entry removals include certain domestic entries for which corresponding UN entries are currently included in the HMT.
- Revision of vessel stowage category definitions and codes for Class 1 (explosive) materials.
- Revision of shipping paper requirements for sea transport.
- Addition, removal and revision of certain entries to the List of Marine Pollutants.
- Addition, removal and revision of special provisions, including removal of current T codes and IBC bulk provisions, and addition of UN portable tank codes and IBC special packing provisions consistent with those in the UN Recommendations.

- Removal of the requirement to distinguish between primary and subsidiary risk labels and placards.
- Addition and revision to the list of organic peroxides and the list of self-reactive substances.
- Revision of the requirements pertaining to the transportation of samples.
- Revision of intermediate bulk container (IBC) requirements including amendments to the IBC commodity sections in §§ 173.240, 173.241, 173.242, 173.243 and 173.247, and addition of UN IBC packing instructions and special IBC packing provisions in part 172.
- Incorporation of the design, construction and use requirements for UN portable tanks.
- Consolidation of current portable tank maintenance, approval and use requirements.
- Inclusion of flexible grandfather provisions for the continued use of IM 101, IM 102, DOT 51, DOT 57 and DOT 60 portable tanks.
- Removal of specifications for DOT 52 and 53 portable tanks and the provisions for their continued use.
- Incorporation of a provision for the use of the “W” mark for IBCs.
- Revision of minimum thickness requirements for metal IBCs.
- Revision of several explosive packing methods to allow a broader selection of authorized packagings.
- Revision of provisions for cigarette lighters and alcoholic beverages carried aboard aircraft.
- Revision of the segregation table for hazardous materials stowed on aircraft.
- Allowance of the display of only one placard when certain explosive compatibility groups are transported together.
- Revision of lithium battery requirements.

III. Summary of Regulatory Changes by Section

Part 171

Section 171.7. We are updating the incorporation by reference for the ICAO Technical Instructions, and adding an ASTM standard, the current edition of the IAEA safety standard and three ISO standards as specified below. Amendment 30 to the IMDG Code, the eleventh revised edition of the UN Recommendations and the third revised edition of the UN Recommendations Manual of Tests and Criteria were incorporated into the HMR in a final rule under Docket HM-215D published February 1, 2001 (66 FR 8644) with a voluntary compliance date authorized

as of January 1, 2001. One commenter opposed incorporation by reference of ASTM’s E-112-96 Standard for Test Methods for Determining Average Grain Size,” and ISO’s 1496-3 “Series 1 freight containers—Specification and testing,” 1996 edition; 4126-1 “Safety valves-Part 1: General Requirements,” 1991 edition, and 6892 “Metallic materials—Tensile testing,” 1984 edition. According to the commenter, the industry supports the use of voluntary consensus standards in commercial applications, however, because of the “frequency of change” and because industry does not adopt the standards verbatim, the commenter suggests that these standards be used as guidance. We disagree. The “National Technology Transfer and Advancement Act of 1995” directs agencies to use voluntary consensus standards. According to the Office of Management and Budget (OMB), Circular A-119, “Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities,” government agencies must use voluntary consensus standards wherever practical in the development of regulations. Agency adoption of industry standards promotes productivity and efficiency in government and industry, expands opportunities for international trade, conserves resources, improves health and safety and protects the environment. Furthermore, requirements in the industry consensus standards are not required to be applied on a mandatory basis unless specifically referenced as such. When incorporating standards in the HMR, we typically specify the specific requirements in the standard that must be met. Requirements that are not mandated in adopted standards are rarely imposed on a mandatory basis in RSPA rulemaking initiatives. On this basis, we are incorporating the standards as proposed.

For international shipments of radioactive material, we are adopting the International Atomic Energy Agency (IAEA) safety standards, “Regulations for the Safe Transport of Radioactive Material, No. TS-R-1” with restrictions for its use for the domestic portion of the transport. Additionally, we are retaining Safety Series No. 6 with the same restrictions. As explained previously, TS-R-1 is the updated edition of the current Safety Series No. 6. Under this final rule, domestic shipments remain subject to the HMR requirements which are based on Safety Series No. 6. For domestic use, a proposal to adopt some or all of the TS-

R-1 standards will be addressed under a separate rulemaking, Docket HM-230, which will provide discussion and opportunity for comment.

As discussed in the final rule under Docket HM-215D published on February 1, 2001, we received comments supporting and opposing the incorporation by reference of TS-R-1 into the HMR. We received several comments from industry supporting the incorporation of TS-R-1 including requests for expedited publication of this final rule. Shippers will be required to comply with the TS-R-1 standards for export shipments and failure to comply would result in foreign authorities refusing to accept hazardous materials shipments prepared in accordance with the HMR. Several commenters stressed the importance of a timely compliance date to allow for a reasonable period to implement the TS-R-1 standards and the ICAO Technical Instructions, which both become effective on July 1, 2001. One commenter pointed out that not only does the time element greatly inhibit the preparation of packagings when nearing the July 1, 2001 effective date, but it will also have an impact on packagings already in transit. One commenter stated that failure to adopt TS-R-1 for international shipments will result in serious health treatment implications because radioisotope pharmaceutical products that are necessary for such treatment would be frustrated in transportation.

As discussed in the February 1, 2001 final rule, we received many comments from private citizens and local citizen groups opposing the incorporation of TS-R-1. Some of these commenters also opposed the adoption of the updated editions of the IMDG Code and the ICAO Technical Instructions because both incorporate TS-R-1. (The IMDG Code was adopted in the February 1, 2001 final rule.) Most of the commenters stated that TS-R-1 lowers the level of safety for the transportation of radioactive materials and thereby poses hazards to the public, however many of these commenters did not provide any technical basis for their opposition. The comments included claims that the TS-R-1 standards for Type B packagings are "weakened." As discussed in the February 1, 2001 final rule, the commenters are incorrect. The TS-R-1 standards strengthen Type B packagings by adding immersion and crush testing to the previously required performance tests. Furthermore, the standards also add limits on the contents of Type B packaging when being transported by aircraft. Some commenters claimed that uranium hexafluoride packaging

requirements are "weakened" in TS-R-1. These commenters are also incorrect. The criticality requirements for packages containing uranium hexafluoride did not change.

Many of the commenters stated that TS-R-1's revised definition of radioactive material lowers the level of safety by changing the 70Bq/g activity concentration threshold. The revised radioactive material definition will be addressed under Docket HM-230 and is not adopted in this final rule. We are adding a paragraph to §§ 171.11 and 171.12 to clarify that only the current definition of radioactive material applies. In addition, we are maintaining the current provisions in §§ 171.11 and 171.12, including the values for Type A packaging contents. Shippers using TS-R-1 under the ICAO Technical Instructions or the IMDG Code must conform to the provisions and restrictions as set forth in §§ 171.11 and 171.12, respectively.

Based on the above, the incorporation by reference materials adopted in this final rule are as follows:

- The ICAO Technical Instructions—2001–2002 edition.
- ASTM's "E 112–96 Standard for Test Methods for Determining Average Grain Size" is added to define "fine grain steel" as included in the proposed incorporation of the UN portable tank specifications in § 178.274.
- IAEA's current "Regulations for the Safe Transport of Radioactive Material, No. TS-R-1," 1996 edition is added while retaining the previous edition entitled, "Regulations for the Safe Transport of Radioactive Material, Safety Series No. 6." The TS-R-1 requirements were incorporated into the IMDG Code which became effective on a voluntary basis on January 1, 2001 and the ICAO Technical Instructions which will be effective July 1, 2001.
- Finally, we are adding three ISO standards to coincide with the incorporation of the UN portable tank requirements. The standards are as follows: "ISO 1496–3 Series 1 freight containers—Specification and testing," 199 edition; "ISO 4126–1 Safety valves—Part 1: General Requirements," 1991 edition; and, "ISO 6892 Metallic materials—Tensile testing," 1984 edition.

In the NPRM, we proposed to add IMO'S current "International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships" (INF Code). Because the IMO Maritime Safety Committee adopted the

INF Code for incorporation into the 2000 edition of the IMDG Code, which we authorized under Docket HM-215D (66 FR 8644) on February 1, 2001, we are not adding the INF Code separately under § 171.7. Also see §§ 176.2 and 176.720.

Section 171.8. We are adding four new definitions to § 171.8. "Large packaging" is added to correspond with the addition of an approval provision that allows the use of large packagings which comply with requirements in the UN Recommendations (see § 178.801(i)). Large packagings are UN-marked bulk packagings which are very similar to IBCs, with the exception that they contain inner packagings. In the NPRM, we proposed to add a definition for "Liner." After reconsideration, we believe that this definition is overly restrictive because it would preclude the use of liners such as those used in portable tanks, (for example, lead or rubber liner materials), bulk bins, IBCs and other types of packagings and the proposed definition would limit liners to bags and tubes. Plastic sheeting, rotationally molded rubber lining and other types of liners that are not bags or tubes would be excluded because the proposed definition limited liners to bags and tubes. On this basis, we are not incorporating the definition for "Liner." "Stabilized" is added in conjunction with the proposal to replace the word "inhibited" with "stabilized" in proper shipping names (see § 172.101). Finally, "UN portable tank" is added in conjunction with the requirements for the design, construction and use of UN portable tanks (see §§ 178.274, 178.275, 178.276 and 178.277).

Section 171.10. To correspond with the incorporation of the UN portable tank specifications, we are adding the unit of measure for "Newton" into the Table of Conversion Factors in paragraph (c)(2).

Section 171.11. We are adding a new paragraph (d)(6)(vi) to limit the radioactive material definition to § 173.403. We are also adding a new paragraph (d)(17) to ensure conformance with the current approval provision in § 173.128(d) which requires an approval from the Associate Administrator for the offering for transportation or transport of organic peroxides that are not identified by technical name in the § 173.225(b) Organic Peroxide Table.

Section 171.12. In the NPRM, we proposed to revise paragraph(b)(3) by adding a limitation to the use of the IMDG Code, 2000 edition that became effective January 1, 2001. The limitation which regulates certain viscous flammable liquids that are excepted from the IMDG Code was incorporated

into the HMR on February 1, 2001 (66 FR 8646). One commenter stated that we should revise paragraph (b)(5) by removing the reference to Section 26 of the General Introduction to the IMDG Code because it will become obsolete January 1, 2002 (66 FR 8645) due to the extensive reformatting. We agree and are making the revision accordingly. We are also revising the paragraph to allow for the use of IBCs and UN portable tanks intended for liquids and solids that conform to the requirements of the IMDG Code. We are adding a new paragraph (b)(19) to ensure conformance with the current approval provision in § 173.128(d), which requires an approval from the Associate Administrator for the offering for transportation or transport of organic peroxides that are not identified by technical name in the § 173.225(b) Organic Peroxide Table. In addition, we are revising paragraph (d) to reflect the addition of the current edition of the IAEA "Regulations for the Safe Transport of Radioactive Material, No. TS-R-1," 1996 edition. (See § 171.7 for discussion concerning the addition of the updated TS-R-1 standards) to ensure that radioactive material is defined in accordance with § 173.403.

Section 171.12a. We are adding a new paragraph (b)(18) to ensure conformance with the current approval provision in § 173.128(d) which requires an approval from the Associate Administrator for the offering for transportation or transport of organic peroxides that are not identified by technical name in the § 173.225(b) Organic Peroxide Table.

Section 171.14. We are revising paragraphs (d) and (d)(1) to authorize a delayed implementation date for the amendments adopted in the HM-215D final rule. The effective date of this final rule is October 1, 2001. However, we are authorizing immediate voluntary compliance. This authorization will allow shippers to prepare their international shipments in accordance with the new ICAO Technical Instructions, the IMDG Code and the HMR provisions. We also are authorizing a delayed mandatory compliance date of October 1, 2002 which is comparable to the transition provision provided in the final rule under Docket HM-215C. The delayed mandatory compliance date will offer sufficient time to implement the new provisions and deplete current stocks of shipping papers, labels, placards and packagings affected by the new requirements.

We are revising paragraph (d)(2) to permit intermixing of old and new (HM-215D) hazard communication requirements until October 1, 2002.

We are adding a new paragraph (d)(4) to allow the use of the T code special provisions (assigned to certain hazardous materials in Column (7) of the HMT) in effect on December 31, 2000 until January 1, 2010 for hazardous materials offered for transportation in IM, DOT Specification 51 and IMO portable tanks. This amendment is consistent with the IMDG Code grandfather provisions for portable tank requirements and will minimize any undue regulatory burden.

We are adding a new paragraph (d)(5) to allow continued display of proper shipping names with the word "inhibited" on packagings until October 1, 2005. (See § 172.101, HMT for further discussion.)

Part 172

Section 172.101. Paragraph (b)(1) is being revised for clarification of the use of the plus (+) sign. (See preamble discussion later in this section under the Hazardous Materials Table (HMT). We are revising paragraph (c)(11) for materials transported as samples which are assigned a tentative proper shipping name, hazard class, identification number and packing group. We are adding provisions based on the eleventh revised edition of the UN Recommendations to include requiring the word "SAMPLE" to appear in the proper shipping name, requiring a combination packaging, limiting the packaging size to 2.5 kg and allowing an exception from including the technical name when the constituents are not known. We also are adding a new paragraph (c)(16) to allow for the inclusion of the qualifying words "liquid," "solid" or "molten," as applicable, to a proper shipping name.

We received several comments concerning our proposal to revise hazardous materials transported as samples. Some commenters stated that prohibiting samples from being packed together with other hazardous materials would be overly restrictive and impose an undue burden. Commenters presented examples to demonstrate their argument, including one scenario in which a hazardous material is transported on dry ice. Our intention for revising this paragraph is to prevent the dangerous mixing of materials as prohibited in § 173.24 and to prevent the production of a mixture that would result in violation of § 173.21. Because the HMR requires samples to meet the requirements in §§ 173.21, 173.24, 173.24a and 173.24b, we agree that it is not necessary to prohibit samples from being shipped in the same packaging with other hazardous materials and are revising the paragraph accordingly. We

are also removing proposed paragraph (c)(11)(i) in response to commenters' objections to the proposal prohibiting an explosive, infectious substance or radioactive material from being shipped as a sample. Provisions for transporting samples of such materials are currently authorized in the HMR and we agree that incorporation of the proposed paragraph (c)(11)(i) would be contrary to the current provisions. It was not our intention to remove the authorization to transport these materials as samples. As a result of these changes, certain proposed paragraphs are renumbered.

One commenter requested that the word "SAMPLE" be allowed to be shown on the shipping paper in association with the basic description. That is our intent, and although we proposed to require the word "SAMPLE" to appear in association with the basic description in the NPRM's preamble, the regulatory text wording required the "SAMPLE" to be shown before the basic description. The commenter is correct and we are revising the regulatory text accordingly.

One commenter requested that we change the term "hazardous waste" to "waste" because in accordance with § 171.8 the term "hazardous waste" applies only to those materials subject to the EPA manifest requirements under 40 CFR part 262. The commenter is concerned that generators of waste not subject to the EPA manifest requirements would be restricted from transporting their materials as samples. The commenter is incorrect by misapplying the use of the term "generators of waste" and "hazardous waste." Under the CFR, the term "hazardous waste" does not apply to hazardous materials that are not subject to the EPA manifest requirements. Such materials are considered "a sample of material" in the context of paragraph (c)(11) and are not considered "waste" under the 49 CFR.

Finally, based on comments recommending various revisions to clarify the intent of the paragraph (c)(11), we made certain editorial amendments, including clarifying that technical descriptions do not apply when the primary constituents for which the tentative classification is based are not known.

In paragraph (k) for vessel stowage requirements in Column (10) of the HMT, we are adding new paragraphs (k)(6) through (k)(20) to include the IMDG Code vessel stowage category definitions for Class 1 (explosive) materials. This action is consistent with the new stowage categories and terminology contained in Amendment 30 of the IMDG Code. (Also see

preamble discussion under "The Hazardous Materials Table" and § 176.63.)

The Hazardous Materials Table (HMT). Amendments to the HMT include the following:

- Several commenters noted minor editorial errors in the HMT and we made the appropriate changes to correct these entries.
- For the entries, "Other regulated substances, liquid, n.o.s." and "Other regulated substances, solid, n.o.s.," we are adding the letter "G" to Column (1). The letter "G," which denotes the n.o.s. and generic proper shipping names which are required to be supplemented with the technical names of the hazardous material (in parentheses and in association with the basic description), was inadvertently omitted in Docket HM-215C (64 FR 10742).

One commenter requested that we allow marine pollutants to alternatively be described using the proper shipping names "Other regulated substances, liquid, n.o.s." or "Other regulated substances, solid, n.o.s.," as appropriate. We are not adopting this requested amendment because the shipping names "Environmentally hazardous substances, liquid, n.o.s." and "Environmentally hazardous substances, solid, n.o.s." more accurately describe marine pollutants as posing an environmental risk and are, therefore, more appropriate proper shipping names as required by the HMR.
- We are adding the following new entries: "Nitroglycerin mixture, desensitized, liquid, n.o.s. with not more than 30% nitroglycerin by mass," UN3357; "Propellant, solid," UN0501; "Refrigerating machines containing flammable, non-toxic, liquefied gas," UN3358; "Rockets with inert head," UN0502; and "1H-Tetrazole," UN0504.
- We are revising the entry, "Dangerous Goods in Machinery or Dangerous Goods in Apparatus" by replacing the identification number NA8001 with UN3363, designating a Class 9 assignment and revising Special Provision 136 (see § 172.102). These changes reflect the adoption of the entry by the UN Committee of Experts and amendments agreed to by the ICAO Dangerous Goods Panel. The entry was added to the HMT under Docket HM-215C as NA8001 and assigned Special Provision 136 to prescribe the appropriate hazard class assignment. As explained in HM-215C, the entry was adopted in the ICAO Technical Instructions to provide an exception from the UN

packaging performance tests for equipment, machinery or apparatus containing small quantities of hazardous materials. For machinery or apparatus not specifically listed in the HMT, the entry provides a practical means of describing and transporting machinery or apparatus containing small quantities of hazardous materials. In HM-215C, we stated that upon the assignment of a UN identification number, we would revise the entry accordingly. This was accomplished in the eleventh revised edition of the UN Recommendations in which UN3363 was assigned and this entry was assigned to Class 9. The ICAO Technical Instructions were amended consistent with this UN decision. Therefore, based on the above discussion, we are revising the entry, "Dangerous Goods in Machinery or Dangerous Goods in Apparatus" by assigning it to Class 9, replacing the domestic identification number with an international identification number, and revising Special Provision 136.

- We are adding the entry "Air bag inflators, pyrotechnic or Air bag modules, pyrotechnic or seat-belt pretensioners, pyrotechnic," UN0503 for air bags that are classified as Division 1.4G. We inadvertently omitted this entry in the NPRM. While we are not considering changing our policy or procedures for the classification of air bags as articles of Class 9, on the basis of the UN Manual of Tests and Criteria, 6c test, we believe that other competent authorities may assign a classification of 1.4G for some air bags. Incorporation of this entry is necessary to preclude the potential for frustrated shipments, the need to remark certain packagings or to change shipping papers for these air bags, when they are classified as 1.4G by other competent authorities and are being transported to or from the United States.
- We are revising all proper shipping names containing the word "inhibited" by replacing "inhibited" with the word "stabilized." (Also, see the added definition for "stabilized" in § 171.8.) One commenter opposed the proposal to replace the word "inhibited" with "stabilized" and suggested that, instead, we clarify that monomers can be properly inhibited through means other than the addition of an inhibitor. The commenter stated that the words "inhibited" and "stabilized" have the same meaning for the purpose of transportation and expressed concern that we do not understand the

distinction between the two words. The commenter also requested that we add several generic n.o.s. entries that include the word "inhibited" in the proper shipping names. We are not convinced of the merits of either request. The word "stabilized" introduces internationally accepted and standardized hazard communication wording and conveys that the addition of a stabilizing compound or other means of stabilization such as temperature control measures, have been implemented to prevent an unwanted reaction of a hazardous material. The word "stabilized" conveys a broader meaning of inhibiting uncontrolled reaction of a hazardous material (see § 171.8) by different methods. The continued use of the word "inhibited" would lead to a dual system of hazard communication that would be burdensome to shippers and carriers. In addition, the word "stabilized" is more adequately descriptive from the emergency responders' perspective. Adopting the word "stabilized" will also alleviate the necessity of issuing numerous exemptions for the variety of methods or combination of methods used to inhibit uncontrolled reactions without the use of inhibiting chemicals. Based on these reasons, we are adopting the amendment as proposed.

One commenter requested that we extend the proposed transition period for this amendment to provide sufficient relief from remarking all affected bulk packagings. The commenter stated that an extended transition period would allow the remarking to be accomplished during routine maintenance and periodic inspection cycles. In the NPRM, we proposed a transition period until October, 2002. We agree that a longer transition period for domestic transportation would help relieve any undue burden associated with this amendment without having a significant impact on safety. We are including a transitional provision in § 171.14 to allow the use of the word "inhibited" to be shown on packagings until October 1, 2005.

The allowance of additional means of stabilization and the removal of certain domestic entries from the HMT (see domestic entry removals later in this section) also addresses a petition for rulemaking (P-1304) requesting that we add a new domestic entry, "Methyl methacrylate monomer, uninhibited," Class 3, NA1247, PG II to the HMT. As we stated, with respect to the request that we add generic n.o.s. entries that include the word "inhibited," such an

action would also be contrary to the intent of global harmonization and would be beyond the scope of this rule. We are not adopting the request. Commenters having an interest in developing generic names for inclusion into the UN Recommendations should provide more specific information and examples of materials that require stabilization and are not covered by existing entries.

—We are revising the following proper shipping names: “Lithium hypochlorite, dry or Lithium hypochlorite mixtures, dry,” UN1471; “Printing ink, flammable,” UN1210; and “Nitrocellulose membrane filters,” UN3270.

—For the entry, “Methacrylic acid, stabilized,” UN2531, we are replacing Packing Group III with Packing Group II.

—We are removing various domestic entries that have “NA” identification number assignments. As discussed in the NPRM, after reviewing the domestic entries, we determined that the HMR includes “UN” identification numbers assigned to entries that are equally appropriate in a number of instances, and in these instances the NA numbers are no longer necessary. In the NPRM, the revision of “Diesel fuel” with the identification number NA1883 was a printing error which we are correcting in this final rule. “Diesel fuel,” NA1993 is retained and we are adding “Diesel fuel, UN1202.” This amendment will allow flexibility of choice in the use of proper shipping names for domestic transportation. In addition, for the convenience of the HMT users, we are separating the entry “Gas oil or Diesel fuel or Heating oil, light” by giving each name a separate line entry in appropriate alphabetical order. In response to comments requesting that we reconsider the proposed removal of “Gasohol,” we are not removing the entry from the HMT.

One commenter recommended that we provide T codes and IBC codes (see § 172.102, Special Provisions) for the entry “Combustible liquid, n.o.s.,” NA 1993. We agree with the commenter and are adding portable tank instruction T1, portable tank Special Provision TP1 and IBC code IB3. However, we did not assign IB6 to this entry, as requested by the commenter, because § 173.150(f) currently allows for the use of non-specification bulk packagings.

Included in the proposed removals are seven domestic pesticide proper shipping names identified by the pesticide industry as no longer being

used. These entries are: “Aldrin, liquid,” NA2762; “Aldrin, solid,” NA2761; “Dieldrin,” NA2761; “Methyl parathion liquid,” NA3018; “Methyl parathion solid,” NA2783; “Parathion,” NA2783 and “Tetraethyl pyrophosphate solid,” NA3018.

—We are adding radioactive material (Class 7) entries consistent with new entries introduced in the UN Recommendations and IAEA’s “Regulations for the Safe Transport of Radioactive Material, No. TS-R-1.” In addition, we are revising the current radioactive material entries in the HMR to indicate that these entries may be used for domestic shipments, but may be inappropriate for international transportation.

—For Class 1 (explosive) entries, we are revising Columns (10A) and (10B) to reflect the vessel stowage codes as they are presented in Amendment 30 to the IMDG Code. (See § 172.101(k) and § 176.63.)

—For the international entry “Methanol,” we proposed adding a plus sign (+) in Column (1) of the HMT to indicate that this entry is classified with a subsidiary hazard of Class 6.1 on the basis of human experience consistent with the UN Recommendations. One commenter objected to this proposal by stating that the action would unnecessarily restrict the shipment of dilute solutions of methanol. The commenter presented diluted methanol meeting the criteria for PG III as an example. In previous preamble discussions (see HM-215C Final Rule—**Federal Register**: March 5, 1999 (Volume 64, Number 43)) we indicated that a mixture or solution containing a hazardous material where the hazard is significantly different from that of the pure material should be evaluated on the basis of classification criteria. If such a mixture or solution does not meet the corresponding hazard class, a different proper shipping name may be used. Our position remains that when a mixture or solution of a material that is assigned a plus sign in column 1 of the HMT, no longer exhibits a hazard to humans, the material need not be described using a proper shipping name with a plus sign assignment. We recognize the need to clarify the intent of the plus sign in paragraph (b)(1). We are adding a sentence to paragraph (b)(1) to clarify the applicable requirements when the plus (+) sign is assigned to a proper shipping name.

—We are removing the entry “Isobutyric anhydride,” UN2530.

—For the entry “Morpholine,” UN2054, we are replacing Class 3 with Class 8, replacing Packing Group III with Packing Group I, and adding Class 3 as the subsidiary hazard.

—For “Organic peroxide type F, solid, temperature controlled,” (UN3120), we are removing the Packing Group III entry that was due to a printing error in 49 CFR. The PG II entry remains.

—For approximately 14 Zone A and B toxic-by-inhalation entries, we are revising the quantity limits for transport by air to “forbidden.” These revisions are consistent with other toxic-by-inhalation entries in the HMT and with the requirements of the ICAO Technical Instructions.

—For the entry “Fire extinguishers containing compressed or liquefied gas” we are adding Special Provision 110 to Column (7).

—We received a comment stating that our proposal to add Special Provisions 128 and B115 to the entry, “Magnesium granules, coated, particle size not less than 149 microns,” UN2950 (PG III only) was not reflected in the HMT and should also apply to “Water-reactive solid, n.o.s.,” UN2813. After re-evaluation, we do not consider that it is appropriate to apply Special Provision 128 to “Magnesium granules, coated,” UN2950, because we are not convinced that these materials pose a Class 8 risk. As explained in the NPRM, this action is based on a petition for rulemaking (P-1338) that we received from the Aluminum Company of America (Alcoa). Special Provision 128 allows material meeting the Class 8 definition to be classed as a Division 4.3 with a Class 8 subsidiary hazard. Special Provision B115 authorizes the use of certain non-specification sift-proof bulk packagings when the material is loaded dry, precautions are taken to prevent liquid from reaching the hazardous materials and the bulk packagings are appropriately vented. However, UN2950 is assigned to bulk packaging § 173.240 which already allows non-specification bulk packagings and, therefore, we are not applying Special Provision 128 or B115 to UN2950 in this final rule. In response to the comment that Special Provisions 128 and B115 should apply to “Water-reactive solid, n.o.s.,” UN2813, we note that exemption DOT E-11602 only applies to one specific material containing magnesium or magnesium nitrides that is described using a technical name in association with “Water reactive solid, n.o.s.” We do not agree that broad application of Special Provisions 128 and B115 to all

PG II or III water-reactive solids is appropriate or necessary.

- We received a comment stating that we did not include IBC and portable tank assignments for the PG II entry for “Extracts, flavoring, liquid,” UN1197. The oversight is corrected in this final rule.
- Several commenters noted minor editorial errors in the HMT and we made the changes as appropriate.
- For approximately 1,600 entries, we are revising Column (7) by harmonizing the HMR authorizations for IBCs with those contained in the UN Recommendations. As discussed in the NPRM, in most cases the UN Recommendations provide for greater flexibility in the use of different types of IBCs. However, for certain hazardous materials, the incorporation of the UN IBC requirements further restricts the types of IBCs that were authorized prior to this final rule for certain hazardous materials. For example, some Packing Group II liquid hazardous materials of Class 3, Division 6.1 and Class 8 that were previously authorized to be transported in composite IBCs with flexible inner receptacles (such as 31HZ2) are no longer authorized. For the benefit of the reader and to facilitate a review of the proposed amendments, in the NPRM, we included a table identifying all of the affected hazardous materials and indicated the current bulk assignments and the proposed IBC assignments.

The IBC packaging requirements are included in a newly-created IBC Table under the Special Provisions section in § 172.102(c)(4). The table consists of IBC Codes (using the designations IB1–IB99) corresponding to the UN IBC packing instructions, and BB Codes corresponding to the UN IBC special packing provisions. We assigned the IBC packing instructions and the BB codes to specific hazardous materials in Column (7) of the § 172.101 HMT consistent with assignments in the UN Recommendations. In addition, we believe that consolidating the IBC requirements into one table makes it easier for readers to identify the authorized IBCs for specific hazardous materials. As a result of this amendment, we are revising the bulk special provisions in § 172.102(c)(3) to remove the previously authorized bulk codes relevant to the use of IBCs. We are also revising the current IBC packaging authorizations under §§ 173.240(d), 173.241(d), 173.242(d) and 173.243(d).

This revision also addresses a petition we received from the Rigid Intermediate

Bulk Container Association (RIBCA) (P-1395) requesting that we amend the HMR to expand the use of IBCs consistent with new UN provisions. Specifically, the petitioner requested that we allow the use of rigid plastic IBCs and composite IBCs with a rigid plastic inner receptacle for certain liquids. We agree with RIBCA’s request, however, as discussed in the NPRM, in the interest of harmonization, we believe it is more beneficial to adopt the UN Recommendations’ IBC packing instructions in totality, and, as such, are amending the HMR accordingly.

One commenter stated that under the new IBC packing instructions, sodium cyanide and potassium cyanide would no longer be permitted in fiberboard or flexible IBCs. The commenter states that they are currently shipped this way according to B69. Although the UN Recommendations do not allow these types of IBCs for such materials, we are maintaining authorization for the use of fiberboard IBCs in domestic transportation. We will pursue the amendment to IB7 to allow the use of fiberboard (11G) IBCs through a proposal to the UN Transport Committee. However, we do not agree that flexible IBCs should be authorized for these hazardous materials.

The commenter also stated that large packagings should be authorized for sodium cyanide and potassium cyanide. Assignment of large packaging authorizations to specific substances is beyond the scope of this final rule. Currently, the UN Recommendations do not authorize large packagings for these substances. Large packagings are limited primarily to Packing Group III hazardous materials in the UN Recommendations. We plan to work through the UN Transport Subcommittee to address the commenter’s concerns and depending on the outcome, we will address this issue in a future rulemaking.

Appendix B to § 172.101. In Appendix B to 172.101, List of Marine Pollutants, we are revising paragraph “1” by referencing § 171.4, which contains the applicability and exceptions for offering for transportation or transporting marine pollutants. We are revising paragraph “2” to reflect the IMDG Code’s provision for the use of two Class 9 proper shipping names when a marine pollutant is not listed by name in the HMT and does not meet the definitions of Class 1 through 8. In addition, a number of materials are added, removed or amended in the List of Marine Pollutants. The entry “EPTC (ISO)” is removed. The entry was also the subject of a petition for rulemaking (P-1360) requesting removal of the entry based on

its removal from the IMDG Code. Various other entries no longer identified as marine pollutants are also removed. Consistent with the proper shipping name revisions to replace the word “inhibited” with “stabilized,” we are making the change to five entries in the List of Marine Pollutants. All of the amendments to the List of Marine Pollutants are consistent with the marine pollutants provided in Amendment 30 of the IMDG Code. (Also see § 172.101, HMT for comment on use of proper shipping names for certain marine pollutants.)

One commenter stated that the proposal to remove the entry “Dichlorobenzenes (meta, ortho and para)” from Appendix B and replace it with the entry “Dichlorobenzene (para)” will result in an inappropriate listing of entries in Appendix B of the HMT for dichlorobenzene isomers. The commenter stated that the changes in Amendment 30 of the IMDG Code only delist “1,2 Dichlorobenzene (ortho)” as a marine pollutant and that the appropriate dichlorobenzene entry, in addition to existing “1,3 Dichlorobenzene,” and “1,4 Dichlorobenzene,” should be “Dichlorobenzene (meta; para).” We agree with the commenter and are revising the entry accordingly.

Section 172.102. We are revising, adding and removing special provisions as follows:

- Special Provision 43 is revised to include a provision which excepts “Nitrocellulose membrane filters,” UN3270 from the HMR requirements if shown not to meet the criteria for a Division 4.1 hazardous material, according to burn rate tests in Subsection 33.2.1. of the UN Manual of Tests and Criteria, Part III.
- Special Provision 110 is revised to more fully identify fire extinguishers that may be assigned to certain proper shipping names. The revision also provides for harmonization with the ICAO Technical Instructions. (We also are adding the special provision to the entry, “Fire extinguishers *containing compressed or liquefied gas.*” See § 172.101 HMT amendments.)
- Special Provision 128 is revised based on the amendment to assign it to “Magnesium granules, coated, *particle size not less than 149 microns.*” (See § 172.101 HMT changes.)
- Special Provision 136 is revised to reflect the changes adopted by the UN Committee of Experts and the ICAO Dangerous Goods Panel for the entry “Dangerous Goods in Machinery or Dangerous Goods in Apparatus.” (Also see § 172.101 HMT changes.)

- We are revising the special provision by removing the text specific to the determination of the hazard class based on the UN Committee of Experts' decision that items under this entry should be assigned to Class 9.
- A new Special Provision 139 is added for two new entries, "Radioactive material, transported under special arrangement, fissile" and "Radioactive material, transported under special arrangement *non-fissile or fissile-excepted*." The special provision requires international shipments using the two entries to be made under an IAEA Certificate of Competent Authority to be issued by the U.S. Competent Authority. Domestic shipments transported under the two entries would be allowed only under a DOT exemption.
 - A new Special Provision 142 is assigned for the new entry "Nitroglycerin mixture, desensitized, liquid, n.o.s." The special provision requires the material to be approved by the Associate Administrator.
 - A new Special Provision 143 is added for the entry "Life-saving appliances, not self-inflating, *containing dangerous goods as equipment*." The special provision clarifies which articles may be transported under this entry.
 - A new Special Provision A53 is added for the entry "Refrigerating machines," UN2857 and contains the exceptions from the HMR for certain refrigerating machines. The exceptions are currently in § 173.307.
 - In conjunction with the amendment to revise and consolidate the IBC requirements (see § 172.101, Column (7) changes), we are adopting the following changes: revising the special provisions for bulk packagings in paragraph (c)(3) to exclude IBCs by revising Special Provisions B53 and B69 and removing Special Provisions B100, B101, B103 through B106 and B108 through B110, adding a new paragraph (c)(4) for special provisions specific to IBCs (IP Codes). IP codes are used to describe the IBC packing instructions. We redesignated the term "BB" Codes, as named in the NPRM, to "IP" Codes in this final rule in order to make it easier for the HMR user to locate the Special Provisions. By redesignating the "BB" Codes, the IB the IP Codes will be listed together in alphabetical order in § 172.102.
 - The current T codes in paragraph (c)(7) are revised to reflect the incorporation of requirements for UN portable tanks and apply to hazardous materials of Classes 2 through 9. The revised T codes are consistent with those in the UN Recommendations and the IMDG Code and supersede the current HMR IM portable tank T codes. The T code provisions are required in addition to the requirements in part 178. The codes specify the types of authorized portable tanks according to the specific hazardous material transported in the portable tank. Portable tank assignments for Zone A and Zone B toxic-by-inhalation liquids remain consistent with their current assignments in the HMR. In instances where the UN requires a competent authority approval for transportation in portable tanks (such as when TP9 is assigned in the UN Recommendations), we have removed the approval provision. A transition period is provided for the continued use of the existing T codes for IM and DOT 51 portable tanks (see § 171.14(d)(5)).
- One commenter stated that we did not provide for filling limits for portable tanks used to transport refrigerated liquefied gases. To correct this oversight, we are including filling limits that are similar to those applicable to cryogenic cargo tanks authorized under the HMR to transport refrigerated liquified gases. The filling limits will be contained in new Special Provision TP5 which was previously reserved. TP5 is assigned to all refrigerated liquified gases with a tank code T75 assignment.
- A commenter stated that fittings were not defined for TP22 which states that lubricants for portable tank fittings must be oxygen compatible. We do not believe that it is necessary to define "fittings" other than to require that they must be oxygen compatible. Our basic intent is that no incompatible materials or lubricants be used on fittings such as fasteners, valves, gauges, pipe thread or other fittings that may come into contact with the oxygen and cause an unsafe condition in transport.
- We are removing proposed TP47 because it is not currently necessary. It is not assigned to any entries and the present requirements are addressed in the applicable packaging sections.
 - In paragraph (c)(7)(iv), we are adding definitions for "small," bare," "sunshield" and "insulated" as they apply to T50.
 - A new Special Provision W7 is added for seven new Class 7 entries and assigned the vessel stowage category "D," as defined in § 172.101(k)(4), to uranyl nitrate hexahydrate solution.
 - A new Special Provision W8 is added for four new Class 7 entries and assigned the vessel stowage category "D," as defined in § 172.101(k)(4), to pyrophoric thorium metal or pyrophoric uranium metal.
- Finally, a new Special Provision W9 is added for assignment to the entries, "Calcium hypochlorite, dry or Calcium hypochlorite mixtures dry *with more than 39 percent available chlorine (8.8 percent available oxygen)*," UN1748; "Calcium hypochlorite, hydrated or Calcium hypochlorite, hydrated mixtures *with not less than 5.5 percent but not more than 10 percent water*," UN2880; and "Calcium hypochlorite mixtures, dry, *with more than 10 percent but not more than 39 percent available chlorine*." UN2208. This action aligns the packaging requirements for these entries with those contained in Amendment 30 to the IMDG Code by authorizing certain packagings only when approved by the Associate Administrator.
- Section 172.202.* We are revising paragraph (a)(4) based on a comment requesting that we eliminate the shipping paper requirement for inclusion of the packing group (PG II) for Class 1 (explosives) because the requirement conflicts with the UN Recommendations, the ICAO Technical Instructions and the IMDG Code, all of which do not require the inclusion of PG II on shipping papers. We agree with the commenter. The packing group does not indicate the degree of risk for explosives and does not aid emergency responders and we are providing an exception from this requirement. Based on the same reasoning, we are including in paragraph (a)(4) an exception from the packing group notation for organic peroxides and self-reactive materials.
- Section 172.203.* We are revising paragraphs(d)(11), (i) and (n). In paragraph (d)(11), we are allowing an exception from the requirement to add the appropriate group notation to the shipping description for a shipment of low specific activity material or surface contaminated objects provided the group notation is contained in the proper shipping name. Based on a commenter's request for clarification, we are making editorial revisions to this paragraph to improve the clarity of the additional description requirements applicable to low specific activity (LSA) materials and surface contaminated objects (SCO). We are changing the wording "unless these symbols are" to "unless the group notation is," and adding the wording "as described in the § 172.101 Hazardous Materials Table" after the wording "proper shipping name."

In paragraph (i), we are adding two shipping paper description requirements for transportation by vessel. The first amendment is added as new paragraph (i)(5) and requires the flash point for a liquid hazardous material with a flash point of 61 °C or below to be included on shipping papers when transported by water.

One commenter objected to the proposed requirement that for materials having a flash point of 61 °C or less (closed cup c.c.), the flash point must be included on shipping papers. The commenter questioned the value of this requirement. We submit that knowledge of the flash point of a material is a requirement for vessel operators under the requirements of SOLAS Chapter II-2, Regulation 54. The SOLAS requirement imposes cargo hold, electrical, ventilation, fire protection and bilge pump requirements on hazard classes 3, 6.1 and 8, having a flash point of 61 °C or less. In order to ensure that vessel operators have this information, the IMDG Code requires a shipper to include the flash point of such materials on shipping papers. Although for most hazardous materials this information may be derived from the classification and packing group, for some hazardous materials this is not possible. To ensure that the flash point information is readily available, and to harmonize the HMR with the IMDG Code, we are adopting the requirement as proposed.

As discussed in the NPRM, we received a petition (P-1402) from the Vessel Operators Hazardous Materials Association (VOHMA) requesting that we add an additional shipping paper description requirement to include the minimum flash point in degrees Celsius for Class 3 (flammable) or combustible liquid hazardous materials. VOHMA stated that the amendment would help support compliance with the current stowage requirements in § 176.305(c) and the segregation requirements (Code 22 and 23, see § 176.84) as designated in Column (10B) of the § 172.101 Hazardous Materials Table. We agree with the petitioner's reasoning, however, for consistency with the IMDG Code, we are adding the requirement to specify the flash point when it is 61 °C or below for all such liquid hazardous materials whether or not the primary hazard is Class 3. The second amendment to the shipping paper description requirements for transportation by vessel is added as new paragraph (i)(6) and is based on comments from the USCG regarding further harmonization with the IMDG Code. The amendment requires subsidiary risks of a hazardous material that are not reflected in the proper

shipping name to be included on shipping papers.

In paragraph (n), we are clarifying that the shipping paper requirement for the word "HOT" to be placed immediately preceding the proper shipping names of hazardous materials that are transported as elevated temperature materials, is not required for proper shipping names containing the words "Molten" or "Elevated temperature."

Section 172.330. Consistent with the proper shipping name revisions that replace the word "inhibited" with "stabilized" (see § 172.101), we are revising three such proper shipping names in paragraph (a)(1)(ii).

Sections 172.402, 172.405 and 172.411. We received several comments concerning the proposal to remove the requirement to differentiate between primary and subsidiary labels. One commenter opposed the requirement with no elaboration. A second commenter stated that it would lower the level of safety. A third commenter opposed the adoption of the requirement stating that as an emergency responder, vital information necessary to respond to an incident would be lost. We disagree with this commenter. When a hazardous material has two or more hazards, each hazard must be considered in determining the appropriate response to an incident. The commenter also pointed out that the subsidiary risk is not required on shipping papers which would be another method for emergency responders to obtain the information. Under a separate rulemaking and consistent with the 12th edition of the UN Recommendations, we plan to propose a requirement to identify the subsidiary risks on shipping papers for all modes. In addition, for vessel only, we are adopting a requirement in this final rule for mandatory notation of subsidiary hazards on shipping papers, unless the subsidiary hazard is reflected in the proper shipping name. Consistent with the eleventh revised edition of the UN Recommendations, we are removing the requirement to differentiate between primary and subsidiary labels. Prior to this final rule, primary labels were required to display the hazard class or division number in the lower corner of the label, while subsidiary labels could not display these numbers. We believe the display of the hazard class and division on all labels will enhance safety and hazard communication. We are amending the requirement which provides for two label specifications (one for primary hazards and one for subsidiary hazards) by removing the subsidiary hazard label specification. This change also provides relief by

eliminating the need for shippers to stock two sets of labels.

Another commenter stated that the proposed 5 year transition period for continued use of subsidiary risk label requirements in effect prior to this final rule, is too lengthy and could cause problems in domestic transportation for multimodal shipments. The commenter stated that the proposed transition period is not necessary because the ICAO Technical Instructions and the IMDG Code have much shorter transition periods in place, and that it seems unlikely that shippers would stock 5 year supplies of subsidiary risk labels. Based on feedback from industry, we believe that a 5 year transition period is warranted to allow sufficient time for filled packagings that are pre-labeled to complete their cycle out of transportation. We are not convinced that the 5 year transition period will cause problems in domestic transportation. Also, based on feedback from industry, we maintain that many shippers stock 5 year supplies of subsidiary risk labels. Therefore, in order to provide a reasonable transition period, we are allowing labels meeting the label specifications in place prior to this final rule to continue to be displayed until October 1, 2005, at which time labels used to convey both primary and subsidiary hazards must display the appropriate hazard class or division number at the bottom of the label. (See § 171.14 for transition provisions.) The same amendment also applies to placards (see § 172.519).

Section 172.502. In paragraph (b), we are correcting an error that was published in the February 1, 2001 final rule under Docket HM-215D. Based on a request from the **Federal Register**, we added a reference to "see § 171.7." During the typesetting process, the ICAO Technical Instructions were mistakenly added and the TDG Regulations were mistakenly omitted. We are correcting this error by removing the ICAO Technical Instructions and reinstating the TDG Regulations.

Section 172.504. Based on comments and our own initiative, we are revising paragraph (g) by allowing the display of only one placard bearing one compatibility letter when certain Class 1 materials (explosives) of different compatibility groups are transported together in a single transport vehicle or container. This amendment is consistent with the mixed packaging provisions in § 173.61.

Section 172.519. Consistent with the amendment to eliminate the distinction between primary and subsidiary labels, we are revising paragraph (b)(4) to eliminate the requirement to distinguish

between primary and subsidiary placards. In addition, we are incorporating a new paragraph (b)(4)(i) to permit subsidiary placards meeting the current placarding specifications (such as placards without the hazard class or division number displayed in the lower corner of the placard) to continue to be displayed in domestic transportation provided they were permanently affixed before October 1, 2001. Non-permanently affixed subsidiary placards meeting the current placarding specifications are allowed to be displayed until October 1, 2005. (See § 171.14 for transition provisions.)

Part 173

Section 173.2a. Consistent with the eleventh revised edition of the UN Recommendations, in the paragraph (b) Precedence of Hazard Table, we are revising Footnote 2 to exclude liquid and solid desensitized explosives. In addition, we are adding the revised Footnote 2 to Class 3, PG I, II and III in the paragraph (b) Precedence of Hazard Table.

Section 173.4. Based on a request for clarification, we are revising paragraph (a) to clarify that the small quantity exceptions apply to packagings containing articles, as well as inner receptacles.

Section 173.24b. We are adding a new paragraph (e) to address acceptance of foreign manufactured UN portable tanks that conform to the applicable provisions in the UN Recommendations on the Transport of Dangerous Goods and are manufactured in countries that provide reciprocal treatment for UN portable tanks manufactured in the United States.

Section 173.29. One commenter requested that two petitions for rulemaking be addressed in this final rule. The petitions request that IBCs meeting the Environmental Protection Agency's empty container rule in 40 CFR 261.7 be allowed to be transported without vehicle placarding and shipping papers. We are not addressing this issue under HM-215D because it is beyond the scope of this rulemaking.

Section 173.31. Consistent with the proper shipping name revisions that replace the word "inhibited" with "stabilized" (see § 172.101), we are revising one such proper shipping name in § 173.31(b)(2)(ii).

Section 173.32. One commenter stated that the consolidation of §§ 173.32, 173.32b and 173.32c would impose requirements for DOT Specification 57 portable tanks that previously did not apply. The commenter provided specific recommendations for ensuring that new requirements for the maintenance and

continued use of DOT Specification 57 portable tanks are not introduced. We did not intend to impose new requirements for DOT Specification 57 portable tanks. We considered the recommendations of the commenter and revised § 173.32(d), (f) and (h) to address these recommendations.

One commenter suggested that we incorporate certain editorial changes in § 173.32 and part 180, subpart G, to clarify that not all portable tanks have a maximum allowable working pressure (MAWP) and that some requirements do not apply to all portable tanks, such as DOT Specification 56 and 57 portable tanks. The commenter stated that DOT Specification 57 portable tanks, for example, have a design pressure, but not a MAWP. The commenter also noted that when we consolidated the repair, inspection, test and maintenance requirements for portable tanks in the NPRM, we applied requirements to DOT Specification portable tanks that currently are not applicable under the HMR. We agree with the commenter's suggestions and are incorporating the suggested editorial corrections.

One commenter stated that one of its members maintains and operates a large fleet of ICC Specification portable tanks and they requested that we maintain the current grandfather provisions for these portable tanks. As stated in the NPRM, our intent with removing the provisions was based on whether these portable tanks were being used. With receipt of this comment, we are retaining the provisions currently in 173.32(b) and (c) of the HMR by incorporating them into § 173.32(c)(4) and (c)(5) in this final rule.

The commenter also stated that DOT Specification 60 and marine portable tanks were not addressed in the NPRM and requested that these portable tanks be authorized for continued use. We did not propose any changes in the NPRM that would prevent continued use of these portable tanks.

Another commenter expressed concern regarding our proposal to allow UN portable tanks to be designed and constructed to pressure vessel design codes other than the ASME Code. The commenter asked which codes would be acceptable and expressed concern that we would allow codes that are "less stringent" than the ASME Code. In response to this comment, we wish to advise the commenter that codes other than ASME will only be authorized if approved by the Associate Administrator for Hazardous Materials Safety, and only for UN portable tanks intended for the transport of liquid and solid hazardous materials. No approval provision was proposed for use of

alternative design codes for portable tanks intended for the transport of liquefied gases. Because alternative codes are only allowed if approved by the Associate Administrator, applications for use of other design codes will be reviewed on a case by case basis. It is not our intention to allow the use of design codes that will not provide an equivalent level of safety as afforded in the ASME Code. We did not include a list of potential alternative codes because we have not considered which codes we will accept and because other factors, in addition to the design code, will be considered in each case.

One commenter stated that it is unclear whether the grandfather provision for DOT Specification 56 and 57 portable tanks manufactured after October 1, 1996 provides for such portable tanks to continue in service. We note that DOT Specification 56 and 57 portable tanks were not authorized to be manufactured after October 1, 1996. On October 1, 1996, the UN IBC requirements were introduced which replaced DOT Specification 56 and 57 portable tanks.

Because paragraphs (c)(3) and (g) concerning pressure relief valves for DOT specification portable tanks are duplicative, we are removing paragraph (g). With this action the paragraphs following the removed paragraph (g) are renumbered.

As proposed in the NPRM, we are revising § 173.32 to provide requirements for all portable tanks by consolidating the requirements for the use of IM portable tanks currently in § 173.32c into a single section and moving them to part 180, subpart G, with the qualification and maintenance requirements for IBCs, cargo tanks and tank cars. We are also including a grandfather clause in § 173.32 to allow IM 101, 102 and DOT 51 portable tanks to continue to be constructed in accordance with the HMR until January 1, 2003. IM 101, 102 and DOT 51 portable tanks which are certified and approved prior to this date are authorized for continued use provided they meet the applicable periodic inspection and test requirements in part 180, subpart G. These requirements were previously in § 173.32b. On January 1, 2003, all newly manufactured portable tanks will be required to conform to the requirements for the design, construction and approval of UN portable tanks (see §§ 178.274, 178.275, 178.276 and 178.277). Finally, we are removing the provisions for the continued use of DOT Specification 52 and 53 portable tanks based on our view that these portable tanks are no longer

in use and the lack of comments to the contrary.

Section 173.32a. We are removing § 173.32a and moving its approval requirements for specification portable tanks to § 178.273. We believe that part 178 is a more appropriate location for these requirements and that the new section will prove to be more convenient for users of the HMR. We also are including similar requirements for the incorporation of requirements for UN portable tanks.

Section 173.32b. We are removing § 173.32b and relocating the test requirements to part 180, subpart G, as discussed in § 173.32.

Section 173.32c. We are removing § 173.32c. The requirements for the use of all specification portable tanks are now included in § 173.32, thereby precluding the need for § 173.32c.

Section 173.34. Consistent with the proper shipping name revisions that replace the word "inhibited" with "stabilized" (see § 172.101), we are revising two such proper shipping names in § 173.34(e)(13).

Section 173.61. Based on our own initiative, for Class 1 (explosives) mixed packaging requirements, we are revising paragraph (e)(3) to allow explosives of compatibility group S that are allowed to be packaged with explosives of all other compatibility groups, except A and L, to be treated as belonging to any of the packaged compatibility groups except S. In addition, we are adding a new paragraph (e)(8) to allow explosive articles in compatibility group G, except for fireworks and articles requiring special packaging, to be packaged with articles of compatibility groups C, D and E, and the combined package may be treated as belonging to compatibility group E. This revision corresponds with the previous allowance contained in § 177.848(g).

Section 173.62. Consistent with adding the entries "Rockets with inert head," UN0502 and "1H-Tetrazole," UN0504 to the § 172.101 Table, we are adding them to the paragraph (b) Explosives Table which specifies the Packing Instructions assigned to each explosive. In paragraph (c), we are revising the Explosives Packing Instructions Table to authorize additional types of outer packagings in the following packing instructions: 112(a), 112(b), 112(c), 113, 115, 116, 130, 131, 134, 135, 136, 138, 140, 141, 142 and 144.

Section 173.150. We are revising paragraph (d) by clarifying that alcoholic beverages containing over 24% alcohol by volume are not excepted from regulation when transported by a passenger or

crewmember on passenger-carrying aircraft except as provided in § 175.10(a)(17). (See preamble discussion under § 175.10.)

Section 173.162. We are revising paragraph (a)(1) by clarifying that the types of packagings specified in the paragraph are combination packagings and that the glass, earthenware or rigid plastic packagings are authorized as inner packagings only. In addition, for these packagings, we are increasing the net mass of 10 kg (22 pounds) for each packaging to 15 kg (33 pounds). This is consistent with Packing Instruction 800 in the UN Recommendations.

Section 173.185. We are revising § 173.185 to include a definition for equivalent lithium content for lithium ion cells and batteries and to provide the applicable aggregate lithium quantities relevant to excepting lithium ion cells and batteries from the requirements of the HMR consistent with the eleventh edition of the UN Recommendations. The definition of lithium content was revised in this final rule to make it consistent with a minor editorial clarification adopted by the Committee of Experts in its report of the 21st session (see section 38.3.2.2 in the amendments to the UN Manual of Tests and Criteria, report number ST/SG/AC.10/27/Add.2). This clarification was included based on a comment that we received. We adopted this clarification in order to prevent possible confusion about the lithium-equivalent content of lithium-ion battery packs that are currently used in many portable devices. For the readers' information, we plan to issue an NPRM under a separate rulemaking initiative to address the 12th edition amendments to the UN Recommendations that require all lithium batteries, regardless of the lithium content, to be subject to the lithium battery tests in Section 38 of the UN Manual of Tests and Criteria. The lithium battery amendments and revised test methods are available in the report of the UN Committee of Experts and may be downloaded at <http://www.unece.org/trans/main/dgdb/dgcomm/ac10rep.html>.

Several commenters stated that we did not include the revised requirements applicable to large lithium batteries used for electric and hybrid vehicles and requested that we make the correction in the final rule. Although we discussed the amendment in the NPRM's preamble, the revised requirements were inadvertently omitted from the regulatory text. This error is corrected in this final rule.

Section 173.224. Consistent with the UN Recommendations, we are adding the entry "2,2'-Azodi(isobutyronitrile)

as a water-based paste" to the Self-Reactive Substances Table for substances that are not subject to the approval provisions of § 173.124(a)(2)(iii), provided all applicable provisions in the table are met. Finally, we are revising paragraph (b)(4) and removing paragraph (d) to allow Type F self-reactive substances to be transported in portable tanks under conditions specified in § 173.225(e) (see preamble discussion under § 173.225).

Section 173.225. We are amending the paragraph (b) Organic Peroxide Table by making various changes, such as revising several technical names, packing method authorizations and control temperatures. These changes are consistent with the UN Recommendations. We are removing Notes "7" and "10" consistent with the adoption of UN IBC 520 and adding Note "26" to specify the available oxygen content limitation for certain new organic peroxide formulations. We are revising paragraph (e) to incorporate the requirements from the eleventh revised edition of the UN Recommendations relevant to the emergency venting devices for portable tanks and IBCs used for the transportation of organic peroxides and self-reactive substances. This responds to NTSB recommendation (I-92-2) that asked us to "revise the requirements for pressure relief venting on DOT Specification 57 portable tanks used to transport dicumyl peroxides and other products with similar rapid decomposition characteristics to ensure that the pressure relief systems prevent overpressure rupture of tanks from a rapid product decomposition reaction." We are applying the recommended venting requirements to all portable tanks and IBCs, rather than just DOT Specification portable tanks. Additionally, the types of portable tanks authorized for type F organic peroxide and self-reactive substances are expanded to include UN portable tanks. We are adopting the requirements in Portable Tank Instruction T23 and IBC Special Provision, IBC 520.

A commenter brought to our attention that Note 26 as proposed would conflict with the § 173.21 restriction for ketone peroxides which limits oxygen content to 9% or less. We agree and are removing the proposed Note 26 text and renumbering the proposed Note 27 to Note 26. In addition, based on a comment, we are adding an organic peroxide formulation for 2,5 Dimethyl 2,5 di-2-ethylhex anoylperoxy hexane, UN3113. The entry was adopted in the UN Recommendations and inadvertently omitted in the NPRM.

We understand that the current Organic Peroxide Table includes a number of formulations that are no longer used. We encourage users of the Organic Peroxide Table to provide us with comments in this regard, as well as suggestions for improving the Organic Peroxide Table.

Sections 173.240, 173.241, 173.242 and 173.243. In each section's paragraph (c), we are removing Specification DOT 52 and 53 portable tanks as authorized packagings (see § 173.32) because we believe that these portable tanks are no longer used. In addition, we are authorizing UN portable tanks. In conjunction with the revision to the requirements for IBCs, for alignment with international standards, we are revising paragraph (d) which specifies authorized IBCs in §§ 173.240, 173.241, 173.242 and 173.243 to reflect the proposed incorporation of IBC packing instructions and IP codes (see § 172.101, Column (7)). Based on a comment that we received, we are not requiring temperature sensing devices or reclosing pressure relief devices for DOT Specification 57 portable tanks. We agree with the commenter that such portable tanks have limited use and are very similar to IBCs.

We also received a comment stating that § 173.240 should be amended to allow the use of non-specification flexible ("supersacks") IBCs for hazardous materials such as "Environmentally hazardous substances, solid, n.o.s." Specifically, the commenter requested that we authorize the use of non-specification "supersacks" in § 173.240. The commenter questioned the omission by asking why we do not authorize non-specification IBCs, yet we provide for the use of other non-specification bulk packagings. While it is our intent at this time to maintain authorization for use of non-specification portable tanks and bulk bins in § 173.240(c), we do not agree that non-specification IBCs should be authorized. The only non-specification bulk packagings authorized in § 173.240 are portable tanks and bulk bins which are rigid packagings of a higher integrity when compared to a 2,000 pound non-specification bag. Neither the current HMR nor the UN Recommendations authorize the use of non-specification IBCs for environmentally hazardous substances. We believe that authorization of the non-specification "supersacks" would be detrimental to safety and, therefore, we are not incorporating it into the HMR.

Section 173.247. In paragraph (c), we are removing Specification DOT 52 and

53 portable tanks as authorized packagings (see § 173.32).

Sections 173.301, 173.304, 173.314, 173.315 and 172.330. Consistent with the proper shipping name revisions that replace the word "inhibited" with "stabilized" (see § 172.101), we are revising all such proper shipping names in these sections.

Section 173.306. Consistent with Packing Instruction P201 in the UN Recommendations, we are amending the paragraph (a)(4)(iii) conditions for transporting flammable, non-pressurized gas samples by revising the inner packagings limit from 2.5 L (0.66 gallons) to 5 L (1.3 gallons).

Sections 173.314 and 173.315. Consistent with the proper shipping name revisions that replace the word "inhibited" with "stabilized" (see § 172.101), we are revising one such proper shipping name in § 173.314(c) and (g) and two such proper shipping names in § 173.315(a), (b) and (h).

Section 173.315. As proposed in the NPRM, we are revising paragraphs (a) and (i)(1)(iii) to incorporate provisions for the use of UN portable tanks for the transportation of liquefied compressed gases and the requirements for DOT Specification 51 portable tanks. In paragraph (a), we are incorporating a reference to new tank instruction T50 (see UN T Codes under § 172.102) for the transportation of liquefied compressed gases in UN portable tanks. In paragraph (i)(1)(iii), we are including the pressure relief device requirements applicable to UN portable tanks.

We received a comment questioning the intent in paragraph (a)(1)(iii) concerning the insulation requirements. The commenter was concerned that the paragraph prevents the use of mylar, other low melting films and aluminum for jacket materials. We note that the paragraph does not prohibit the use of jackets constructed of materials other than steel, except in the case when the portable tank manufacturer is attempting to lower the required relieving capacity of the relief devices by taking into account the thermal protection afforded by the insulation. The UN portable tank requirements intentionally restrict the jacketing material to steel when using the insulation as a means for reducing the required relieving capacity of the pressure relief devices, because jacket materials with lower melting temperatures, such as aluminum, would not provide adequate fire damage protection for the inner vessel, or for the vacuum insulation in the case of a vacuum insulated tank to justify allowing a lower overall relieving capacity for the pressure relief system.

We agree with the UN reasoning for limiting jacket material to steel, and, therefore, we are adopting the paragraph as proposed.

Section 173.320. For transportation by air for cryogenic liquids exceptions, we are making an editorial clarification in paragraph (c) to refer readers to the specific cites in the ICAO Technical Instructions rather than stating "see § 171.11 of this subchapter."

Part 175

Section 175.10. For consistency with the ICAO Technical Instructions, we are revising paragraph (a)(10) to clarify that lighters containing "unabsorbed liquid fuel" are prohibited on one's person or in checked or carry-on baggage. We are revising exclusions for alcoholic beverages as carry-on and checked baggage to impose a per passenger quantity limit and to restrict the exceptions to alcoholic beverages in retail packagings containing not more than 70% alcohol. We are revising paragraph (a)(16) to exclude alcoholic beverages. Also, we are adding new paragraph (a)(17) to specify that alcoholic beverages containing more than 24% and not more than 70% alcohol by volume, when carried by passengers or crew in checked or carry-on baggage, are not subject to the HMR if in retail packagings not exceeding 5 liters (1.3 gallons) with a total net quantity per person of 5 liters (1.3 gallons). These changes are consistent with the ICAO Technical Instructions.

Section 175.33. For harmonization with the ICAO Technical Instructions, we are revising paragraph (a) introductory text to add a requirement that the written pilot notification must be accurate and legible.

Section 175.78. We are revising this section to update and align segregation requirements with recent changes adopted in the ICAO Technical Instructions which were based on a UN decision to remove the distinction between primary and subsidiary risk labels. Separate rows and columns are provided for Divisions 5.1 and 5.2. We are adding a new provision to clarify that packages with multiple risks do not need to be segregated from other packages bearing the same UN number. The ICAO Technical Instructions currently require segregation of Divisions 5.1 and 4.3 hazardous materials and we have revised the entry to reflect the change.

Section 175.85. Consistent with a new provision adopted in the ICAO Technical Instructions, we are revising paragraph (a) to authorize use of main deck Class C cargo compartments for the transport of hazardous materials. Prior

to this final rule, hazardous materials were allowed to be carried in a main deck cargo compartment of a passenger aircraft provided the compartment was inaccessible to passengers and it met certification requirements for a Class B cargo compartment. (Class C cargo compartments differ from Class B cargo compartments in that Class C compartments are required to have a built-in fire extinguishing system, in addition to smoke or fire detection systems.)

Part 176

Section 176.2. In conjunction with incorporating a requirement for vessel cargo to be in compliance with the INF Code (see § 176.720), we are adding a definition for “INF cargo” under the § 176.2 definitions.

Section 176.63. For the stowage of Class 1 (explosive) materials on board a vessel, we are adding a stowage location definition for “closed cargo transport unit.” This addition coincides with the addition of the vessel stowage category definitions contained in Amendment 30 to the IMDG Code. (See § 172.101(k).)

Section 176.84. Consistent with the IMDG Code we are revising paragraph (b) Table of provisions and paragraph (c)(2) stowage provisions. In the paragraph (b) Table of provisions, we are adding two new stowage provisions for assignment to the entries: “Calcium hypochlorite, dry or Calcium hypochlorite mixtures dry with more than 39 percent available chlorine (8.8 percent available oxygen),” “Calcium hypochlorite, hydrated or Calcium hypochlorite, hydrated mixtures, with not less than 5.5 percent but not more than 10 percent water,” and “Calcium hypochlorite mixtures, dry with more than 10 percent but not more than 39 percent available chlorine.” In the paragraph (c)(2), we are revising the list of notes for the stowage of Class 1 (explosive) material provisions.

Section 176.128. We are making an editorial change in § 176.128(c) by correcting an identification number.

Section 176.136. We are making an editorial change in § 176.136 by removing the word “portable.”

Section 176.142. Based on a comment from the National Cargo Bureau, Inc., in § 176.142, paragraph (a), we are revising the list of hazardous materials that may not be transported in a vessel carrying Class 1 (explosive) materials to reflect the most current proper shipping names and add one extremely flammable material, “Methyl phosphorous dichloride, pyrophoric liquid,” NA2845.

Section 176.720. We are adding a new section to require a vessel carrying INF cargo in international transportation to

comply with the “International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships,” (INF Code, 2000, English edition). The INF Code was adopted by the International Maritime Safety Committee and became effective January 1, 2001 in the IMDG Code.

Part 177

Section 177.848. In paragraph (g)(3)(vi), we inadvertently added the terms “special stowage” and “stowed” from the corresponding vessel section of the HMR (§ 174.81) under HM–215C (64 FR 10742). We are correcting the wording by removing “special stowage,” which is not applicable to this section, and replacing “stowed” with “loaded, transported and stored.” We received a joint petition from the American Trucking Associations (ATA) and the Institute of Makers of Explosives (IME) (P–1396) requesting additional clarification of this paragraph. Prior to this rule, the paragraph read:

“(vi) “6” means explosive articles in compatibility group G, other than fireworks and those requiring special stowage, may be stowed with other explosive articles of compatibility groups C, D and E, provided no explosive substances (for example, those not contained in articles) are carried in the same vehicle.”

In this paragraph and the corresponding paragraph in § 174.81, the petitioners request that the words “other explosives” be inserted before the wording “explosive substances.” The petitioners are incorrect in their interpretation of the wording of this paragraph. Explosive *articles* in compatibility group G may be stowed with certain other explosive *articles* (C, D and E compatibility groups), provided no explosive *substances* that are not contained within articles are carried in the same vehicle. We point out that there is a distinction between the words “articles” and “substances.” To take advantage of this paragraph, explosive substances that are not contained in articles may not be carried on the vehicle. We are revising the paragraph to clarify that substances are prohibited when not contained in articles.

Part 178

Section 178.273. We are adding a new section by moving the current requirements for the approval of portable tanks from § 173.32a to § 178.273. This new section will include approval provisions for all portable tanks, including “UN portable tanks.” These current approval provisions will precede the requirements for UN

portable tanks (§§ 178.274 through 178.277). Approval agencies that have an interest in approving UN portable tanks must send a request to DHM–32, Office of Hazardous Materials Approvals, in accordance with the requirements in part 107, subpart E of this subchapter.

Sections 178.274, 178.275, 178.276 and 178.277. Based on the eleventh revised edition of the UN Recommendations, we are incorporating four new sections into the HMR for the UN portable tank requirements. This action is based on our own initiative and a petition for rulemaking (P–1373) and is consistent with our international harmonization objectives. The requirements apply to the design and construction of portable tanks. The IMO Dangerous Goods, Solid Cargoes and Containers (DSC) Sub-Committee incorporated the new harmonized UN multimodal portable tank requirements into the reformatted IMDG Code, Amendment 30. The reformatted IMDG Code became effective on January 1, 2001. The IMDG Code also includes a provision to allow for the continued use of portable tanks designed and constructed under the current requirements (those in Amendment 29 or previous amendments to the IMDG Code as applicable, depending on the date of construction).

The IMO allows construction under the new requirements on January 1, 2001, on a voluntary compliance basis, with a mandatory compliance date of January 1, 2003. On January 1, 2003, all new portable tanks will be required to be manufactured in accordance with the new requirements. For purposes of harmonization, we are incorporating the corresponding design, construction and use requirements for UN portable tanks in the HMR. In addition, in § 173.32 we are providing for the continued use of IM 101, 102 and DOT Specification 51 portable tanks, which is consistent with the provisions adopted in the IMDG Code.

The design and construction requirements for UN portable tanks do not differ significantly from the previous IM 101 and 102 portable tanks and the DOT Specification 51 requirements. In general, the UN requirements are less restrictive. For example, 6 mm (0.2 inches) minimum thickness is required for most portable tanks, as opposed to the current minimum thickness of 6.35 mm (0.3 inches) for IM 101 and 102 portable tanks. As discussed in the NPRM, while the majority of the changes involve relaxations of the regulatory requirements, there will be implications for portable tank manufacturers,

shippers and operators who transport hazardous materials in portable tanks. For example, we are requiring UN portable tanks used for the transportation of liquefied compressed gases to be approved by a DOT-designated approval agency, and we are requiring all UN portable tanks to meet a 4 g impact test. In addition to portable tanks for liquids and liquefied compressed gases, we are incorporating requirements for portable tanks that are used to transport refrigerated liquefied gases (cryogenic liquids). Previous to this final rule, requirements for portable tanks used for refrigerated liquefied gases were not specified in the HMR, and we authorized their use only under DOT exemptions. The differences between UN portable tanks and the previous portable tank requirements include, but are not limited to the following:

—The new definition for portable tank includes multimodal tanks with a capacity of more than 450 liters (118.9 gallons).

—The new design temperature range is defined as $-40\text{ }^{\circ}\text{C}$ to $50\text{ }^{\circ}\text{C}$ ($-40\text{ }^{\circ}\text{F}$ to $122.0\text{ }^{\circ}\text{F}$). This final rule includes the requirement that design temperatures must be considered for portable tanks subjected to severe climatic conditions. Previous to this final rule, regulations specified a range of $-20\text{ }^{\circ}\text{C}$ to $50\text{ }^{\circ}\text{C}$ ($-4.0\text{ }^{\circ}\text{F}$ to $122.0\text{ }^{\circ}\text{F}$).

—The new UN leakage test for portable tanks intended for the transport of liquids specifies a test pressure not less than 25% of Maximum Allowable Working Pressure (MAWP). The previous HMR requirements specified an internal pressure equivalent to MAWP, but not less than 0.2 bar (20.0 kPa) for liquids.

—The new test requires that the design and construction of portable tanks must take into account the effects of fatigue during normal conditions of transport. Previously, this was not required in the HMR.

—The new requirements specify an absolute minimum thickness of 3 mm (0.1 inches), regardless of the material used and regardless of whether additional protection is provided.

—Under the new requirements, a rail impact test of 4 g is required for all portable tanks meeting the definition of "Container" in the International Convention for Safe Containers (CSC).

—The new requirements specify that the test pressure be 1.3 times the design pressure for portable tanks intended for the transport of liquefied gases. Previously, under the HMR, DOT 51 portable tanks used for the transportation of liquefied gases were

required to have a test pressure of 1.5 times the design pressure; however, this is based on the vapor pressure of the hazardous material at $115\text{ }^{\circ}\text{F}$ ($46.1\text{ }^{\circ}\text{C}$), whereas the UN calculates the vapor pressure at $65\text{ }^{\circ}\text{C}$ ($149\text{ }^{\circ}\text{F}$). The differences between 1.5 at $46\text{ }^{\circ}\text{C}$ and 1.3 at $65\text{ }^{\circ}\text{C}$, therefore, would not be significant. (Although one commenter stated that they disagreed with this statement, our view is explained further in the preamble discussion under § 178.274.)

—The new requirements include a figure for thermal conductance for the thermal insulation systems of shells intended for the transport of liquefied compressed gases.

—The new requirements include a definition for "Holding time" relevant to portable tanks used for the transportation of refrigerated liquefied gases. This is consistent with current HMR requirements in § 178.338–9 for cargo tanks.

—The new requirements specify the effectiveness of the insulation system (heat influx in watts) based on a test using the portable tank.

—The new requirements allow the specified minimum values of material strength for austenitic steels to be increased by 15% according to recognized material standards when greater values are provided in the material inspection certificates.

—The new requirements allow the combined capacity of all pressure relief devices to be sufficient to limit the pressure to 120% of the MAWP for liquefied compressed gases.

Section 178.274. One commenter stated that the required test pressure for UN portable tanks used for the transportation of propane would increase from 320 psig to 400 psig. We believe that the values cited by the commenter are not accurate. Based on the Fourth Edition of the Compressed Gas Association Handbook of Compressed Gases, the vapor pressure of propane is approximately 220–230 psia at a reference temperature of $115\text{ }^{\circ}\text{F}$ ($46.1\text{ }^{\circ}\text{C}$) and approximately 270–275 psia at $130\text{ }^{\circ}\text{F}$ ($54.4\text{ }^{\circ}\text{C}$). The required MAWP according to § 173.315 is 250 psi. The test pressure for a UN portable tank would be approximately the same as that for a DOT 51 portable tank and in some cases may be slightly less. In this case, it would not be in the interest of harmonization to vary from the internationally agreed design pressure formulas. Based on the above, we are adopting the requirement as proposed.

One commenter stated that aluminum should be authorized as a material for portable tank shell construction. The

UN Recommendations allows aluminum only for portable tanks intended for liquid and solid materials when approved by the competent authority. Aluminum is not authorized for portable tank shells intended for non-refrigerated liquefied gases, however, aluminum is authorized for shells of portable tanks intended for the transportation of refrigerated liquefied gases. Based on the merits of these comments and to be consistent with the UN Recommendations, we are amending paragraph (b) accordingly.

Also regarding paragraph (b), some commenters requested background information explaining the justification and application of the proposed $-40\text{ }^{\circ}\text{C}$ lower range for the design temperature applicable to UN portable tanks. This lower temperature was adopted because the UN working group recognized that $-20\text{ }^{\circ}\text{C}$ was not sufficient to represent temperatures that UN portable tanks may experience in certain parts of the world. One commenter stated that it was not clear whether the requirement was applicable to all portable tank components or only to the shell. In response to this comment, we point out that the design temperature range applies to the shell which is the primary pressure and lading retention component of the portable tank. The general requirements for design and construction state that "Portable tank materials must be suitable for the external environment where they will be transported taking into account the determined design temperature range." This provision requires service equipment to be suitable for the climatic conditions to which it will be exposed. For these reasons, we are not amending the proposed language.

One commenter stated that the change from the very prescriptive relief device location for IM portable tanks in § 178.270–11(b)(1)(i) to the less specific requirement is "too open to interpretation" and requested clarification. We do not agree with the commenter. The main safety concern is that when the tank is filled to its maximum filling condition, the relief device is located in the vapor space and will ensure that escaping vapor can be discharged free from any obstruction. The text accomplishes this objective and is more flexible and performance-oriented. Specifically limiting the location by specifying exact tolerances forces us to issue exemptions and approvals when the location varies from these specific parameters. In addition, the text as proposed in this section is consistent with how the HMR specifies pressure relief device location for DOT specification 400 series cargo tanks

(see 178.345–10(c)). We are adopting the text as proposed.

One commenter stated that the proposed requirement to group outlet openings in paragraph § 178.274(e)(7) of the NPRM should not apply to portable tanks used for refrigerated liquified gases due to their unique design. The commenter explained that this requirement does not currently apply to exemption cryogenic portable tanks or MC 338 Specification cargo tanks (see § 178.338–7), nor is it a requirement under the UN Recommendations. We agree with this commenter and are amending the paragraph to reflect that the external fitting grouping requirement applies only to portable tanks intended for the transportation of non-refrigerated liquefied gases. This amendment is consistent with the current requirement that applies to DOT Specification 51 portable tanks in § 178.245–1(c). We agree that the additional exceptions applicable to locating openings in other locations in § 178.245–1(d)(1), (2) and (3) should also apply and, therefore, we are revising the text accordingly. Because these requirements are applicable only to portable tanks intended for the transport of non-refrigerated liquified gases, we are moving the text to the more appropriate location of § 178.276.

We received two comments concerning the proposed requirements for the internal valve emergency shut-off device in paragraph (e)(7). One commenter stated that there is no requirement in the UN Recommendations nor the IMDG Code for a thermally activated closure. Our intent with this paragraph is consistency with a requirement that was published under a final rule (Docket HM–166Y; 63 FR 37453) on July 10, 1998, requiring an IM portable tank to be retrofitted if unloaded while it remained on a transport vehicle with the power unit attached. The commenter stated that we proposed to expand the concept by making a thermally activated device part of the service equipment for all UN portable tanks and that the requirement would be contrary to harmonization because UN portable tanks are used worldwide. They suggested that the requirement should first be introduced at the UN Committee of Experts for consideration. Although the requirement is only a condition for unloading IM portable tanks from vehicles while the motor unit is attached, we were informed through meetings with portable tank users and manufacturers that it is not feasible to determine which IM portable tanks would be offloaded in this manner and that all IM portable tanks would

need to be retrofitted with thermally activated closure devices (fusible links) in order to comply with the requirement in § 177.834(o). In a request for an interim final rule concerning the retrofitting requirement published in HM–166Y final rule, the Hazardous Materials Advisory Council (HMAC) stated “For commercial and economic reasons, it is not practical to remove all tanks from service at once to retrofit the bottom outlet valves with thermally activated closure devices. Tanks are either in a transport cycle, in storage, or in repair/maintenance shops. If all of the portable tanks were taken out of service at the same time to complete this retrofit, many industrial operations would be severely disrupted.” DOT 51 portable tanks are required to be fitted with these closures (see § 178.245–1(d)(iii)) and in the HM–215D NPRM we proposed that UN portable tanks used for non-refrigerated liquified gases be fitted with these devices consistent with paragraph 6.7.3.5.4 of the UN Recommendations. The UN Recommendations require “quick closing” shut-off devices that close automatically in the event of fire engulfment and unintended movement of the portable tank for portable tanks used to transport flammable refrigerated and flammable and toxic non-refrigerated liquified gases. We are removing the requirements for these shut-off devices to operate based on unintended movement because we believe it is not practical. We believe that even though this is not a requirement under the UN Recommendations for liquid materials, it is a domestic requirement and from the safety perspective, as discussed under Docket HM–166Y, it should be applied to U.S. manufactured UN portable tanks intended for the transportation of liquid hazardous materials which are flammable, pyrophoric, oxidizing or toxic. We believe it would be in the best interest of safety to fit these portable tanks with thermally activated closures. We estimate that the cost of installing a fusible link will be approximately \$40.00 to \$70.00 per portable tank based on information provided by tank and tank valve and component manufacturers. Installation at the time of manufacture will avoid downstream retrofitting costs, costs associated with shipping delays and logistical problems at a later date. In previous discussions with the Hazardous Materials Advisory Council and the Tank Container Association, we were informed that retrofitting of portable tanks would cost approximately \$200.00 to \$250.00 per

portable tank. On the basis of these costs, it makes economic sense to install the devices at the time of manufacture. We agree that this requirement should be proposed to the UN Committee of Experts and will follow-up accordingly. On the basis of enhanced safety, minimal cost at the time of manufacture, shipping delays and logistics, we are requiring U.S. manufactured UN portable tanks intended for transporting certain liquids to be fitted with thermally activated closures (fusible links). The internal valve shut-off requirements are revised for consistency in §§ 178.275(d)(3), 178.276(c)(4) and 178.277(d).

Concerning paragraph (i), one commenter stated that markings such as maximum allowable working pressure, test pressure, maximum gross mass and the applicable T Code should be marked on the tanks following the “UN” mark in order to convey that the cargo is authorized for that particular portable tank. We agree that a T marking on the tank may be advantageous, however, the UN Recommendations do not require a T mark and imposing such a requirement is beyond the scope of this final rule. Incorporation of a T code marking in this rule could lead to different requirements in domestic and international regulations if such a proposal is not adopted by the UN Transport Subcommittee. With regard to the other markings, the information is marked on a specification plate (see § 178.274(i) of the regulatory text). Finally, we moved the requirements for the initial inspection and test of portable tanks from § 180.605(d), as presented in the NPRM, to the more appropriate location § 178.274(j).

Sections 178.274 and 178.275. One commenter stated that although the term “fusible elements” is used in the UN Recommendations, the purpose of the devices and whether they are mandatory service equipment is unclear. The commenter stated that in the final rule it would be helpful to clarify the definition and use of these devices. We agree with the commenter and are adding a definition for “fusible elements” in § 178.274(a)(3) and are clarifying the use of “fusible elements” in § 178.275(f)(4).

A commenter requested that we allow UN portable tanks used for the transportation of refrigerated liquefied gases to be tested using an inert gas as an alternative to hydrostatic testing with water. The commenter explained that this is a common industry practice and is necessary because the saddle designs for these portable tanks are not designed to hold the associated weight of the water necessary to conduct the

hydrostatic test. The commenter further explained that the alternative method is necessary because it is difficult to entirely remove all of the water in the inner tank after the hydrostatic test is completed. In addition, the UN Recommendations authorize the pressure test using an inert gas. We accept this comment and are amending § 178.274(j)(2) to include a provision to allow, as an alternative to hydrostatic testing with water, testing with an inert gas for portable tanks used for the transportation of refrigerated liquefied gases.

Section 178.275. Regarding paragraph (c), a commenter stated that damage to the liner in a portable tank would be inevitable when welding a blind (blank) flange on the inside and outside of the portable tank shell. The commenter suggested a tamper proof flange as an alternative to the welded flange as proposed in the NPRM. The UN portable tank working group considered a number of alternate configurations or possibilities for closing bottom openings in portable tanks when they are retrofitted to remove bottom opening configurations. The working group was opposed to use of a bolted flange because of the possibility that it may leak during transportation. While inclusion of an alternative to welding is beyond the scope of this rule, a means of authorizing non-welded bottom flange configurations may be considered under the alternative arrangement approval provisions.

Another commenter stated that the presence of a liner in a portable tank should not be justification for authorizing the portable tank to be used without an internal shut-off valve. The commenter stated that internal shut-off valves can be fitted on lined portable tanks and that the proposed exception would result in a decrease in safety. We agree and based on the merits of the comment, we believe that a lined tank should have a internal shut-off and are removing the proposed exception in paragraph (c)(4) which states, "For a lined shell, the internal stop valve required by paragraph (c)(3)(i) of this section may be replaced by an additional external stop valve."

One commenter stated that the external design pressure should not be based on the internal pressure because, as proposed, the requirement would impose unrealistic external design pressure requirements. We agree with this commenter and are revising the wording in paragraph (e) to remove the reference to the internal pressure. On this basis, a shell that is to be equipped with a vacuum-relief device must be designed to withstand, without

permanent deformation, an external pressure of not less than 0.21 bar.

Section 178.276. See discussion under § 178.274 for discussion concerning the relocation of certain text.

We received a comment stating that § 178.276 should be revised to provide an exception from the internal stop valve requirement for portable tanks used for the transportation of chlorine. The commenter requested alternative wording to clarify whether a threaded cap or pipe plug can be used as the third means of closure on portable tank openings. We agree and are revising the text in § 178.276(c)(1) to state "* * * and the third being a blank flange, threaded cap, plug or equivalent liquid tight closure device." We are also revising § 178.276(c)(3) to indicate that this paragraph only applies to openings below the liquid level of the portable tank. This wording will eliminate the need for portable tanks used to transport chlorine from having to be fitted with internal stop valves because these portable tanks have loading and unloading fittings only at the top of the tank. We are also including a new paragraph (7) to address inlets and discharge outlets, internal excess flow valves on portable tanks used to transport chlorine.

Section 178.277. One commenter stated that the NPRM preamble included a new filling limit for helium, yet it was not contained in the regulatory text in § 178.277. We recognized the oversight and added a new tank provision, TP5 to address the filling limit. (See § 172.102, Special Provisions.)

Another commenter stated that it is not necessary to specify impact test requirements in paragraph § 178.277(b)(4) and that the proposed provision for conducting impact tests at 0 °F on materials to be used for refrigerated liquefied gases are not suitable because such portable tanks operate at much lower temperatures. The commenter went on to say that the ASME Code adequately addresses this issue. We agree with the commenter and have removed the proposed provision.

Another commenter stated that we overlooked the fact that the UN Recommendations do not require portable tanks used for the transportation of refrigerated liquefied gases to have an opening for inspection. The commenter stated that the internal inspection requirements for these portable tanks should be removed because: (1) The portable tanks are not currently fitted with inspection openings, (2) internal corrosion is not a factor for portable tanks used to transport refrigerated liquefied gases, (3)

the UN Recommendations do not require internal inspection for these portable tanks, and (4) fitting of inspection openings on these portable tanks does not enhance safety. We agree with the commenter and are including the exceptions for refrigerated liquefied gas portable tanks in paragraphs (d)(7) and § 180.605(e) and (f).

We are including the above discussed amendments and, as proposed in the NPRM, we are adding five new sections (§§ 178.273 through 178.277) to the HMR as follows: § 178.273 is added by moving the current requirements for the approval of Specification portable tanks from § 173.32a and introducing similar requirements for UN portable tanks; § 178.274 is added for the UN portable tank general design and construction requirements; § 178.275 is added for the additional specifications for UN portable tanks intended for the transportation of liquid and solid materials of Classes 3 through 9; § 178.276 is added for the additional requirements for UN portable tanks intended for the transportation of liquefied compressed gases; and § 178.277 is added for the additional requirements for the design, construction, inspection and testing of UN portable tanks intended for the transport of refrigerated liquefied gases.

Section 178.703. Consistent with § 178.3(a)(4), paragraph (a)(1) is revised by including a minimum height of 12 mm (0.5 inches) for IBC markings and by adding a requirement to allow use of the "W" mark for approval of equivalent IBC packagings, as provided for in § 178.801(i). Two commenters stated that while they support a minimum marking size of 12 mm for IBCs, it is not clear how this would apply to IBCs manufactured prior to the effective date of this final rule. In response to these commenters, we revised paragraph (a)(1) to clarify that the minimum marking size only applies to IBCs manufactured after the effective date of this final rule (October 1, 2001).

Section 178.705. We are revising the minimum wall thickness requirements to take into account the capacity in the case of metal IBCs.

Section 178.801. In paragraph (i), we are adding an approval provision for the use of large packagings, as defined in § 171.8 of this NPRM, provided the large packagings conform to the construction standards, performance testing and packaging marking as specified in UN Recommendations.

Section 178.812. Based on our initiative, we are revising paragraph (c)(1) and adding a new paragraph (c)(3) to include an alternate method for conducting the top lift test for flexible

IBCs. Prior to this final rule, the alternate method was authorized in several approvals issued by the Associate Administrator.

Part 179

Section 179.102-4. Consistent with the proper shipping name revisions that replace the word "inhibited" with "stabilized" (see § 172.101), we are revising one such proper shipping name in this section.

Part 180

Sections 180.601, 180.603, 180.605. We are moving the qualification and maintenance requirements for portable tanks from § 173.32(c) to part 180. As discussed in the NPRM, we believe that these requirements are more appropriately placed in part 180 along with the qualification and maintenance requirements for cargo tanks, IBCs and tank cars. Therefore, as proposed, we are adding new subpart G to part 180 for the qualification and maintenance of portable tanks. (Also see § 173.32.) One commenter suggested that we incorporate certain editorial changes to § 173.32 and part 180, subpart G, to clarify that not all portable tanks have a maximum allowable working pressure (MAWP) and that some requirements do not apply to all portable tanks, such as DOT Specification 56 and 57 portable tanks. We agree and have made the clarification revisions accordingly.

Section 180.603. A commenter requested that grandfather provisions be included in § 180.603 to recognize that portable tanks constructed and used in accordance with existing DOT exemptions are authorized for continued use provided they meet the applicable periodic inspection and test requirements. We do not agree with this request because such exemptions remain valid and their continued use are not affected by this final rule.

Section 180.605. Several commenters stated that the periodic inspection requirements for portable tanks proposed in the NPRM are not entirely consistent with those specified in the UN Recommendations. They quoted the UN Recommendations as stating: "A portable tank filled prior to the date of expiry of the last periodic inspection and test may be transported for a period not to exceed three months beyond the date of expiry of the last periodic test or inspection." In addition, a portable tank may be transported after the date of expiry of the last periodic test and inspection after emptying but before cleaning, for purposes of performing the next required test or inspection prior to refilling and unless otherwise approved by the competent authority, for a period

not to exceed six months beyond the date of expiry of the last periodic test or inspection, in order to allow the return of dangerous goods for proper disposal or recycling. Reference to this exemption shall be mentioned in the transport document. The commenters requested that we adopt this text from the UN Recommendations in the final rule. We do not agree that the UN Recommendations' text should be included in the HMR. We believe that the UN text imposes arbitrary limits on the length of time that a portable tank may be transported after expiration of the inspection and test date. The HMR text allows a portable tank to continue to be transported after the expiration of the test date while prohibiting filling of a tank once the periodic inspection and test dates have expired. We wish to clarify that the text as proposed was based on existing text for cargo tanks (see 173.33(a)(3)) and for portable tanks (see 173.32(e)(5)). The text in place prior to this final rule, as well as the text adopted in this final rule, allows portable tanks which contain a residue, or are being transported to a cleaning, testing or repair facility, to be transported after the inspection and test date expires. In the NPRM, we simply consolidated this requirement in a more appropriate section and applied it universally to all portable tanks. We are adopting the text as proposed, even though it is less restrictive than the UN Recommendations text, because it is practical and does not impose unnecessary burdens on the regulated public or government. On this basis, we are not adopting the suggestions of the commenters. We also wish to note that the text in § 180.605(b)(3), as proposed and adopted, requires a portable tank that has been out of service for more than one year to be periodically retested.

Several commenters stated that they support our efforts to adopt the UN portable tank requirements. The commenters support the requirement that DOT 51 Specification portable tanks not be allowed to be manufactured after January 1, 2003, however, they do not support the conditions for continued use of existing DOT 51 portable tanks as proposed in the NPRM. We did not introduce new requirements for periodically retesting DOT Specification 51 portable tanks in the NPRM nor was it our intention to do so. The retest provisions for DOT Specification 51 portable tanks are specified in § 180.605(c)(2) and requires that the portable tanks be retested at least once every 5 years.

For paragraphs (e) and (f), see § 178.277(d)(7) discussion regarding an

exception from the requirement for portable tanks used for the transportation of refrigerated liquefied gases to have an opening for inspection. We moved the initial inspection and test requirements from § 180.605(d), as proposed in the NPRM, to § 178.274(j) which we believe is a more appropriate location. For a comment on an alternative to hydrostatic testing with water, see § 178.274(j).

We also received a comment stating that we should have included an exception from the requirement for UN portable tanks intended for the transportation of "Helium refrigerated liquid (*cryogenic liquid*)," UN1963 and "Hydrogen, refrigerated liquid (*cryogenic liquid*)," UN1966 to be subjected to the 4 G rail impact test as prescribed in § 180.605(d)(6). The commenter reasoned that high thermal performance liquid hydrogen and helium containers are not transported on railroads due to the large impact loads experienced during coupling and that such UN portable tanks are marked with the words "NOT FOR RAIL TRANSPORTATION." We agree with the commenter. When the requirements for UN portable tanks were developed, the UN working group agreed that portable tanks used for the transportation of refrigerated liquefied helium and hydrogen should be excepted from rail impact testing. A special provision was added allowing the transportation of these refrigerated liquefied gases under conditions specified by the competent authority. In this final rule, we are excepting portable tanks intended for the transport of refrigerated liquefied helium and hydrogen from the requirements of a rail impact test. Instead of requiring an approval provision, we are adding a sentence to § 180.605(d)(6) to except portable tanks from the 4 G impact test when the portable tanks are used in dedicated service for the transportation of "Helium, refrigerated liquid," UN1963 and "Hydrogen, refrigerated liquid," UN1966 and are marked "NOT FOR RAIL TRANSPORT" in letters of a minimum height of 20 cm (8 inches) on at least two sides of the portable tank.

Another commenter stated that the proposed marking size amendment in § 180.605(l) requires inspection and test markings that are not included on the specification plate of a portable tank to be 32 mm (1.25 inches) high, yet as the commenter points out, currently § 173.32(e)(3) allows markings for DOT Specifications 51, 56, 57 and 60 portable tanks to be a minimum height of 12 mm. We agree with the commenter and after considering the proposed amendment, we do not believe that a marking height

of 32 mm is necessary for these particular portable tanks. Therefore, we are adopting a minimum test and inspection marking height of 3 mm when the markings are on the specification plate, and a marking height of 12 mm when the markings are directly on the portable tank.

IV. Rulemaking Analyses and Notices

A. Executive Order 12866 and DOT Regulatory Policies and Procedures

This final rule is not considered a significant regulatory action under section 3(f) of Executive Order 12866 and, therefore, was not reviewed by the Office of Management and Budget. This final rule is not considered a significant rule under the Regulatory Policies and Procedures of the Department of Transportation (44 FR 11034). Benefits resulting from this final rule include enhanced transportation safety resulting from the consistency of domestic and international hazard communications and continued access to foreign markets by domestic shippers of hazardous materials. Many companies involved in domestic, as well as global operations, will realize economic benefits as a result of the amendments in this rulemaking. The total net increase in costs to businesses in implementing this rulemaking is minimal and we have determined that the intended benefits of harmonizing the HMR with international standards outweigh the minimal increase in costs to industry. For interested parties, a regulatory analysis is available for review in the public docket.

B. Executive Order 13132

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

The Federal hazardous material transportation law, 49 U.S.C. 5101–5127, contains an express preemption provision (49 U.S.C. 5125(b)) that preempts State, local, and Indian tribe requirements on certain covered subjects. Covered subjects are:

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

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

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

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

(5) The design, manufacture, fabrication, marking, maintenance, recondition, repair, or testing of a packaging or container represented, marked, certified, or sold as qualified for use in transporting hazardous material.

This final rule addresses covered subject items (1), (2), (3), and (5) above and would preempt State, local, and Indian tribe requirements not meeting the "substantively the same" standard. This final rule is necessary to incorporate changes already adopted in international standards. If the changes in this final rule are not adopted in the HMR, U.S. companies, including numerous small entities competing in foreign markets, would be at an economic disadvantage. These companies would be forced to comply with a dual system of regulation. The changes in this final rule are intended to avoid this result. Federal hazardous materials transportation law provides at section 5125(b)(2) that, if DOT issues a regulation concerning any of the covered subjects, DOT must determine and publish in the **Federal Register** the effective date of Federal preemption. The effective date may not be earlier than the 90th day following the date of issuance of the final rule and not later than two years after the date of issuance. Thus, RSPA lacks discretion in this area. The effective date of Federal preemption will be December 18, 2001.

C. Executive Order 13084

This final rule has been analyzed in accordance with the principles and criteria contained in Executive Order 13084 ("Consultation and Coordination with Indian Tribal Governments"). Because this final rule does not significantly or uniquely affect the communities of the Indian tribal governments and does not impose substantial direct compliance costs, the funding and consultation requirements of Executive Order 13084 do not apply.

D. Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires an agency to review regulations to assess their impact on small entities, unless the agency

determines that a rule is not expected to have a significant impact on a substantial number of small entities.

This final rule will serve to facilitate the transportation of hazardous materials in international commerce by providing consistency with international standards. This final rule applies to offerors and carriers of hazardous materials, some of whom are small entities, such as, chemical manufacturers, chemical users and suppliers, packaging manufacturers, distributors, battery manufacturers, radiopharmaceutical companies and training companies. Based on our assessment in the regulatory analysis, which is available in the public docket, I hereby certify that this final rule will not have a significant economic impact on a substantial number of small entities.

The majority of amendments in this final rule should result in cost savings and ease the regulatory compliance burden for shippers engaged in domestic and international commerce, including trans-border shipments within North America. For example, cost savings will be realized by shippers and carriers as a result of eliminating the differences between primary and subsidiary labels. As a result of this change, it will no longer be necessary to stock two sets of labels for each hazard class. To ease any burden associated with this change, we are incorporating a reasonable transition period where labels meeting requirements in effect immediately prior to this final rule and the requirements adopted in this final rule may be used.

Other cost savings include providing greater flexibility for the use of IBCs and portable tanks; retaining current IM 101, 102 and DOT Specification 51 portable tank requirements and providing authorizations for their use; deleting numerous entries from the marine pollutant list for consistency with the IMDG Code; authorizing greater flexibility for transporting samples of hazardous materials; authorizing the use of a single explosives placard when explosives of several compatibility groups are transported in a single freight container or vehicle; and revising requirements for large lithium batteries which will simplify the regulatory requirements applicable to batteries used in high energy efficient hybrid vehicles. Finally, we are authorizing immediate voluntary compliance, delayed effective dates and a one-year transition period to allow for training of employees and to ease any burden on entities affected by the amendments.

E. Paperwork Reduction Act

We have current information collection approvals under OMB No. 2137-0018, Inspection and Testing of Portable Tanks and Intermediate Bulk Containers, which expires March 31, 2002, with 51,340 burden hours and \$10,235,000 annual costs, and OMB No. 2137-0557, Approvals for Hazardous Materials, which expires March 31, 2002, with 18,302 burden hours and \$413,737.40 annual costs. We believe that this final rule may result in minor incremental increases in the annual burden hours and costs. The current approvals has been revised and resubmitted to OMB for extension and reapproval.

OMB No. 2137-0018 contains the information collection and recordkeeping requirements in current §§ 173.32, 173.32a, 173.32b, 178.245 and 178.801 for tests, inspections and related records related to the manufacture, qualification, repair or modification of portable tanks or intermediate bulk containers. This information is used to verify that portable tanks and intermediate bulk containers meet the required manufacturing standards prior to being authorized for initial use, and that once manufactured, the packagings are maintenance in conformance with the applicable HMR requirements. OMB No. 2137-0018 is revised to include UN portable tanks and to revise section references to the portable tank requalification requirements which are being relocated to subpart G in Part 180.

OMB No. 2137-0557 contains the information collection and recordkeeping requirements for packagings and hazardous materials approvals. This information is used to verify that portable tank designs meet the applicable standards. OMB No. 2137-0557 is revised to include UN portable tanks and to revise the section references to the portable tank design approval requirements which are being relocated to Part 178.

We estimate that the adjusted total information collection and recordkeeping burdens are as follows:

OMB No. 2137-0018:

Affected Public: Manufacturers, requalifiers, repairers and modifiers, and owners of certain DOT specification and exemption portable tanks and intermediate bulk containers.

Number of Respondents: 8,770.

Total Annual Responses: 86,100.

Total Annual Burden Hours: 66,390.

Total Annual Burden Cost: \$ 7,137,500.

One-time Annual Start Up Burden Hours: 350.

OMB No. 2137-0557:

Number of Respondents: 3,518.

Total Annual Responses: 3,869.

Total Annual Burden Hours: 18,381.

Total Annual Burden Cost: \$

413,737.40.

Requests for a copy of the information collection approvals, requests and data should be directed to Deborah Boothe, Office of Hazardous Materials Standards (DHM-10), Research and Special Programs Administration, Room 8102, 400 Seventh Street, SW, Washington, DC 20590-0001, Telephone (202) 366-8553.

F. Regulation Identifier Number (RIN)

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

G. Unfunded Mandates Reform Act

This final rule does not impose unfunded mandates under the Unfunded Mandates Reform Act of 1995. It does not result in costs of \$100 million or more to either State, local or tribal governments, in the aggregate, or to the private sector, and is the least burdensome alternative that achieves the objective of the rule.

H. Environmental Assessment

The National Environmental Policy Act of 1969 (NEPA) requires Federal agencies to consider the consequences of major federal actions and prepare a detailed statement on actions significantly affecting the quality of the human environment. We developed an assessment to determine the effects of these revisions on the environment and whether a more comprehensive environmental impact statement may be required. Our findings conclude that there are no significant environmental impacts associated with this final rule. Consistency in regulations for the transportation of hazardous materials aids in the shipper's understanding of what is required and permits shippers to more easily comply with safety regulations and avoid the potential for environmental damage or contamination. For interested parties, an environmental assessment is available in the public docket.

List of Subjects

49 CFR Part 171

Exports, Hazardous materials transportation, Hazardous waste,

Imports, Incorporation by reference, Reporting and recordkeeping requirements.

49 CFR Part 172

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

49 CFR Part 173

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

49 CFR Part 175

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

49 CFR Part 176

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

49 CFR Part 177

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

49 CFR Part 178

Hazardous materials transportation, 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, 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 171—GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS

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

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

2. In § 171.7, in paragraph (a)(1), the fourth sentence is revised and in the paragraph (a)(3) table:

a. Under the entry "American Society for Testing and Materials", a new entry is added in alpha-numeric order;

b. Under the entry “International Atomic Energy Agency (IAEA)”, a new entry is added in alpha-numeric order;
 c. Under the entry “International Civil Aviation Organization (ICAO)”, the existing entry is revised;
 d. Under the entry “International Maritime Organization (IMO)”, for the entry “International Maritime Dangerous Goods (IMDG) Code, 2000

edition”, in the second column, add “; 176.720” after “176.30”; and
 e. Under the entry “International Organization for Standardization”, three new entries are added in alpha-numeric order.
 The revisions and additions read as follows:

§ 171.7 Reference material.
 (a) *Matter incorporated by reference—*
 (1) * * * The material listed in paragraph (a)(3) has been approved for incorporation by reference by the Director of the Federal Register in accordance with 5 U.S.C 552(a) and 1 CFR part 51. * * *
 * * * * *
 (3) *Table of material incorporated by reference.* * * *

Source and name of material	49 CFR reference
* * * * *	*
<i>American Society for Testing and Materials</i>	
* * * * *	*
ASTM E 112-96 Standard Test Methods for Determining Average Grain Size, 1996 Edition	178.274
* * * * *	*
<i>International Atomic Energy Agency (IAEA)</i>	
* * * * *	*
IAEA, Regulations for the Safe Transport of Radioactive Material, No. TS-R-1, 1996 Edition	171.12
* * * * *	*
<i>International Civil Aviation Organization (ICAO)</i>	
* * * * *	*
Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Technical Instructions), DOC 9284-AN/905, 2001-2002 Edition.	171.11; 172.202; 172.401; 172.512; 172.602
* * * * *	*
<i>International Organization for Standardization</i>	
* * * * *	*
ISO 1496-3 Series 1 freight containers—Specification and testing, Part 3: Tank containers for liquids, gases and pressurized dry bulk, March 1, 1995, Fourth Edition.	178.274
* * * * *	*
ISO 4126-1 Safety valves—Part 1: General Requirements, December 15, 1991, First Edition	178.274
* * * * *	*
ISO 6892 Metallic materials—Tensile testing, July 15, 1984, First Edition	178.274
* * * * *	*

* * * * *
 3. In § 171.8, the following definitions are added in appropriate alphabetical order to read as follows:

§ 171.8 Definitions and abbreviations.

* * * * *
Large packaging means a packaging that—
 (1) Consists of an outer packaging which contains articles or inner packagings;
 (2) Is designated for mechanical handling;
 (3) Exceeds 400 kg net mass or 450 liters (118.9 gallons) capacity;
 (4) Has a volume of not more than 3 m³ (see § 178.801(i) of this subchapter); and

(5) Conforms to the requirements for the construction, testing and marking of large packagings as specified in the UN Recommendations.
 * * * * *

Stabilized means that the hazardous material is in a condition that precludes uncontrolled reaction. This may be achieved by methods such as adding an inhibiting chemical, degassing the hazardous material to remove dissolved oxygen and inerting the air space in the package, or maintaining the hazardous material under temperature control.
 * * * * *

UN portable tank means a intermodal tank having a capacity of more than 450 liters (118.9 gallons). It includes a shell fitted with service equipment and

structural equipment, including stabilizing members external to the shell and skids, mountings or accessories to facilitate mechanical handling. A UN portable tank must be capable of being filled and discharged without the removal of its structural equipment and must be capable of being lifted when full. Cargo tanks, rail tank car tanks, non-metallic tanks, non-specification tanks, bulk bins, and IBCs and packagings made to cylinder specifications are not UN portable tanks.
 * * * * *

4. In § 171.10, in paragraph (c)(2), the Table of Conversion Factors for SI Units, a unit of measure is added as the last entry, and in the abbreviation notes following the Table, in the (SI)

abbreviations, a new abbreviation “; Newton, N” is added after “mSv” to read as follows:

§ 171.10 Units of measure.

(2) * * *

* * * * *
(c) * * *

TABLE OF CONVERSION FACTORS FOR SI UNITS

Table with 3 columns: Measurement, SI to U.S. standard, U.S. standard to SI. Row 1: Force, 1 Newton = 0.2248 Pound-force, 1 Pound-force=4.483 N

5. In § 171.11, the introductory text is revised, the comma at the end of paragraphs (d)(6)(i) and (d)(6)(ii) are removed and a period is added in its place, “, and” at the end of paragraph (d)(6)(iv) is removed and a period is added in their place, and new paragraphs (d)(6)(vi) and (d)(17) are added to read as follows:

§ 171.11 Use of ICAO Technical Instructions.

Notwithstanding the requirements of parts 172 and 173 of this subchapter, a hazardous material may be transported by aircraft, and by motor vehicle either before or after being transported by aircraft, in accordance with the ICAO Technical Instructions (see § 171.7) if the hazardous material;

- (d) * * *
(6) * * *

(vi) The definition for “radioactive material” in § 173.403 of this subchapter applies to radioactive materials transported under the provisions of this section.

(17) An organic peroxide that is not identified by technical name in the Organic Peroxide Table in § 173.225(b) of this subchapter must be approved by the Associate Administrator in accordance with the requirements of § 173.128(d) of this subchapter.

6. In § 171.12, paragraph (b)(5) is revised, new paragraph (b)(20) is added, paragraphs (d) heading and introductory text and (d)(4) are revised, “and” at the end of paragraph (d)(5) is removed, the period at the end of paragraph (d)(6) is removed and “; and” is added in its place, and paragraph (d)(7) is added to read as follows:

§ 171.12 Import and export shipments.

- (b) * * *

(5) Except for IBCs and UN portable tanks intended for liquids or solids, hazardous materials that conform to the requirements of the IMDG Code, bulk packagings must conform to the requirements of this subchapter. For UN

portable tanks, Special Provisions TP37, TP38, TP44 and TP45 must be met when applicable. Except as specified in paragraph (b)(8) of this section for a material poisonous (toxic) by inhalation (see § 171.8 of this subchapter), the T Codes specified for specific hazardous materials in Column 13 of the Dangerous Goods List of the IMDG Code may be applied to the transportation of those materials in IM, IMO and DOT Specification 51 portable tanks.

(20) An organic peroxide that is not identified by technical name in the Organic Peroxide Table in § 173.225(b) of this subchapter must be approved by the Associate Administrator in accordance with the requirements of § 173.128(d) of this subchapter.

(d) Use of International Atomic Energy Agency (IAEA) regulations for Class 7 (radioactive) materials. Class 7 (radioactive) materials being imported into or exported from the United States, or passing through the United States in the course of being shipped between places outside the United States, may be offered and accepted for transportation when packaged, marked, labeled, and otherwise prepared for shipment in accordance with IAEA “Regulations for the Safe Transport of Radioactive Material,” Safety Series No. 6, 1985 edition, or TS-R-1, 1996 edition (see § 171.7), if—

(4) The country of origin for the shipment has adopted the corresponding edition (Safety Series No. 6, 1985 Edition, or TS-R-1, 1996 Edition) of the IAEA “Regulations for the Safe Transport of Radioactive Material”;

(7) The definition for “radioactive material” in § 173.403 of this subchapter is applied to radioactive materials transported under the provisions of this section.

7. In § 171.12a, a new paragraph (b)(18) is added to read as follows:

§ 171.12a Canadian shipments and packagings.

- (b) * * *

(18) An organic peroxide that is not identified by technical name in the Organic Peroxide Table in § 173.225(b) of this subchapter must be approved by the Associate Administrator in accordance with the requirements of § 173.128(d) of this subchapter.

8. In § 171.14, paragraphs (d) introductory text, (d)(1) and (d)(2) introductory text are revised and new paragraphs (d)(4) and (d)(5) are added to read as follows:

§ 171.14 Transitional provisions for implementing certain requirements.

- (d) * * *

(d) A final rule published in the Federal Register on June 21, 2001, effective October 1, 2001, resulted in revisions to this subchapter. During the transition period, until October 1, 2002, as provided in paragraph (d)(1) of this section, a person may elect to comply with either the applicable requirements of this subchapter in effect on September 30, 2001, or the requirements published in the June 21, 2001 final rule.

(1) Transition dates. The effective date of the June 21, 2001 final rule is October 1, 2001. A delayed compliance date of October 1, 2002 is authorized. On October 1, 2002, all applicable regulatory requirements adopted in the June 21, 2001 final rule in effect on October 1, 2001 must be met.

(2) Intermixing old and new requirements. Prior to October 1, 2002, it is recommended that the hazard communication requirements be consistent where practicable. Marking, labeling, placarding, and shipping paper descriptions should conform to either the old requirements of this subchapter in effect on September 30, 2001, or the new requirements of this subchapter in the June 21, 2001 final rule without intermixing communication elements. However, intermixing is permitted, during the applicable transition period,

for packaging, hazard communication, and handling provisions, as follows:

* * * * *

(4) Until January 1, 2010, a hazardous material may be transported in an IM or IMO portable tank in accordance with the T Codes (Special Provisions) assigned to a hazardous material in Column (7) of the HMT in effect on September 30, 2001.

(5) Until October 1, 2005, proper shipping names that included the word "inhibited" prior to the June 21, 2001 final rule in effect on October 1, 2001, may continue to be shown on packagings in place of "stabilized."

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

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

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

10–11. In § 172.101, paragraphs (b)(1) and (c)(11) are revised, new paragraphs (c)(16) and (k)(6) through (k)(20) are added, and the Hazardous Materials Table is revised to read as follows:

§ 172.101 Purpose and use of hazardous materials table.

* * * * *

(b) * * *

(1) The plus (+) sign fixes the proper shipping name, hazard class and packing group for that entry without regard to whether the material meets the definition of that class, packing group or any other hazard class definition. When the plus sign is assigned to a proper shipping name in Column (1) of the § 172.101 Table, it means that the material is known to pose a risk to humans. When a plus sign is assigned to mixtures or solutions containing a material where the hazard to humans is significantly different from that of the pure material or where no hazard to humans is posed, the material may be described using an alternative shipping name that represents the hazards posed by the material. An appropriate alternate proper shipping name and hazard class may be authorized by the Associate Administrator.

* * * * *

(c) * * *

(11) Except for a material subject to or prohibited by §§ 173.21, 173.54, 173.56(d), 173.56(e), 173.224(c) or 173.225(c) of this subchapter, a material that is considered to be a hazardous waste or a sample of a material for

which the hazard class is uncertain and must be determined by testing may be assigned a tentative proper shipping name, hazard class, identification number and packing group, if applicable, based on the shipper's tentative determination according to:

(i) Defining criteria in this subchapter;

(ii) The hazard precedence prescribed in § 173.2a of this subchapter;

(iii) The shippers knowledge of the material;

(iv) In addition to paragraphs (c)(11)(i) through (iii) of this section, for a sample of a material, other than a waste, the following must be met:

(A) Except when the word "Sample" already appears in the proper shipping name, the word "Sample" must appear in association with the basic description of a sample on the shipping paper;

(B) When the proper shipping description for a sample is assigned a "G" in Column (1) of the § 172.101 Table, and the primary constituent(s) for which the tentative classification is based are not known, the provisions requiring a technical name for the constituent(s) do not apply; and

(C) A sample must be transported in a combination packaging which conforms to the requirements of this subchapter that are applicable to the tentative packing group assigned, and may not exceed a net mass of 2.5 kg. (5.5 pounds) per package.

Note to Paragraph (c)(11): For the transportation of self-reactive, organic peroxide and explosive samples, see §§ 173.224(c)(3), 173.225(c)(2) and 173.56(d) of this subchapter, respectively.

* * * * *

(16) Unless it is already included in the proper shipping name in the § 172.101 Table, the qualifying words "liquid" or "solid" may be added in association with the proper shipping name when a hazardous material specifically listed by name in the § 172.101 Table may, due to the differing physical states of the various isomers of the material, be either a liquid or a solid (for example "Dinitrotoluenes, liquid" and "Dinitrotoluenes, solid"). Use of the words "liquid" or "solid" is subject to the limitations specified for the use of the words "mixture" or "solution" in paragraph (c)(10) of this section. The qualifying word "molten" may be added in association with the proper shipping name when a hazardous material, which is a solid in accordance with the definition in § 171.8 of this subchapter, is offered for transportation in the molten state (for example, "Alkylphenols, solid, n.o.s., molten").

* * * * *

(k) * * *

(6) Stowage category "01" means the material may be stowed "on deck" or "under deck" on a cargo vessel (up to 12 passengers) and on a passenger vessel.

(7) Stowage category "02" means the material may be stowed "on deck" or "under deck" on a cargo vessel (up to 12 passengers) and "on deck" in closed cargo transport units or "under deck" in closed cargo transport units on a passenger vessel.

(8) Stowage category "03" means the material may be stowed "on deck" or "under deck" on a cargo vessel (up to 12 passengers) and "on deck" in closed cargo transport units on a passenger vessel.

(9) Stowage category "04" means the material may be stowed "on deck" or "under deck" on a cargo vessel (up to 12 passengers) but the material is prohibited on a passenger vessel.

(10) Stowage category "05" means the material may be stowed "on deck" in closed cargo transport units or "under deck" on a cargo vessel (up to 12 passengers) and on a passenger vessel.

(11) Stowage category "06" means the material may be stowed "on deck" in closed cargo transport units or "under deck" on a cargo vessel (up to 12 passengers) and "on deck" in closed cargo transport units or "under deck" in closed cargo transport units on a passenger vessel.

(12) Stowage category "07" means the material may be stowed "on deck" in closed cargo transport units or "under deck" on a cargo vessel (up to 12 passengers) and "on deck" only in closed cargo transport units on a passenger vessel.

(13) Stowage category "08" means the material may be stowed "on deck" in closed cargo transport units or "under deck" on a cargo vessel (up to 12 passengers) but the material is prohibited on a passenger vessel.

(14) Stowage category "09" means the material may be stowed "on deck only" in closed cargo transport units or "under deck" in closed cargo transport units on a cargo vessel (up to 12 passengers) and on a passenger vessel.

(15) Stowage category "10" means the material may be stowed "on deck" in closed cargo transport units or "under deck" in closed cargo transport units on a cargo vessel (up to 12 passengers) and "on deck" only in closed cargo transport units on a passenger vessel.

(16) Stowage category "11" means the material may be stowed "on deck" in closed cargo transport units or "under deck" in magazine stowage type "c" on a cargo vessel (up to 12 passengers) and

“on deck” only in closed cargo transport units on a passenger vessel.

(17) Stowage category “12” means the material may be stowed “on deck” in closed cargo transport units or “under deck” in magazine stowage type “c” on a cargo vessel (up to 12 passengers) but the material is prohibited on a passenger vessel.

(18) Stowage category “13” means the material may be stowed “on deck” in

closed cargo transport units or “under deck” in magazine stowage type “A” on a cargo vessel (up to 12 passengers) and “on deck” only in closed cargo transport units on a passenger vessel.

(19) Stowage category “14” means the material may be stowed “on deck” in closed cargo transport units on a cargo vessel (up to 12 passengers) but the material is prohibited on a passenger vessel.

(20) Stowage category “15” means the material may be stowed “on deck” in closed cargo transport units or “under deck” in closed cargo transport units on a cargo vessel (up to 12 passengers) but the material is prohibited on a passenger vessel.

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BILLING CODE 4910-60-P

§ 172.101 HAZARDOUS MATERIALS TABLE

Sym-bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age	
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	<i>Accellerene, see p-Nitrosodimethylaniline.</i>												
	<i>Accumulators, electric, see Batteries, wet etc.</i>												
	Acetal	3	UN1088		3	IB2, T4, TP1	150	202	242	5 L	60 L	E	
	Acetaldehyde	3	UN1089	I	3	A3, B16, T11, TP2, TP7	None	201	243	Forbidden	30 L	E	
A	Acetaldehyde ammonia	9	UN1841	III	9	IB8, IP6	155	204	240	200 kg	200 kg	A	34
	Acetaldehyde oxime	3	UN2332	III	3	B1, IB3, T4, TP1	150	203	242	60 L	220 L	A	
	Acetic acid, glacial or Acetic acid solution, with more than 80 percent acid, by mass.	8	UN2789	II	8, 3	A3, A6, A7, A10, B2, IB2, T7, TP2	154	202	243	1 L	30 L	A	
	Acetic acid solution, not less than 50 percent but not more than 80 percent acid, by mass.	8	UN2790	II	8	A3, A6, A7, A10, B2, IB2, T7, TP2	154	202	242	1 L	30 L	A	
	Acetic acid solution, with more than 10 percent and less than 50 percent acid, by mass.	8	UN2790	III	8	IB3, T4, TP1	154	203	242	5 L	60 L	A	
	Acetic anhydride	8	UN1715	II	8, 3	A3, A6, A7, A10, B2, IB2, T7, TP2	154	202	243	1 L	30 L	A	40
	Acetone	3	UN1090	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	
	Acetone cyanohydrin, stabilized	6.1	UN1541	I	6.1	2, A3, B9, B14, B32, B76, B77, N34, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	D	25, 40, 49
	Acetone oils	3	UN1091	II	3	IB2, T4, TP1, TP8	150	202	242	5 L	60 L	B	
	Acetonitrile	3	UN1648	II	3	IB2, T7, TP2	150	202	242	5L	60 L	B	40
	Acetyl acetone peroxide with more than 9 percent by mass active oxygen.	Forbidden											
	Acetyl benzoyl peroxide, solid, or with more than 40 percent in solution.	Forbidden											
	Acetyl bromide	8	UN1716	II	8	B2, IB2, T8, TP2, TP12	154	202	242	1 L	30 L	C	40
	Acetyl chloride	3	UN1717	II	3, 8	A3, A6, A7, IB1, N34, T8, TP2, TP12	None	202	243	1 L	5 L	B	40
	Acetyl cyclohexanesulfonyl peroxide, with more than 82 percent wetted with less than 12 percent water.	Forbidden											
	Acetyl iodide	8	UN1898	II	8	B2, IB2, T7, TP2, TP13	154	202	242	1 L	30 L	C	40
	Acetyl methyl carbinol	3	UN2621	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
	Acetyl peroxide, solid, or with more than 25 percent in solution.	Forbidden											
	Acetylene, dissolved	2.1	UN1001		2.1		None	303	None	Forbidden	15 kg	D	25, 40, 57
	Acetylene (liquefied)	Forbidden											
	Acetylene silver nitrate	Forbidden											
	Acetylene tetrabromide, see Tetrabromoethane.												
	Acid butyl phosphate, see Butyl acid phosphate.												
	Acid, sludge, see Sludge acid												
	Acridine	6.1	UN2713	III	6.1	IB8, IP3	153	213	240	100 kg	200 kg	A	
	Acrolein dimer, stabilized	3	UN2607	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	40
	Acrolein, stabilized	6.1	UN1092	I	6.1, 3	1, B9, B14, B30, B42, B72, B77, T22, TP2, TP7, TP13, TP38, TP44	None	226	244	Forbidden	Forbidden	D	40
	Acrylamide	6.1	UN2074	III	6.1	IB8, IP3, T4, TP1	153	213	240	100 kg	200 kg	A	12
	Acrylic acid, stabilized	8	UN2218	II	8, 3	B2, IB2, T7, TP2	154	202	243	1 L	30 L	C	25, 40
	Acrylonitrile, stabilized	3	UN1093	I	3, 6.1	B9, T14, TP2, TP13	None	201	243	Forbidden	30 L	E	40
	Actuating cartridge, explosive, see Cartridges, power device.												
	Adhesives, containing a flammable liquid.	3	UN1133	I	3	B42, T11, TP1, TP8, TP27	150	201	243	1 L	30 L	B	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym-bols (1)	Hazardous materials descriptions and proper shipping names (2)	Hazard class or Division (3)	Identifica-tion Num-bers (4)	PG (5)	Label Codes (6)	Special provisions (§172.102) (7)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow-age	
							Excep-tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air-craft only	Loca-tion	Other
							(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
				II	3	B52, IB2, T4, TP1, TP8	150	173	242	5 L	60 L	B	
				III	3	B1, B52, IB3, T2, TP1	150	173	242	60 L	220 L	A	
	Adiponitrile	6.1	UN2205	III	6.1	IB3, T3, TP1	153	203	241	60 L	220 L	A	
	Aerosols, corrosive, Packing Group II or III, (each not exceeding 1 L capacity).	2.2	UN1950		2.2, 8	A34	306	None	None	75 kg	150 kg	A	40, 48, 85
	Aerosols, flammable, (each not exceeding 1 L capacity).	2.1	UN1950		2.1	N82	306	None	None	75 kg	150 kg	A	40, 48, 85
	Aerosols, flammable, n.o.s. (engine starting fluid) (each not exceeding 1 L capacity).	2.1	UN1950		2.1	N82	306	None	None	Forbidden	150 kg	A	40, 48, 85
	Aerosols, non-flammable, (each not exceeding 1 L capacity).	2.2	UN1950		2.2		306, 307	None	None	75 kg	150 kg	A	48, 85
	Aerosols, poison, each not exceeding 1 L capacity.	2.2	UN1950		2.2		306	None	None	Forbidden	Forbidden	A	40, 48, 85
	Air bag inflators, compressed gas or Air bag modules, compressed gas or Seat-belt pretensioners, compressed gas.	2.2	UN3353		2.2	133	166	166	166	75 kg	150 kg	A	
	Air bag inflators, pyrotechnic or Air bag modules, pyrotechnic or Seat-belt pretensioner, pyrotechnic.	1.4G	UN0503	II	1.4G		166	166	166	Forbidden	75 kg	02	24E
	Air bag inflators, pyrotechnic or Air bag modules, pyrotechnic or Seat-belt pretensioner, pyrotechnic.	9	UN3268	III	9		166	166	166	25 kg	100 kg	A	
	Air, compressed	2.2	UN1002		2.2	78	306	302	302	75 kg	150 kg	A	
	Air, refrigerated liquid, (cryogenic liquid).	2.2	UN1003		2.2, 5.1	T75, TP5, TP22	320	316	318, 319	Forbidden	150 kg	D	51
	Air, refrigerated liquid, (cryogenic liquid) non-pressurized.	2.2	UN1003		2.2, 5.1	T75, TP5, TP22	320	316	318, 319	Forbidden	Forbidden	D	51
	Aircraft engines (including turbines), see Engines, internal combustion.												
	Aircraft evacuation slides, see Life saving appliances etc.												
	Aircraft hydraulic power unit fuel tank (containing a mixture of anhydrous hydrazine and monomethyl hydrazine) (M86 fuel).	3	UN3165	I	3, 6.1, 8.		None	172	None	Forbidden	42 L	E	
	Aircraft survival kits, see Life saving appliances etc.												
G	Alcoholates solution, n.o.s., in alcohol.	3	UN3274	II	3, 8	IB2	None	202	243	1 L	5 L	B	
	Alcoholic beverages	3	UN3065	II	3	24, B1, IB2, T4, TP1	150	202	242	5 L	60 L	A	
				III	3	24, B1, IB3, N11, T2, TP1	150	203	242	60 L	220 L	A	
	Alcohols, n.o.s.	3	UN1987	I	3	T11, TP1, TP8, TP27	None	201	243	1 L	30 L	E	
				II	3	IB2, T7, TP1, TP8, TP28	150	202	242	5 L	60 L	B	
				III	3	B1, IB3, T4, TP1, TP29	150	203	242	60 L	220 L	A	
G	Alcohols, flammable, toxic, n.o.s.	3	UN1986	I	3, 6.1	T14, TP2, TP13, TP27	None	201	243	Forbidden	30 L	E	40
				II	3, 6.1	IB2, T11, TP2, TP27	None	202	243	1 L	60 L	B	40
				III	3, 6.1	B1, IB3, T7, TP1, TP28	None	203	242	60 L	220 L	A	
	Aldehydes, n.o.s.	3	UN1989	I	3	T11, TP1, TP27	None	201	243	1 L	30 L	E	
				II	3	IB2, T7, TP1, TP8, TP28	150	202	242	5 L	60 L	B	
				III	3	B1, IB3, T4, TP1, TP29	150	203	242	60 L	220 L	A	
G	Aldehydes, flammable, toxic, n.o.s.	3	UN1988	I	3, 6.1	T14, TP2, TP13, TP27	None	201	243	Forbidden	30 L	E	40
				II	3, 6.1	IB2, T11, TP2, TP27	None	202	243	1 L	60 L	B	40
				III	3, 6.1	B1, IB3, T7, TP1, TP28	150	203	242	60 L	220 L	A	
	Aldol	6.1	UN2839	II	6.1	IB2, T7, TP2	None	202	243	5 L	60 L	A	12
G	Alkali metal alcoholates, self-heating, corrosive, n.o.s.	4.2	UN3206	II	4.2, 8	64, IB5, IP2	None	212	242	15 kg	50 kg	B	
				III	4.2, 8	64, IB8, IP3	None	213	242	25 kg	100 kg	B	
	Alkali metal alloys, liquid, n.o.s.	4.3	UN1421	I	4.3	A2, A3, B48, N34	None	201	244	Forbidden	1 L	D	
	Alkali metal amalgam, liquid	4.3	UN1389	I	4.3	A2, A3, N34	None	201	244	Forbidden	1 L	D	40
	Alkali metal amalgam, solid	4.3	UN1389	I	4.3	IB4, IP1, N40	None	211	242	Forbidden	15 kg	D	
	Alkali metal amides	4.3	UN1390	II	4.3	A6, A7, A8, A19, A20, IB7, IP2	151	212	241	15 kg	50 kg	E	40
	Alkali metal dispersions, or Alkaline earth metal dispersions.	4.3	UN1391	I	4.3	A2, A3	None	201	244	Forbidden	1 L	D	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym- bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age			
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)		
G	<i>Alkaline corrosive liquids, n.o.s., see Caustic alkali liquids, n.o.s.</i>	4.2	UN3205	II	4.2	65, IB6, IP2	None	212	241	15 kg	50 kg	B			
	Alkaline earth metal alcoholates, n.o.s.				4.2	65, IB8, IP3	None	213	241	25 kg	100 kg	B			
	Alkaline earth metal alloys, n.o.s.				4.3	A19, IB7, IP2	151	212	241	15 kg	50 kg	E			
G	Alkaline earth metal amalgams	4.3	UN1392	I	4.3	A19, IB4, IP1, N34, N40	None	211	242	Forbidden	15 kg	D			
	Alkaloids, liquid, n.o.s., or Alkaloid salts, liquid, n.o.s.	6.1	UN3140	I	6.1	A4, T14, TP2, TP27	None	201	243	1 L	30 L	A			
					6.1	IB2, T11, TP2, TP27	None	202	243	5 L	60 L	A			
	6.1				IB3, T7, TP1, TP28	153	203	241	60 L	220 L	A				
G	Alkaloids, solid, n.o.s. or Alkaloid salts, solid, n.o.s. <i>poisonous.</i>	6.1	UN1544	I	6.1	IB7, IP1	None	211	242	5 kg	50 kg	A			
		8	UN2584	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A			
Alkyl sulfonic acids, liquid or Aryl sulfonic acids, liquid with more than 5 percent free sulfuric acid.	8				II	8	B2, IB2, T8, TP2, TP12, TP13	154	202	242	1 L	30 L	B		
	Alkyl sulfonic acids, liquid or Aryl sulfonic acids, liquid with not more than 5 percent free sulfuric acid.	8	UN2586	III	8	IB3, T4, TP1	154	203	241	5 L	60 L	B			
	Alkyl sulfonic acids, solid or Aryl sulfonic acids, solid, with more than 5 percent free sulfuric acid.	8	UN2583	II	8	IB8, IP2, IP4	154	212	240	15 kg	50 kg	A			
	Alkyl sulfonic acids, solid or Aryl sulfonic acids, solid with not more than 5 percent free sulfuric acid.	8	UN2585	III	8	IB8, IP3	154	213	240	25 kg	100 kg	A			
	Alkylphenols, liquid, n.o.s. (<i>including C2-C12 homologues.</i>)	8	UN3145	I	8	T14, TP2	None	201	243	0.5 L	2.5 L	B			
					8	II	8	IB2, T11, TP2, TP27	154	202	242	1 L	30 L	B	
					8	III	8	IB3, T7, TP1, TP28	154	203	241	5 L	60 L	A	
	Alkylphenols, solid, n.o.s. (<i>including C2-C12 homologues.</i>)	8	UN2430	I	8	IB7, IP1, T10, TP2, TP28	None	211	242	1 kg	25 kg	B			
		8	UN2571	II	8	IB8, IP2, IP4, T3, TP2	154	212	240	15 kg	50 kg	B			
	Alkylsulfuric acids				8	III	8	IB8, IP3, T3, TP1	154	213	240	25 kg	100 kg	A	
					8	B2, IB2, T8, TP2, TP12, TP13	154	202	242	1 L	30 L	C	14		
	<i>Allethrin, see Pesticides, liquid, toxic, n.o.s.</i>														
	Allyl acetate	3	UN2333	II	3, 6.1	IB2, T7, TP1, TP13	None	202	243	1 L	60 L	E	40		
	Allyl alcohol	6.1	UN1098	I	6.1, 3	2, B9, B14, B32, B74, B77, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	D	40		
	Allyl bromide	3	UN1099	I	3, 6.1	T14, TP2, TP13	None	201	243	Forbidden	30 L	B	40		
	Allyl chloride	3	UN1100	I	3, 6.1	T14, TP2, TP13	None	201	243	Forbidden	30 L	E	40		
	<i>Allyl chlorocarbonate, see Allyl chloroformate.</i>														
	Allyl chloroformate	6.1	UN1722	I	6.1, 3, 8	2, A3, B9, B14, B32, B74, N41, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	D	40		
	Allyl ethyl ether	3	UN2335	II	3, 6.1	IB2, T7, TP1, TP13	None	202	243	1 L	60 L	E	40		
	Allyl formate	3	UN2336	I	3, 6.1	T14, TP2, TP13	None	201	243	Forbidden	30 L	E	40		
	Allyl glycidyl ether	3	UN2219	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A			
	Allyl iodide	3	UN1723	II	3, 8	A3, A6, IB1, N34, T7, TP2, TP13	None	202	243	1 L	5 L	B	40		
	Allyl isothiocyanate, stabilized	6.1	UN1545	II	6.1, 3	A3, A7, IB2, T7, TP2	None	202	243	Forbidden	60 L	D	40		
	Allylamine	6.1	UN2334	I	6.1, 3	2, B9, B14, B32, B74, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	D	40		
	Allyltrichlorosilane, stabilized	8	UN1724	II	8, 3	A7, B2, B6, IB2, N34, T7, TP2, TP13	None	202	243	Forbidden	30 L	C	40		
	Aluminum alkyl halides	4.2	UN3052	I	4.2, 4.3	B9, B11, T21, TP2, TP7	None	181	244	Forbidden	Forbidden	D			
	Aluminum alkyl hydrides	4.2	UN3076	I	4.2, 4.3	B9, B11, T21, TP2, TP7	None	181	244	Forbidden	Forbidden	D			
	Aluminum alkyls	4.2	UN3051	I	4.2, 4.3	B9, B11, T21, TP2, TP7	None	181	244	Forbidden	Forbidden	D			
	Aluminum borohydride or Aluminum borohydride in devices.	4.2	UN2870	I	4.2, 4.3	B11	None	181	244	Forbidden	Forbidden	D			
	Aluminum bromide, anhydrous	8	UN1725	II	8	IB8, IP2, IP4	154	212	240	15 kg	50 kg	A	40		
	Aluminum bromide, solution	8	UN2580	III	8	IB3, T4, TP1	154	203	241	5 L	60 L	A			
	Aluminum carbide	4.3	UN1394	II	4.3	A20, IB7, IP2, N41	151	212	242	15 kg	50 kg	A			

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym- bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age		
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	
D	Aluminum chloride, anhydrous	8	UN1726	II	8	IB8, IP2, IP4	154	212	240	15 kg	50 kg	A	40	
	Aluminum chloride, solution	8	UN2581	III	8	IB3, T4, TP1	154	203	241	5 L	60 L	A		
	Aluminum dross, wet or hot	Forbidden												
	Aluminum ferrosilicon powder	4.3	UN1395	II	4.3, 6.1	A19, IB5, IP2	151	212	242	15 kg	50 kg	A	40, 85, 103	
	.....			III	4.3, 6.1	A19, A20, IB4	151	213	241	25 kg	100 kg	A	40, 85, 103
	Aluminum hydride	4.3	UN2463	I	4.3	A19, N40	None	211	242	Forbidden	15 kg	E		
	Aluminum, molten	9	NA9260	III	9	IB3, T1, TP3	None	None	247	Forbidden	Forbidden	D		
	Aluminum nitrate	5.1	UN1438	III	5.1	A1, A29, IB8, IP3	152	213	240	25 kg	100 kg	A		
	Aluminum phosphate solution, see Corrosive liquids, etc.													
	Aluminum phosphide	4.3	UN1397	I	4.3, 6.1	A8, A19, N40	None	211	242	Forbidden	15 kg	E	40, 85	
	Aluminum phosphide pesticides ..	6.1	UN3048	I	6.1	A8, IB7, IP1	None	211	242	Forbidden	15 kg	E	40, 85	
	Aluminum powder, coated	4.1	UN1309	II	4.1	IB8, IP2, IP4	151	212	240	15 kg	50 kg	A	13, 39, 101	
	.....			III	4.1	IB8, IP3	151	213	240	25 kg	100 kg	A	13, 39, 101
	Aluminum powder, uncoated	4.3	UN1396	II	4.3	A19, A20, IB7, IP2	151	212	242	15 kg	50 kg	A	39	
	.....			III	4.3	A19, A20, IB8, IP4	151	213	241	25 kg	100 kg	A	39
Aluminum resinate	4.1	UN2715	III	4.1	IB6	151	213	240	25 kg	100 kg	A			
Aluminum silicon powder, uncoated.	4.3	UN1398	III	4.3	A1, A19, IB8, IP4	151	213	241	25 kg	100 kg	A	40, 85, 103		
Aluminum smelting by-products or Aluminum remelting by-pro- ducts.	4.3	UN3170	II	4.3	128, B115, IB7, IP2	None	212	242	15 kg	50 kg	B	85, 103		
.....			III	4.3	128, B115, IB8, IP4	None	213	241	25 kg	100 kg	B	85, 103		
Amatols, see Explosives, blasting, type B.														
G	Amines, flammable, corrosive, n.o.s. or Polyamines, flam- mable, corrosive, n.o.s..	3	UN2733	I	3, 8	T14, TP1, TP27	None	201	243	0.5 L	2.5 L	D	40	
	.....			II	3, 8	IB2, T11, TP1, TP27	None	202	243	1 L	5 L	B	40
	.....			III	3, 8	B1, IB3, T7, TP1, TP28	150	203	242	5 L	60 L	A	40
G	Amines, liquid, corrosive, flam- mable, n.o.s. or Polyamines, liquid, corrosive, flammable, n.o.s..	8	UN2734	I	8, 3	A3, A6, N34, T14, TP2, TP27	None	201	243	0.5 L	2.5 L	A		
	.....			II	8, 3	IB2, T11, TP2, TP27	None	202	243	1 L	30 L	A	
G	Amines, liquid, corrosive, n.o.s. or Polyamines, liquid, corrosive, n.o.s..	8	UN2735	I	8	A3, A6, B10, N34, T14, TP2, TP27	None	201	243	0.5 L	2.5 L	A		
	.....			II	8	B2, IB2, T11, TP1, TP27	154	202	242	1 L	30 L	A	
	.....			III	8	IB3, T7, TP1, TP28	154	203	241	5 L	60 L	A	
G	Amines, solid, corrosive, n.o.s., or Polyamines, solid, corrosive n.o.s..	8	UN3259	I	8	IB7, IP1	None	211	242	1 kg	25 kg	A		
	.....			II	8	IB8, IP2, IP4	154	212	240	15 kg	50 kg	A	
+	2-Amino-4-chlorophenol	6.1	UN2673	III	6.1	IB8, IP3	154	213	240	25 kg	100 kg	A		
	2-Amino-5-diethylaminopentane ..	6.1	UN2946	III	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A		
	2-Amino-4,6-Dinitrophenol, wetted with not less than 20 percent water by mass.	4.1	UN3317	I	4.1	IB3, T4, TP1	153	203	241	60 L	220 L	A		
	.....					23, A8, A19, A20, N41	None	211	None	1 kg	15 kg	E	28, 36
	2-(2-Aminoethoxy) ethanol	8	UN3055	III	8	IB3, T4, TP1	154	203	241	5 L	60 L	A		
	N-Aminoethylpiperazine	8	UN2815	III	8	IB3, T4, TP1	154	203	241	5 L	60 L	A	12	
	Aminophenols (o-; m-; p-)	6.1	UN2512	III	6.1	IB8, IP3, T4, TP1	153	213	240	100 kg	200 kg	A		
	Aminopropylmethanamine, see Amines, etc.													
	n-Aminopropylmorpholine, see Amines, etc.													
	Aminopyridines (o-; m-; p-)	6.1	UN2671	II	6.1	IB8, IP2, IP4, T7, TP2	None	212	242	25 kg	100 kg	B	12, 40	
	I	Ammonia, anhydrous	2.3	UN1005		2.3, 8	4, T50	None	304	314, 315	Forbidden	25 kg	D	40, 57
	D	Ammonia, anhydrous	2.2	UN1005		2.2	13, T50	None	304	314, 315	Forbidden	25 kg	D	40, 57
D	Ammonia solution, relative den- sity less than 0.880 at 15 de- grees C in water, with more than 50 percent ammonia.	2.2	UN3318		2.2	13, T50	None	304	314, 315	Forbidden	25 kg	D	40, 57	
I	Ammonia solution, relative den- sity less than 0.880 at 15 de- grees C in water, with more than 50 percent ammonia.	2.3	UN3318		2.3, 8	4, T50	None	304	314, 315	Forbidden	25 kg	D	40, 57	
	Ammonia solutions, relative den- sity between 0.880 and 0.957 at 15 degrees C in water, with more than 10 percent but not more than 35 percent ammonia.	8	UN2672	III	8	IB3, T7, TP1	154	203	241	5 L	60 L	A	40, 85	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym-bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age	
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Ammonia solutions, <i>relative density less than 0.880 at 15 degrees C in water, with more than 35 percent but not more than 50 percent ammonia.</i>	2.2	UN2073	.....	2.2	.....	306	304	314, 315	Forbidden	150 kg	E	40, 57
	Ammonium arsenate	6.1	UN1546	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A	.....
	Ammonium azide	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Ammonium bifluoride, solid, see Ammonium hydrogen difluoride, solid.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Ammonium bifluoride solution, see Ammonium hydrogen difluoride, solution.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Ammonium bromate	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Ammonium chlorate	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Ammonium dichromate	5.1	UN1439	II	5.1	IB8, IP2, IP4	152	212	242	5 kg	25 kg	A	.....
	Ammonium dinitro-o-cresolate	6.1	UN1843	II	6.1	IB8, IP2, IP4, T7, TP2	None	212	242	25 kg	100 kg	B	36, 65, 66, 77
	Ammonium fluoride	6.1	UN2505	III	6.1	IB8, IP3	153	213	240	100 kg	200 kg	A	26
	Ammonium fluorosilicate	6.1	UN2854	III	6.1	IB8, IP3	153	213	240	100 kg	200 kg	A	26
	Ammonium fulminate	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Ammonium hydrogen sulfate	8	UN2506	II	8	IB8, IP2, IP4	154	212	240	15 kg	50 kg	A	40
	Ammonium hydrogendifluoride, solid.	8	UN1727	II	8	IB8, IP2, IP4, N34	154	212	240	15 kg	50 kg	A	25, 26, 40
	Ammonium hydrogendifluoride, solution.	8	UN2817	II	8, 6.1	IB2, N34, T8, TP2, TP12, TP13	None	202	243	1 L	30 L	B	40
	.....	.....	.....	III	8, 6.1	IB3, T4, TP1, TP12, TP13	154	203	241	5 L	60 L	B	40, 95
	Ammonium hydrosulfide, solution, see Ammonium sulfide solution.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
D	Ammonium hydroxide, see Ammonia solutions, etc.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Ammonium metavanadate	6.1	UN2859	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A	.....
D	Ammonium nitrate fertilizers	5.1	NA2072	III	5.1	7, IB8	152	213	240	25 kg	100 kg	B	48, 59, 60, 117
	Ammonium nitrate fertilizers; <i>uniform non-segregating mixtures of ammonium nitrate with added matter which is inorganic and chemically inert towards ammonium nitrate, with not less than 90 percent ammonium nitrate and not more than 0.2 percent combustible material (including organic material calculated as carbon), or with more than 70 percent but less than 90 percent ammonium nitrate and not more than 0.4 percent total combustible material.</i>	5.1	UN2067	III	5.1	52, IB8, IP3	152	213	240	25 kg	100 kg	B	48, 59, 60, 117
A W	Ammonium nitrate fertilizers; <i>uniform non-segregating mixtures of nitrogen/phosphate or nitrogen/postash types or complete fertilizers of nitrogen/phosphate/postash type, with not more than 70 percent ammonium nitrate and not more than 0.4 percent total added combustible material or with not more than 45 percent ammonium nitrate with unrestricted combustible material.</i>	9	UN2071	III	9	132, IB8	155	213	240	200 kg	200 kg	A	.....
D	Ammonium nitrate-fuel oil mixture containing only prilled ammonium nitrate and fuel oil.	1.5D	NA0331	II	1.5D	.....	None	62	None	Forbidden	Forbidden	10	19E
	Ammonium nitrate, liquid (<i>hot concentrated solution</i>).	5.1	UN2426	.....	5.1	B5, T7	None	None	243	Forbidden	Forbidden	D	59, 60
D	Ammonium nitrate mixed fertilizers	5.1	NA2069	III	5.1	10, IB8	152	213	240	25 kg	100 kg	B	48, 59, 60, 117
	Ammonium nitrate, <i>with more than 0.2 percent combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance.</i>	1.1D	UN0222	II	1.1D	.....	None	62	None	Forbidden	Forbidden	10	19E
	Ammonium nitrate, <i>with not more than 0.2 percent of combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance.</i>	5.1	UN1942	III	5.1	A1, A29, IB8, IP3	152	213	240	25 kg	100 kg	A	48, 59, 60, 116
	Ammonium nitrite	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Ammonium perchlorate	1.1D	UN0402	II	1.1D	107	None	62	None	Forbidden	Forbidden	10	19E
	Ammonium perchlorate	5.1	UN1442	II	5.1	107, A9, IB6, IP2	152	212	242	5 kg	25 kg	E	58, 69, 106

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym- bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age	
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	<i>Ammonium permanganate</i>	Forbidden											
	<i>Ammonium persulfate</i>	5.1	UN1444	III	5.1	A1, A29, IB8, IP3	152	213	240	25 kg	100 kg	A	
	<i>Ammonium picrate, dry or wetted with less than 10 percent water, by mass.</i>	1.1D	UN0004	II	1.1D		None	62	None	Forbidden	Forbidden	10	5E, 19E
	<i>Ammonium picrate, wetted with not less than 10 percent water, by mass.</i>	4.1	UN1310	I	4.1	23, A2, N41	None	211	None	0.5 kg	0.5 kg	D	28, 36
	<i>Ammonium polysulfide, solution</i> ..	8	UN2818	II	8, 6.1	IB2, T7, TP2, TP13	None	202	243	1 L	30 L	B	12, 26, 40
	.....			III	8, 6.1	IB3, T4, TP1, TP13	154	203	241	5 L	60 L	B	12, 26, 40
	<i>Ammonium polyvanadate</i>	6.1	UN2861	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A	
	<i>Ammonium silicofluoride, see Am- monium fluorosilicate.</i>												
	<i>Ammonium sulfide solution</i>	8	UN2683	II	8, 6.1, 3.	IB1, T7, TP2, TP13	None	202	243	1 L	30 L	B	12, 22, 26, 100
	<i>Ammunition, blank, see Car- tridges for weapons, blank.</i>												
	<i>Ammunition, illuminating with or without burster, expelling charge or propelling charge.</i>	1.2G	UN0171	II	1.2G			62	None	Forbidden	Forbidden	03	
	<i>Ammunition, illuminating with or without burster, expelling charge or propelling charge.</i>	1.3G	UN0254	II	1.3G			62	None	Forbidden	Forbidden	03	
	<i>Ammunition, illuminating with or without burster, expelling charge or propelling charge.</i>	1.4G	UN0297	II	1.4G			62	None	Forbidden	75 kg	02	
	<i>Ammunition, incendiary liquid or gel, with burster, expelling charge or propelling charge.</i>	1.3J	UN0247	II	1.3J			62	None	Forbidden	Forbidden	04	23E
	<i>Ammunition, incendiary (water-acti- vated contrivances) with burst- er, expelling charge or propel- ling charge, see Contrivances, water-activated, etc..</i>												
	<i>Ammunition, incendiary, white phosphorus, with burster, ex- pelling charge or propelling charge.</i>	1.2H	UN0243	II	1.2H			62	None	Forbidden	Forbidden	08	8E, 14E, 15E, 17E
	<i>Ammunition, incendiary, white phosphorus, with burster, ex- pelling charge or propelling charge.</i>	1.3H	UN0244	II	1.3H			62	None	Forbidden	Forbidden	08	8E, 14E, 15E, 17E
	<i>Ammunition, incendiary with or without burster, expelling charge, or propelling charge.</i>	1.2G	UN0009	II	1.2G			62	None	Forbidden	Forbidden	03	
	<i>Ammunition, incendiary with or without burster, expelling charge, or propelling charge.</i>	1.3G	UN0010	II	1.3G			62	None	Forbidden	Forbidden	03	
	<i>Ammunition, incendiary with or without burster, expelling charge or propelling charge.</i>	1.4G	UN0300	II	1.4G			62	None	Forbidden	75 kg	02	
	<i>Ammunition, practice</i>	1.4G	UN0362	II	1.4G			62	None	Forbidden	75 kg	02	
	<i>Ammunition, practice</i>	1.3G	UN0488	II	1.3G			62	None	Forbidden	Forbidden	03	
	<i>Ammunition, proof</i>	1.4G	UN0363	II	1.4G			62	None	Forbidden	75 kg	02	
	<i>Ammunition, rocket, see War- heads, rocket etc.</i>												
	<i>Ammunition, SA (small arms), see Cartridges for weapons, etc.</i>												
	<i>Ammunition, smoke (water-acti- vated contrivances), white phosphorus, with burster, ex- pelling charge or propelling charge, see Contrivances, water-activated, etc. (UN 0248).</i>												
	<i>Ammunition, smoke (water-acti- vated contrivances), without white phosphorus or phosphides, with burster, expel- ling charge or propelling charge, see Contrivances, water-activated, etc. (UN 0249).</i>												
	<i>Ammunition smoke, white phos- phorus with burster,expelling charge, or propelling charge.</i>	1.2H	UN0245	II	1.2H			62	None	Forbidden	Forbidden	08	8E, 14E, 15E, 17E
	<i>Ammunition, smoke, white phos- phorus with burster, expelling charge, or propelling charge.</i>	1.3H	UN0246	II	1.3H			62	None	Forbidden	Forbidden	08	8E, 14E, 15E, 17E
	<i>Ammunition, smoke with or with- out burster, expelling charge or propelling charge.</i>	1.2G	UN0015	II	1.2G, 8			62	None	Forbidden	Forbidden		8E, 17E, 20E

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym- bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age	
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Ammunition, smoke with or without burster, expelling charge or propelling charge.	1.3G	UN0016	II	1.3G, 8		.....	62	None	Forbidden	Forbidden		8E, 17E, 20E
	Ammunition, smoke with or without burster, expelling charge or propelling charge.	1.4G	UN0303	II	1.4G, 8		.....	62	None	Forbidden	75 kg		7E, 8E, 14E, 15E, 17E
	Ammunition, sporting, see Cartridges for weapons, etc. (UN 0012; UN 0328; UN 0339).						.....					
	Ammunition, tear-producing, non-explosive, without burster or expelling charge, non-fuzed.	6.1	UN2017	II	6.1, 8		None	212	None	Forbidden	50 kg	E	13, 40
	Ammunition, tear-producing with burster, expelling charge or propelling charge.	1.2G	UN0018	II	1.2G, 8, 6.1.		.....	62	None	Forbidden	Forbidden		8E, 17E, 20E
	Ammunition, tear-producing with burster, expelling charge or propelling charge.	1.3G	UN0019	II	1.3G, 8, 6.1.		.....	62	None	Forbidden	Forbidden		8E, 17E, 20E
	Ammunition, tear-producing with burster, expelling charge or propelling charge.	1.4G	UN0301	II	1.4G, 8, 6.1.		.....	62	None	Forbidden	75 kg		7E, 8E, 14E, 15E, 17E
	Ammunition, toxic, non-explosive, without burster or expelling charge, non-fuzed.	6.1	UN2016	II	6.1		None	212	None	Forbidden	100 kg	E	13, 40
	Ammunition, toxic (water-activated contrivances), with burster, expelling charge or propelling charge, see Contrivances, water-activated, etc.						.....					
G	Ammunition, toxic with burster, expelling charge, or propelling charge.	1.2K	UN0020	II	1.2K, 6.1.		.....	62	None	Forbidden	Forbidden	08	8E, 14E, 15E, 17E
G	Ammunition, toxic with burster, expelling charge, or propelling charge.	1.3K	UN0021	II	1.3K, 6.1.		.....	62	None	Forbidden	Forbidden	08	8E, 14E, 15E, 17E
	Amyl acetates	3	UN1104	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
	Amyl acid phosphate	8	UN2819	III	8	IB3, T4, TP1	154	203	241	5 L	60 L	A	
	Amyl butyrates	3	UN2620	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
	Amyl chlorides	3	UN1107	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	
	Amyl formates	3	UN1109	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
	Amyl mercaptans	3	UN1111	II	3	A3, IB2, T4, TP1	None	202	242	5 L	60 L	B	95, 102
	n-Amyl methyl ketone	3	UN1110	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
	Amyl nitrate	3	UN1112	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	40
	Amyl nitrites	3	UN1113	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	E	40
	Amylamines	3	UN1106	II	3, 8	IB2, T7, TP1	None	202	243	1 L	5 L	B	
				III	3, 8	B1, IB3, T4, TP1	150	203	242	5 L	60 L	A	
	Amyltrichlorosilane	8	UN1728	II	8	A7, B2, B6, IB2, N34, T7, TP2, TP13	None	202	242	Forbidden	30 L	C	40
	Anhydrous ammonia, see Ammonia, anhydrous.						.....					
	Anhydrous hydrofluoric acid, see Hydrogen fluoride, anhydrous.						.....					
+	Aniline	6.1	UN1547	II	6.1	IB2, T7, TP2	None	202	243	5 L	60 L	A	40
	Aniline hydrochloride	6.1	UN1548	III	6.1	IB8, IP3	153	213	240	100 kg	200 kg	A	
	Aniline oil, see Aniline						.....					
	Anisidines	6.1	UN2431	III	6.1	IB3, T4, TP1	153	203	241	60 L	220 L	A	
	Anisole	3	UN2222	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
	Anisoyl chloride	8	UN1729	II	8	B2, IB2, T7, TP2	154	202	242	1 L	30 L	C	40
	Anti-freeze, liquid, see Flammable liquids, n.o.s..						.....					
	Antimonous chloride, see Antimony trichloride.						.....					
	Antimony compounds, inorganic, liquid, n.o.s..	6.1	UN3141	III	6.1	35, IB3, T7, TP1, TP28	153	203	241	60 L	220 L	A	
	Antimony compounds, inorganic, solid, n.o.s..	6.1	UN1549	III	6.1	35, IB8, IP3	153	213	240	100 kg	200 kg	A	
	Antimony lactate	6.1	UN1550	III	6.1	IB8, IP3	153	213	240	100 kg	200 kg	A	
	Antimony pentachloride, liquid	8	UN1730	II	8	B2, IB2, T7, TP2	None	202	242	1 L	30 L	C	40
	Antimony pentachloride, solutions	8	UN1731	II	8	B2, IB2, T7, TP2	154	202	242	1 L	30 L	C	40
				III	8	IB3, T4, TP1	154	203	241	5 L	60 L	C	40
	Antimony pentafluoride	8	UN1732	II	8, 6.1	A3, A6, A7, A10, IB2, N3, T7, TP2	None	202	243	Forbidden	30 L	D	40
	Antimony potassium tartrate	6.1	UN1551	III	6.1	IB8, IP3	153	213	240	100 kg	200 kg	A	
	Antimony powder	6.1	UN2871	III	6.1	IB8, IP3	153	213	240	100 kg	200 kg	A	
	Antimony sulfide and a chlorate, mixtures of.	Forbidden					.....					
	Antimony sulfide, solid, see Antimony compounds, inorganic, n.o.s..						.....					
	Antimony trichloride, liquid	8	UN1733	II	8	B2, IB2	154	202	242	1 L	30 L	C	40
	Antimony trichloride, solid	8	UN1733	II	8	IB8, IP2, IP4	154	212	240	15 kg	50 kg	A	40

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym- bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age	
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other
							(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	<i>Aqua ammonia, see Ammonia so- lution, etc.</i>												
	Argon, compressed	2.2	UN1006		2.2		306	302	314, 315	75 kg	150 kg	A	
	Argon, refrigerated liquid (<i>cry- ogenic liquid</i>).	2.2	UN1951		2.2	T75, TP5	320	316	318	50 kg	500 kg	B	
	Arsenic	6.1	UN1558	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A	
	Arsenic acid, liquid	6.1	UN1553	I	6.1	T20, TP2, TP7, TP13	None	201	243	1 L	30 L	B	46
	Arsenic acid, solid	6.1	UN1554	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A	
	Arsenic bromide	6.1	UN1555	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A	12, 40
	<i>Arsenic chloride, see Arsenic tri- chloride.</i>												
	Arsenic compounds, liquid, n.o.s. <i>inorganic, including arsenates, n.o.s.; arsenites, n.o.s.; arsenic sulfides, n.o.s.; and organic compounds of arsenic, n.o.s..</i>	6.1	UN1556	I	6.1		None	201	243	1 L	30 L	B	40
				II	6.1	IB2	None	202	243	5 L	60 L	B	40
				III	6.1	IB3	153	203	241	60 L	220 L	B	40
	Arsenic compounds, solid, n.o.s. <i>inorganic, including arsenates, n.o.s.; arsenites, n.o.s.; arsenic sulfides, n.o.s.; and organic compounds of arsenic, n.o.s..</i>	6.1	UN1557	I	6.1	IB7, IP1	None	211	242	5 kg	50 kg	A	
				II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A	
				III	6.1	IB8, IP3	153	213	240	100 kg	200 kg	A	
	Arsenic pentoxide	6.1	UN1559	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A	
	<i>Arsenic sulfide and a chlorate, mixtures of.</i>	Forbidden											
	Arsenic trichloride	6.1	UN1560	I	6.1	2, B9, B14, B32, B74, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	B	40
	Arsenic trioxide	6.1	UN1561	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A	
	<i>Arsenic, white, solid, see Arsenic trioxide.</i>												
	Arsenical dust	6.1	UN1562	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A	
	Arsenical pesticides, liquid, flam- mable, toxic, <i>flash point less than 23 degrees C.</i>	3	UN2760	I	3, 6.1	T14, TP2, TP13, TP27	None	201	243	Forbidden	30 L	B	40
				II	3, 6.1	IB2, T11, TP2, TP13, TP27	None	202	243	1 L	60 L	B	40
	Arsenical pesticides, liquid, toxic	6.1	UN2994	I	6.1	T14, TP2, TP13, TP27	None	201	243	1 L	30 L	B	40
				II	6.1	IB2, T11, TP2, TP13, TP27	None	202	243	5 L	60 L	B	40
				III	6.1	IB3, T7, TP2, TP28	153	203	241	60 L	220 L	A	40
	Arsenical pesticides, liquid, toxic, <i>flammable flash point not less than 23 degrees C.</i>	6.1	UN2993	I	6.1, 3	T14, TP2, TP13, TP27	None	201	243	1 L	30 L	B	40
				II	6.1, 3	IB2, T11, TP2, TP13, TP27	None	202	243	5 L	60 L	B	40
				III	6.1, 3	B1, IB3, T7, TP2, TP28	153	203	242	60 L	220 L	A	40
	Arsenical pesticides, solid, toxic	6.1	UN2759	I	6.1	IB7, IP1	None	211	242	5 kg	50 kg	A	40
				II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A	40
				III	6.1	IB8, IP3	153	213	240	100 kg	200 kg	A	40
	<i>Arsenious acid, solid, see Arsenic trioxide.</i>												
	<i>Arsenious and mercuric iodide solution, see Arsenic com- pounds, liquid, n.o.s..</i>												
	Arsine	2.3	UN2188		2.3, 2.1	1	None	192	245	Forbidden	Forbidden	D	40
	Articles, explosive, extremely in- sensitive or Articles, EEL	1.6N	UN0486	II	1.6N	101	None	62	None	Forbidden	Forbidden	07	
G	Articles, explosive, n.o.s.	1.4S	UN0349	II	1.4S	101	None	62	None	25 kg	100 kg	05	
G	Articles, explosive, n.o.s.	1.4B	UN0350	II	1.4B	101	None	62	None	Forbidden	Forbidden	06	
G	Articles, explosive, n.o.s.	1.4C	UN0351	II	1.4C	101	None	62	None	Forbidden	75 kg	06	
G	Articles, explosive, n.o.s.	1.4D	UN0352	II	1.4D	101	None	62	None	Forbidden	75 kg	06	
G	Articles, explosive, n.o.s.	1.4G	UN0353	II	1.4G	101	None	62	None	Forbidden	75 kg	06	
G	Articles, explosive, n.o.s.	1.1L	UN0354	II	1.1L	101	None	62	None	Forbidden	Forbidden	08	8E, 14E, 15E, 17E
G	Articles, explosive, n.o.s.	1.2L	UN0355	II	1.2L	101	None	62	None	Forbidden	Forbidden	08	8E, 14E, 15E, 17E
G	Articles, explosive, n.o.s.	1.3L	UN0356	II	1.3L	101	None	62	None	Forbidden	Forbidden	08	8E, 14E, 15E, 17E
G	Articles, explosive, n.o.s.	1.1C	UN0462	II	1.1C	101	None	62	None	Forbidden	Forbidden	07	
G	Articles, explosive, n.o.s.	1.1D	UN0463	II	1.1D	101	None	62	None	Forbidden	Forbidden	07	
G	Articles, explosive, n.o.s.	1.1E	UN0464	II	1.1E	101	None	62	None	Forbidden	Forbidden	07	
G	Articles, explosive, n.o.s.	1.1F	UN0465	II	1.1F	101	None	62	None	Forbidden	Forbidden	08	
G	Articles, explosive, n.o.s.	1.2C	UN0466	II	1.2C	101	None	62	None	Forbidden	Forbidden	07	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym- bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age	
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other
							(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
G	Articles, explosive, n.o.s.	1.2D	UN0467	II	1.2D ...	101	None ...	62 ...	None ...	Forbidden	Forbidden	07	.....
G	Articles, explosive, n.o.s.	1.2E	UN0468	II	1.2E ...	101	None ...	62 ...	None ...	Forbidden	Forbidden	07	.....
G	Articles, explosive, n.o.s.	1.2F	UN0469	II	1.2F ...	101	None ...	62 ...	None ...	Forbidden	Forbidden	08	.....
G	Articles, explosive, n.o.s.	1.3C	UN0470	II	1.3C ...	101	None ...	62 ...	None ...	Forbidden	Forbidden	07	.....
G	Articles, explosive, n.o.s.	1.4E	UN0471	II	1.4E ...	101	None ...	62 ...	None ...	Forbidden	75 kg	06	.....
G	Articles, explosive, n.o.s.	1.4F	UN0472	II	1.4F ...	101	None ...	62 ...	None ...	Forbidden	Forbidden	08	.....
	Articles, pressurized pneumatic or hydraulic containing non-flam- mable gas.	2.2	UN3164	.....	2.2 ...	.....	306 ...	302, 304	None ...	No limit	No limit	A	.....
	Articles, pyrophoric	1.2L	UN0380	II	1.2L ...	.....	None ...	62 ...	None ...	Forbidden	Forbidden	08	8E, 14E, 15E, 17E
	Articles, pyrotechnic for technical purposes.	1.1G	UN0428	II	1.1G ...	.....	None ...	62 ...	None ...	Forbidden	Forbidden	07	.....
	Articles, pyrotechnic for technical purposes.	1.2G	UN0429	II	1.2G ...	.....	None ...	62 ...	None ...	Forbidden	Forbidden	07	.....
	Articles, pyrotechnic for technical purposes.	1.3G	UN0430	II	1.3G ...	.....	None ...	62 ...	None ...	Forbidden	Forbidden	07	.....
	Articles, pyrotechnic for technical purposes.	1.4G	UN0431	II	1.4G ...	.....	None ...	62 ...	None ...	Forbidden	75 kg	06	.....
	Articles, pyrotechnic for technical purposes.	1.4S	UN0432	II	1.4S ...	.....	None ...	62 ...	None ...	25 kg	100 kg	05	.....
D	Asbestos	9	NA2212	III	9	IB8, IP2, IP4	155	216	240	200 kg	200 kg	A	34, 40
D	Ascaridole (organic peroxide)	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
D	Asphalt, at or above its flash point.	3	NA1999	III	3	IB3, T1, TP3	150	203	247	Forbidden	Forbidden	D	.....
D	Asphalt, cut back, see Tars, liq- uid, etc.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Automobile, motorcycle, tractor, other self-propelled vehicle, en- gine, or other mechanical appa- ratus, see Vehicles or Battery etc.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
A G	Aviation regulated liquid, n.o.s.	9	UN3334	.....	9	A35	155	204 .....	.....	No limit	No limit	A	.....
A G	Aviation regulated solid, n.o.s.	9	UN3335	.....	9	A35	155	204 .....	.....	No limit	No limit	A	.....
	Azaurolic acid (salt of) (dry)	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Azido guanidine picrate (dry)	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	5-Azido-1-hydroxy tetrazole	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Azido hydroxy tetrazole (mercury and silver salts).	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	3-Azido-1,2-Propylene glycol dinitrate.	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Azidothiocarbonic acid	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Azidoethyl nitrate	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1-Aziridinylphosphine oxide-(tris), see Tris-(1-aziridinyl) phosphine oxide, solution.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Azodicarbonamide	4.1	UN3242	II	4.1	38, IB8	151	212	240	Forbidden	Forbidden	D	12, 61, 74
	Azotetrazole (dry)	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Barium	4.3	UN1400	II	4.3	A19, IB7, IP2	151	212	241	15 kg	50 kg	E	.....
	Barium alloys, pyrophoric	4.2	UN1854	I	4.2 .....	.....	None ...	181	None ...	Forbidden	Forbidden	D	.....
	Barium azide, dry or wetted with less than 50 percent water, by mass.	1.1A	UN0224	II	1.1A, 6.1.	111, 117	None ...	62	None ...	Forbidden	Forbidden	12	.....
	Barium azide, wetted with not less than 50 percent water, by mass.	4.1	UN1571	I	4.1, 6.1	A2	None ...	182	None ...	Forbidden	0.5 kg	D	28
	Barium bromate	5.1	UN2719	II	5.1, 6.1	IB8, IP2, IP4	None ...	212	242	5 kg	25 kg	A	56, 58, 106
	Barium chlorate	5.1	UN1445	II	5.1, 6.1	A9, IB6, IP2, N34, T4, TP1	None ...	212	242	5 kg	25 kg	A	56, 58, 106
	Barium compounds, n.o.s.	6.1	UN1564	II	6.1	IB8, IP2, IP4	None ...	212	242	25 kg	100 kg	A	.....
	.....	.....	.....	III	6.1	IB8, IP3	153	213	240	100 kg	200 kg	A	.....
	Barium cyanide	6.1	UN1565	I	6.1	IB7, IP1, N74, N75	None ...	211	242	5 kg	50 kg	A	26, 40
	Barium hypochlorite with more than 22 percent available chlo- rine.	5.1	UN2741	II	5.1, 6.1	A7, A9, IB8, IP2, IP4, N34	152	212	None ...	5 kg	25 kg	B	56, 58, 106
	Barium nitrate	5.1	UN1446	II	5.1, 6.1	IB8, IP2, IP4	None ...	212	242	5 kg	25 kg	A	.....
	Barium oxide	6.1	UN1884	III	6.1	IB8, IP3	153	213	240	100 kg	200 kg	A	.....
	Barium perchlorate	5.1	UN1447	II	5.1, 6.1	IB6, IP2, T4, TP1	None ...	212	242	5 kg	25 kg	A	56, 58, 106
	Barium permanganate	5.1	UN1448	II	5.1, 6.1	IB6, IP2	None ...	212	242	5 kg	25 kg	D	56, 58, 69, 106, 107
	Barium peroxide	5.1	UN1449	II	5.1, 6.1	IB6, IP2	None ...	212	242	5 kg	25 kg	A	13, 75, 106
	Barium selenate, see Selenates or Selenites.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Barium selenite, see Selenates or Selenites.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Batteries, containing sodium	4.3	UN3292	II	4.3 .....	.....	189	189	189	Forbidden	No limit	A	.....

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym- bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age	
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Batteries, dry, containing potas- sium hydroxide solid, <i>electric, storage.</i>	8	UN3028	III	8		None	213	None	25 kg gross	230 kg gross	A	
	Batteries, wet, filled with acid, <i>electric storage.</i>	8	UN2794	III	8		159	159	159	30 kg gross	No limit	A	
	Batteries, wet, non-spillable, <i>elec- tric storage.</i>	8	UN2800	III	8		159	159	159	No Limit	No Limit	A	
	Batteries, dry, <i>not subject to the requirements of this subchapter.</i>					130							
	Battery fluid, acid	8	UN2796	II	8	A3, A7, B2, B15, IB2, N6, N34, T8, TP2, TP12	154	202	242	1 L	30 L	B	
	Battery fluid, alkali	8	UN2797	II	8	B2, IB2, N6, T7, TP2	154	202	242	1 L	30 L	A	
	<i>Battery lithium type, see Lithium batteries etc.</i>												
	Battery-powered vehicle or Bat- tery-powered equipment.	9	UN3171		9		220	220	None	No limit	No limit		
	<i>Battery, wet, filled with acid or al- kali with vehicle or mechanical equipment containing an inter- nal combustion engine, see Ve- hicle, etc. or Engines, internal combustion, etc.</i>												
+	Benzaldehyde	9	UN1990	III	9	IB3, T2, TP1	155	203	241	100 L	220 L	A	
	Benzene	3	UN1114	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	40
	<i>Benzene diazonium chloride (dry)</i>	Forbidden											
	<i>Benzene diazonium nitrate (dry)</i>	Forbidden											
	<i>Benzene phosphorus dichloride, see Phenyl phosphorus dichlo- ride.</i>												
	<i>Benzene phosphorus thiodichloride, see Phenyl phosphorus thiodichloride.</i>												
	Benzene sulfonyl chloride	8	UN2225	III	8	IB3, T4, TP1	154	203	241	5 L	60 L	A	40
	<i>Benzene triozonide</i>	Forbidden											
	<i>Benzenethiol, see Phenyl mercaptan.</i>												
	Benzidine	6.1	UN1885	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A	
	<i>Benzol, see Benzene</i>												
	Benzonitrile	6.1	UN2224	II	6.1	IB2, T7, TP2	None	202	243	5 L	60 L	A	26, 40
	Benzoquinone	6.1	UN2587	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A	
	Benzotrichloride	8	UN2226	II	8	B2, IB2, T7, TP2	154	202	242	1 L	30 L	A	40
	Benzotrifluoride	3	UN2338	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	40
	<i>Benzoxiadiazoles (dry)</i>	Forbidden											
	<i>Benzoyl azide</i>	Forbidden											
	Benzoyl chloride	8	UN1736	II	8	B2, IB2, T8, TP2, TP12, TP13	154	202	242	1 L	30 L	C	40
	Benzyl bromide	6.1	UN1737	II	6.1, 8	A3, A7, IB2, N33, N34, T8, TP2, TP12, TP13	None	202	243	1 L	30 L	D	13, 40
	Benzyl chloride	6.1	UN1738	II	6.1, 8	A3, A7, B70, IB2, N33, N42, T8, TP2, TP12, TP13	None	202	243	1 L	30 L	D	13, 40
	Benzyl chloride <i>unstabilized</i>	6.1	UN1738	II	6.1, 8	A3, A7, B8, B11, IB2, N33, N34, N43, T8, TP2, TP12, TP13	None	202	243	1 L	30 L	D	13, 40
	Benzyl chloroformate	8	UN1739	I	8	A3, A6, B4, N41, T10, TP2, TP12, TP13	None	201	243	Forbidden	2.5 L	D	40
	Benzyl iodide	6.1	UN2653	II	6.1	IB2, T7, TP2	None	202	243	5 L	60 L	B	12, 40
	Benzyl dimethylamine	8	UN2619	II	8, 3	B2, IB2, T7, TP2	154	202	243	1 L	30 L	A	40, 48
	Benzylidene chloride	6.1	UN1886	II	6.1	IB2, T7, TP2	None	202	243	5 L	60 L	D	40
	Beryllium compounds, n.o.s.	6.1	UN1566	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A	
				III	6.1	IB8, IP3	153	213	240	100 kg	200 kg	A	
	Beryllium nitrate	5.1	UN2464	II	5.1, 6.1	IB8, IP2, IP4	None	212	242	5 kg	25 kg	A	
	Beryllium, powder	6.1	UN1567	II	6.1, 4.1	IB8, IP2, IP4	None	212	242	15 kg	50 kg	A	
	Bicyclo [2,2,1] hepta-2,5-diene, stabilized or 2,5- Norbomadiene, stabilized.	3	UN2251	II	3	IB2, T7, TP2	150	202	242	5 L	60 L	D	
	<i>Biphenyl triozonide</i>	Forbidden											
	Bipyridilium pesticides, liquid, flammable, toxic, <i>flash point less than 23 degrees C.</i>	3	UN2782	I	3, 6.1	T14, TP2, TP13, TP27	None	201	243	Forbidden	30 L	E	
				II	3, 6.1	IB2, T11, TP2, TP13, TP27	None	202	243	1 L	60 L	B	40
	Bipyridilium pesticides, liquid, toxic.	6.1	UN3016	I	6.1	T14, TP2, TP13, TP27	None	201	243	1 L	30 L	B	40
				II	6.1	IB2, T11, TP2, TP13, TP27	None	202	243	5 L	60 L	B	40
				III	6.1	IB3, T7, TP2, TP28	153	203	241	60 L	220 L	A	40
	Bipyridilium pesticides, liquid, toxic, flammable, <i>flash point not less than 23 degrees C.</i>	6.1	UN3015	I	6.1, 3	T14, TP2, TP13, TP27	None	201	243	1 L	30 L	B	21, 40

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym- bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age	
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
				II	6.1, 3	IB2, T11, TP2, TP13, TP27	None	202	243	5 L	60 L	B	21, 40
				III	6.1, 3	B1, IB3, T7, TP2, TP28	153	203	242	60 L	220 L	A	21, 40
	Bipyridilium pesticides, solid, toxic	6.1	UN2781	I	6.1	IB7, IP1	None	211	242	5 kg	50 kg	A	40
				II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A	40
				III	6.1	IB8, IP3	153	213	240	100 kg	200 kg	A	40
	<i>Bis (Aminopropyl) piperazine, see Corrosive liquid, n.o.s.</i>												
	Bisulfate, aqueous solution	8	UN2837	II	8	A7, B2, IB2, N34, T7, TP2	154	202	242	1 L	30 L	A	
				III	8	A7, IB3, N34, T4, TP1	154	203	241	5 L	60 L	A	
	Bisulfites, aqueous solutions, n.o.s.	8	UN2693	III	8	IB3, T7, TP1, TP28	154	203	241	5 L	60 L	A	26, 40
	Black powder, compressed or Gunpowder, compressed or Black powder, in pellets or Gunpowder, in pellets.	1.1D	UN0028	II	1.1D		None	62	None	Forbidden	Forbidden	10	
	Black powder or Gunpowder, granular or as a meal.	1.1D	UN0027	II	1.1D		None	62	None	Forbidden	Forbidden	10	
D	Black powder for small arms	4.1	NA0027	I	4.1	70	None	170	None	Forbidden	Forbidden	E	
	<i>Blasting agent, n.o.s., see Explosives, blasting etc.</i>												
	<i>Blasting cap assemblies, see Detonator assemblies, non-electric, for blasting.</i>												
	<i>Blasting caps, electric, see Detonators, electric for blasting.</i>												
	<i>Blasting caps, non-electric, see Detonators, non-electric, for blasting.</i>												
	<i>Bleaching powder, see Calcium hypochlorite mixtures, etc.</i>												
I	Blue asbestos (<i>Crocidolite</i>) or Brown asbestos (<i>amosite, miosorite</i>).	9	UN2212	II	9	IB8, IP2, IP4	155	216	240	Forbidden	Forbidden	A	34, 40
	Bombs, photo-flash	1.1F	UN0037	II	1.1F			62	None	Forbidden	Forbidden	08	
	Bombs, photo-flash	1.1D	UN0038	II	1.1D			62	None	Forbidden	Forbidden	03	
	Bombs, photo-flash	1.2G	UN0039	II	1.2G			62	None	Forbidden	Forbidden	03	
	Bombs, photo-flash	1.3G	UN0299	II	1.3G			62	None	Forbidden	Forbidden	03	
	Bombs, smoke, non-explosive, with corrosive liquid, without initiating device.	8	UN2028	II	8		None	160	None	Forbidden	50 kg	E	40
	Bombs, with bursting charge	1.1F	UN0033	II	1.1F			62	None	Forbidden	Forbidden	08	
	Bombs, with bursting charge	1.1D	UN0034	II	1.1D			62	None	Forbidden	Forbidden	03	
	Bombs, with bursting charge	1.2D	UN0035	II	1.2D			62	None	Forbidden	Forbidden	03	
	Bombs, with bursting charge	1.2F	UN0291	II	1.2F			62	None	Forbidden	Forbidden	08	
	Bombs with flammable liquid, with bursting charge.	1.1J	UN0399	II	1.1J			62	None	Forbidden	Forbidden	04	23E
	Bombs with flammable liquid, with bursting charge.	1.2J	UN0400	II	1.2J			62	None	Forbidden	Forbidden	04	23E
	Boosters with detonator	1.1B	UN0225	II	1.1B		None	62	None	Forbidden	Forbidden	11	
	Boosters with detonator	1.2B	UN0268	II	1.2B		None	62	None	Forbidden	Forbidden	07	
	Boosters, without detonator	1.1D	UN0042	II	1.1D		None	62	None	Forbidden	Forbidden	07	
	Boosters, without detonator	1.2D	UN0283	II	1.2D		None	62	None	Forbidden	Forbidden	07	
	<i>Borate and chlorate mixtures, see Chlorate and borate mixtures.</i>												
+	Borneol	4.1	UN1312	III	4.1	A1, IB8, IP3	None	213	240	25 kg	100 kg	A	
	Boron tribromide	8	UN2692	I	8, 6.1	2, A3, A7, B9, B14, B32, B74, N34, T20, TP2, TP12, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	C	12
	Boron trichloride	2.3	UN1741		2.3, 8	3, B9, B14	None	304	314	Forbidden	Forbidden	D	25, 40
	Boron trifluoride, compressed	2.3	UN1008		2.3	2, B9, B14	None	302	314, 315	Forbidden	Forbidden	D	40
	Boron trifluoride acetic acid complex.	8	UN1742	II	8	B2, B6, IB2, T8, TP2, TP12	154	202	242	1 L	30 L	A	
	Boron trifluoride diethyl etherate	8	UN2604	I	8, 3	A19, T10, TP2	None	201	243	0.5 L	2.5 L	D	40
	Boron trifluoride dihydrate	8	UN2851	II	8	IB8, IP2, IP4, T7, TP2	154	212	240	15 kg	50 kg	B	12, 40,
	Boron trifluoride dimethyl etherate	4.3	UN2965	I	4.3, 8, 3.	A19, T10, TP2, TP7	None	201	243	Forbidden	1 L	D	21, 28, 40, 49, 100
	Boron trifluoride propionic acid complex.	8	UN1743	II	8	B2, IB2, T8, TP2, TP12	154	202	242	1 L	30 L	A	
	<i>Box toe gum, see Nitrocellulose etc.</i>												
	Bromates, inorganic, aqueous solution, n.o.s.	5.1	UN3213	II	5.1	IB2, T4, TP1	152	202	242	1 L	5 L	B	56, 58, 106
	Bromates, inorganic, n.o.s.	5.1	UN1450	II	5.1	IB8, IP2, IP4	152	212	242	5 kg	25 kg	A	56, 58, 106
	<i>Bromine azide</i>	Forbidden											
+	Bromine or Bromine solutions	8	UN1744	I	8, 6.1	1, A3, A6, B9, B64, B85, N34, N43, T22, TP2, TP10, TP12, TP13	None	226	249	Forbidden	Forbidden		12, 40, 66, 74, 89, 90

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym- bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age	
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Bromine chloride	2.3	UN2901	.....	2.3, 8, 5.1.	2, B9, B14	None	304	314, 315	Forbidden	Forbidden	D	40, 89, 90
+	Bromine pentafluoride	5.1	UN1745	I	5.1, 6.1, 8.	1, B9, B14, B30, B72, T22, TP2, TP12, TP13, TP38, TP44	None	228	244	Forbidden	Forbidden	D	25, 40, 66, 90
+	Bromine trifluoride	5.1	UN1746	I	5.1, 6.1, 8.	2, B9, B14, B32, B74, T22, TP2, TP12, TP13, TP38, TP45	None	228	244	Forbidden	Forbidden	D	25, 40, 66, 90
	4-Bromo-1,2-dinitrobenzene	Forbidden											
	4-Bromo-1,2-dinitrobenzene (un- stable at 59 degrees C.)	Forbidden											
	1-Bromo-3-chloropropane	6.1	UN2688	III	6.1	IB3, T4, TP1	153	203	241	60 L	220 L	A	
	1-Bromo-3-methylbutane	3	UN2341	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
	1-Bromo-3-nitrobenzene (unstable at 56 degrees C.)	Forbidden											
	2-Bromo-2-nitropropane-1,3-diol ..	4.1	UN3241	III	4.1	46, IB8, IP3	151	213	None	25 kg	50 kg	C	12, 25, 40
	Bromoacetic acid, solid	8	UN1938	II	8	A7, IB8, IP2, IP4, N34, T7	154	212	240	15 kg	50 kg	A	
	Bromoacetic acid, solution	8	UN1938	II	8	B2, IB2, T7, TP2	154	202	242	1 L	30 L	A	40
+	Bromoacetone	6.1	UN1569	II	6.1, 3	2, T20, TP2, TP13	None	193	245	Forbidden	Forbidden	D	40
	Bromoacetyl bromide	8	UN2513	II	8	B2, IB2, T8, TP2, TP12	154	202	242	1 L	30 L	C	40
	Bromobenzene	3	UN2514	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
	Bromobenzyl cyanides, liquid	6.1	UN1694	I	6.1	T14, TP2, TP13	None	201	243	Forbidden	30 L	D	12, 40
	Bromobenzyl cyanides, solid	6.1	UN1694	I	6.1	T14, TP2, TP13	None	211	242	Forbidden	50 kg	D	12, 40
	1-Bromobutane	3	UN1126	II	3	IB2, T4, TP1	150	202	242	5L	60 L	B	40
	2-Bromobutane	3	UN2339	II	3	B1, IB2, T4, TP1	150	202	242	5 L	60 L	B	40
	Bromochloromethane	6.1	UN1887	III	6.1	IB3, T4, TP1	153	203	241	60 L	220 L	A	
	2-Bromoethyl ethyl ether	3	UN2340	III	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	40
	Bromoforn	6.1	UN2515	III	6.1	IB3, T4, TP1	153	203	241	60 L	220 L	A	12, 40
	Bromomethylpropanes	3	UN2342	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	
	2-Bromopentane	3	UN2343	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	
	Bromopropanes	3	UN2344	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	40
	3-Bromopropyne	3	UN2345	III	3	IB3, T2, TP1	150	203	242	60 L	220 L	A	
	Bromosilane	Forbidden		II	3	IB2, T4, TP1	150	202	242	5 L	60 L	D	40
	Bromotoluene-alpha, see Benzyl bromide.												
	Bromotrifluoroethylene	2.1	UN2419	.....	2.1		None	304	314, 315	Forbidden	150 kg	B	40
	Bromotrifluoromethane or Refrig- erant gas, R 13B1..	2.2	UN1009	.....	2.2	T50	306	304	314, 315	75 kg	150 kg	A	
	Brucine	6.1	UN1570	I	6.1	IB7, IP1	None	211	242	5 kg	50 kg	A	
	Bursters, explosive	1.1D	UN0043	II	1.1D		None	62	None	Forbidden	Forbidden	07	
	Butadienes, stabilized	2.1	UN1010	.....	2.1	T50	306	304	314, 315	Forbidden	150 kg	B	40
	Butane see also Petroleum gases, liquefied.	2.1	UN1011	.....	2.1	19, T50	306	304	314, 315	Forbidden	150 kg	E	40
	Butane, butane mixtures and mix- tures having similar properties in cartridges each not exceed- ing 500 grams, see Recep- tacles, etc.												
	Butanedione	3	UN2346	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	
	1,2,4-Butanetriol trinitrate	Forbidden											
	Butanols	3	UN1120	II	3	IB2, T4, TP1, TP29	150	202	242	5 L	60 L	B	
	tert-Butoxycarbonyl azide	Forbidden		III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
	Butyl acetates	3	UN1123	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	
	Butyl acid phosphate	8	UN1718	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
	Butyl acrylates, stabilized	3	UN2348	III	3	B1, IB3, T2, TP1	150	203	242	5 L	60 L	A	
	Butyl alcohols, see Butanols												
	Butyl benzenes	3	UN2709	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
	n-Butyl bromide, see 1- Bromobutane.												
	n-Butyl chloride, see Chlorobutanes.												
D	sec-Butyl chloroformate	6.1	NA2742	I	6.1, 3, 8.	2, B9, B14, B32, B74, T20, TP4, TP12, TP13, TP38, TP45	None	227	244	1 L	30 L	A	12, 13, 22, 25, 40, 48, 100
	n-Butyl chloroformate	6.1	UN2743	I	6.1, 8, 3.	2, B9, B14, B32, B74, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	A	12, 13, 21, 25, 40, 100
	Butyl ethers, see Dibutyl ethers ...												
	Butyl ethyl ether, see Ethyl butyl ether.												
	n-Butyl formate	3	UN1128	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	
	tert-Butyl hydroperoxide, with more than 90 percent with water.	Forbidden											
	tert-Butyl hypochlorite	4.2	UN3255	I	4.2, 8		None	211	243	Forbidden	Forbidden	D	
	N-n-Butyl imidazole	6.1	UN2690	II	6.1	IB2, T7, TP2	None	202	243	5 L	60 L	A	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym- bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age	
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other
							(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
A	Calcium hypochlorite, dry or Calcium hypochlorite mixtures dry with more than 39 percent available chlorine (8.8 percent available oxygen).	5.1	UN1748	II	5.1	A7, A9, IB8, IP2, IP4, N34, W9	152	212	None	5 kg	25 kg	D	4, 5, 25, 48, 56, 58, 69
	Calcium hypochlorite, hydrated or Calcium hypochlorite, hydrated mixtures, with not less than 5.5 percent but not more than 10 percent water.	5.1	UN2880	II	5.1	IB8, IP2, IP4, W9	152	212	240	5 kg	25 kg	D	4, 5, 25, 48, 56, 58, 69
	Calcium hypochlorite mixtures, dry, with more than 10 percent but not more than 39 percent available chlorine.	5.1	UN2208	III	5.1	A1, A29, IB8, IP3, N34, W9	152	213	240	25 kg	100 kg	D	4, 5, 25, 48, 56, 58, 69
	Calcium manganese silicon	4.3	UN2844	III	4.3	A1, A19, IB8, IP2, IP4	151	213	241	25 kg	100 kg	A	85, 103
	Calcium nitrate	5.1	UN1454	III	5.1	34, IB8, IP3	152	213	240	25 kg	100 kg	A	.....
	Calcium oxide	8	UN1910	III	8	IB8, IP3	154	213	240	25 kg	100 kg	A	.....
	Calcium perchlorate	5.1	UN1455	II	5.1	IB6, IP2	152	212	242	5 kg	25 kg	A	56, 58, 106
	Calcium permanganate	5.1	UN1456	II	5.1	IB6, IP2	152	212	242	5 kg	25 kg	D	56, 58, 69, 106, 107
	Calcium peroxide	5.1	UN1457	II	5.1	IB6, IP2	152	212	242	5 kg	25 kg	A	13, 75, 106
	Calcium phosphide	4.3	UN1360	I	4.3, 6.1	A8, A19, N40	None	211	242	Forbidden	15 kg	E	40, 85
	Calcium, pyrophoric or Calcium alloys, pyrophoric.	4.2	UN1855	I	4.2	.....	None	187	None	Forbidden	Forbidden	D	.....
	Calcium resinate	4.1	UN1313	III	4.1	A1, A19, IB6	None	213	240	25 kg	100 kg	A	.....
	Calcium resinate, fused	4.1	UN1314	III	4.1	A1, A19, IB4	None	213	240	25 kg	100 kg	A	.....
	Calcium selenate, see Selenates or Selenites.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Calcium silicide	4.3	UN1405	II	4.3	A19, IB7, IP2	151	212	241	15 kg	50 kg	B	85, 103
	.....	.....	.....	.....	.....	A1, A19, IB8, IP4	151	213	241	25 kg	100 kg	B	85, 103
	Camphor oil	3	UN1130	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	.....
	Camphor, synthetic	4.1	UN2717	III	4.1	A1, IB8, IP3	None	213	240	25 kg	100 kg	A	.....
	Cannon primers, see Primers, tubular.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Caproic acid	8	UN2829	III	8	IB3, T4, TP1	154	203	241	5 L	60 L	A	.....
	Caps, blasting, see Detonators, etc.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Carbamate pesticides, liquid, flammable, toxic, flash point less than 23 degrees C.	3	UN2758	I	3, 6.1	T14, TP2, TP13, TP27	None	201	243	Forbidden	30 L	B	40
	.....	.....	.....	.....	.....	IB2, T11, TP2, TP13, TP27	None	202	243	1 L	60 L	B	40
	Carbamate pesticides, liquid, toxic.	6.1	UN2992	I	6.1	T14, TP2, TP13, TP27	None	201	243	1 L	30 L	B	40
	.....	.....	.....	.....	.....	IB2, T11, TP2, TP13, TP27	None	202	243	5 L	60 L	B	40
.....	.....	.....	.....	.....	IB3, T7, TP2, TP28	153	203	241	60 L	220 L	A	40	
Carbamate pesticides, liquid, toxic, flammable, flash point not less than 23 degrees C.	6.1	UN2991	I	6.1, 3	T14, TP2, TP13, TP27	None	201	243	1 L	30 L	B	40	
.....	.....	.....	.....	.....	IB2, T11, TP2, TP13, TP27	None	202	243	5 L	60 L	B	40	
.....	.....	.....	.....	.....	B1, IB3, T7, TP2, TP28	153	203	242	60 L	220 L	A	40	
Carbamate pesticides, solid, toxic	6.1	UN2757	I	6.1	IB7, IP1	None	211	242	5 kg	50 kg	A	40	
.....	.....	.....	.....	.....	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A	40	
.....	.....	.....	.....	.....	IB8, IP3	153	213	240	100 kg	200 kg	A	40	
Carbolic acid, see Phenol, solid or Phenol, molten.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carbolic acid solutions, see Phenol solutions.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carbon, activated	4.2	UN1362	III	4.2	IB8, IP3	None	213	241	0.5 kg	0.5 kg	A	12	
Carbon, animal or vegetable origin.	4.2	UN1361	II	4.2	IB6	None	212	242	Forbidden	Forbidden	A	12	
.....	
Carbon bisulfide, see Carbon disulfide.	.....	.....	.....	.....	IB8, IP3	None	213	241	Forbidden	Forbidden	A	12	
Carbon dioxide	2.2	UN1013	.....	2.2	.....	306	302, 304	302, 314, 315	75 kg	150 kg	A	.....
Carbon dioxide and nitrous oxide mixtures.	2.2	UN1015	.....	2.2	.....	306	None	314, 315	75 kg	150 kg	A	.....
Carbon dioxide and oxygen mixtures, compressed.	2.2	UN1014	.....	2.2, 5.1	.....	306	304	314, 315	75 kg	150 kg	A	.....
Carbon dioxide, refrigerated liquid	2.2	UN2187	.....	2.2	T75, TP5	306	304	314, 315	50 kg	500 kg	B	.....
Carbon dioxide, solid or Dry ice	9	UN1845	III	None	.....	217	217	240	200 kg	200 kg	C	40	
Carbon disulfide	3	UN1131	I	3, 6.1	B16, T14, TP2, TP7, TP13	None	201	243	Forbidden	Forbidden	D	18, 40, 115	
Carbon monoxide, compressed	2.3	UN1016	.....	2.3, 2.1	.....	4	None	302	314, 315	25 kg	D	40	
Carbon monoxide and hydrogen mixture, compressed.	2.3	UN2600	.....	2.3, 2.1	.....	6	None	302	302	Forbidden	D	40	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym-bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age	
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	<i>Caustic soda, (etc.) see Sodium hydroxide etc.</i>												
	Cells, containing sodium	4.3	UN3292	II	4.3		189	189	189	25 kg gross	No limit	A	
	Celluloid, in block, rods, rolls, sheets, tubes, etc., except scrap.	4.1	UN2000	III	4.1		None	213	240	25 kg	100 kg	A	
	Celluloid, scrap	4.2	UN2002	III	4.2	IB8, IP3	None	213	241	Forbidden	Forbidden	D	
	Cement, see Adhesives containing flammable liquid.												
	Cerium, slabs, ingots, or rods	4.1	UN1333	II	4.1	IB8, IP2, IP4, N34	None	212	240	15 kg	50 kg	A	74, 91
	Cerium, turnings or gritty powder	4.3	UN3078	II	4.3	A1, IB7, IP2	151	212	242	15 kg	50 kg	E	
	Cesium or Caesium	4.3	UN1407	I	4.3	A19, IB1, IP1, N34, N40	None	211	242	Forbidden	15 kg	D	
D	Cesium nitrate or Caesium nitrate	5.1	UN1451	III	5.1	A1, A29, IB8, IP3	152	213	240	25 kg	100 kg	A	
	Charcoal briquettes, shell, screenings, wood, etc.	4.2	NA1361	III	4.2	IB8	151	213	240	25 kg	100 kg	A	12
	Charges, bursting, plastics bonded.	1.1D	UN0457	II	1.1D		None	62	None	Forbidden	Forbidden	07	
	Charges, bursting, plastics bonded.	1.2D	UN0458	II	1.2D		None	62	None	Forbidden	Forbidden	07	
	Charges, bursting, plastics bonded.	1.4D	UN0459	II	1.4D		None	62	None	Forbidden	75 kg	06	
	Charges, bursting, plastics bonded.	1.4S	UN0460	II	1.4S		None	62	None	25 kg	100 kg	05	
	Charges, demolition	1.1D	UN0048	II	1.1D		None	62	None	Forbidden	Forbidden	03	
	Charges, depth	1.1D	UN0056	II	1.1D		None	62	None	Forbidden	Forbidden	03	
	Charges, expelling, explosive, for fire extinguishers, see Cartridges, power device.												
	Charges, explosive, commercial without detonator.	1.1D	UN0442	II	1.1D		None	62	None	Forbidden	Forbidden	07	
	Charges, explosive, commercial without detonator.	1.2D	UN0443	II	1.2D		None	62	None	Forbidden	Forbidden	07	
	Charges, explosive, commercial without detonator.	1.4D	UN0444	II	1.4D		None	62	None	Forbidden	75 kg	06	
	Charges, explosive, commercial without detonator.	1.4S	UN0445	II	1.4S		None	62	None	25 kg	100 kg	05	
	Charges, propelling	1.1C	UN0271	II	1.1C		None	62	None	Forbidden	Forbidden	07	
	Charges, propelling	1.3C	UN0272	II	1.3C		None	62	None	Forbidden	Forbidden	07	
	Charges, propelling	1.2C	UN0415	II	1.2C		None	62	None	Forbidden	Forbidden	07	
	Charges, propelling	1.4C	UN0491	II	1.4C		None	62	None	Forbidden	75 kg	06	
	Charges, propelling, for cannon	1.3C	UN0242	II	1.3C		None	62	None	Forbidden	Forbidden	10	
	Charges, propelling, for cannon	1.1C	UN0279	II	1.1C		None	62	None	Forbidden	Forbidden	10	
	Charges, propelling, for cannon	1.2C	UN0414	II	1.2C		None	62	None	Forbidden	Forbidden	10	
	Charges, shaped, flexible, linear	1.4D	UN0237	II	1.4D		None	62	None	Forbidden	75 kg	06	
	Charges, shaped, flexible, linear	1.1D	UN0288	II	1.1D	101	None	62	None	Forbidden	Forbidden	07	
	Charges, shaped, without detonator.	1.1D	UN0059	II	1.1D		None	62	None	Forbidden	Forbidden	07	
	Charges, shaped, without detonator.	1.2D	UN0439	II	1.2D		None	62	None	Forbidden	Forbidden	07	
	Charges, shaped, without detonator.	1.4D	UN0440	II	1.4D		None	62	None	Forbidden	75 kg	06	
	Charges, shaped, without detonator.	1.4S	UN0441	II	1.4S		None	62	None	25 kg	100 kg	05	
	Charges, supplementary explosive.	1.1D	UN0060	II	1.1D		None	62	None	Forbidden	Forbidden	10	
D	Chemical kit	8	NA1760	II	8		154	161	None	1 L	30 L	B	40
	Chemical kits	9	UN3316		9		None	None	None	10 kg	10 kg	A	
	Chloral, anhydrous, stabilized	6.1	UN2075	II	6.1	IB2, T7, TP2	None	202	243	5 L	60 L	D	40
	Chlorate and borate mixtures	5.1	UN1458	II	5.1	A9, IB8, IP2, IP4, N34	152	212	240	5 kg	25 kg	A	56, 58, 106
				III	5.1	A9, IB8, IP3, N34	152	213	240	25 kg	100 kg	A	56, 58, 106
	Chlorate and magnesium chloride mixtures.	5.1	UN1459	II	5.1	A9, IB8, IP2, IP4, N34, T4, TP1	152	212	240	5 kg	25 kg	A	56, 58, 106
				III	5.1	A9, IB8, IP3, N34, T4, TP1	152	213	240	25 kg	100 kg	A	56, 58, 106
	Chlorate of potash, see Potassium chlorate.												
	Chlorate of soda, see Sodium chlorate.												
	Chlorates, inorganic, aqueous solution, n.o.s..	5.1	UN3210	II	5.1	IB2, T4, TP1	152	202	242	1 L	5 L	B	56, 58, 106
	Chlorates, inorganic, n.o.s.	5.1	UN1461	II	5.1	A9, IB6, IP2, N34	152	212	242	5 kg	25 kg	A	56, 58, 106
	Chloric acid aqueous solution, with not more than 10 percent chloric acid.	5.1	UN2626	II	5.1	IB2	None	229	None	Forbidden	Forbidden	D	56, 58, 106
	Chloride of phosphorus, see Phosphorus trichloride.												
	Chloride of sulfur, see Sulfur chloride.												
	Chlorinated lime, see Calcium hypochlorite mixtures, etc.												
	Chlorine	2.3	UN1017		2.3, 8	2, B9, B14, T50, TP19	None	304	314, 315	Forbidden	Forbidden	D	40, 51, 55, 62, 68, 89, 90

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym- bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age	
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
D	Chlorine azide	Forbidden											
	Chlorine dioxide, hydrate, frozen Chlorine dioxide (not hydrate)	5.1 Forbidden	NA9191	II	5.1, 6.1		None	229	None	Forbidden	Forbidden	E	
	Chlorine pentafluoride	2.3	UN2548		2.3, 5.1, 8.	1, B7, B9, B14	None	304	314	Forbidden	Forbidden	D	40, 89, 90
	Chlorine trifluoride	2.3	UN1749		2.3, 5.1, 8.	2, B7, B9, B14	None	304	314	Forbidden	Forbidden	D	40, 89, 90
	Chlorite solution	8	UN1908	II	8	A3, A6, A7, B2, IB2, N34, T7, TP2, TP24	154	202	242	1 L	30 L	B	26
	.....			III	8	A3, A6, A7, B2, IB3, N34, T4, TP2, TP24	154	203	241	5 L	60 L	B	26
	Chlorites, inorganic, n.o.s.	5.1	UN1462	II	5.1	A7, IB6, IP2, N34	152	212	242	5 kg	25 kg	A	56, 58, 106 40
	1-Chloro-1,1-difluoroethane or Refrigerant gas R 142b.	2.1	UN2517		2.1	T50	306	304	314, 315	Forbidden	150 kg	B	40
	3-Chloro-4-methylphenyl isocyanate.	6.1	UN2236	II	6.1	IB2	None	202	243	5 L	60 L	B	40
	1-Chloro-1,2,2,2- tetrafluoroethane or Refrigerant gas R 124.	2.2	UN1021		2.2	T50	306	304	314, 315	75 kg	150 kg	A	
	4-Chloro-o-toluidine hydrochloride	6.1	UN1579	III	6.1	IB8, IP3	153	213	240	100 kg	200 kg	A	
	1-Chloro-2,2,2-trifluoroethane or Refrigerant gas R 133a.	2.2	UN1983		2.2	T50	306	304	314, 315	75 kg	150 kg	A	
	Chloroacetic acid, molten	6.1	UN3250	II	6.1, 8	IB1, T7, TP3	None	202	243	Forbidden	Forbidden	C	40
	Chloroacetic acid, solid	6.1	UN1751	II	6.1, 8	A3, A7, IB8, IP4, N34	None	212	242	15 kg	50 kg	A	40
	Chloroacetic acid, solution	6.1	UN1750	II	6.1, 8	A7, IB2, N34, T7, TP2	None	202	243	1 L	30 L	C	40
	Chloroacetone, stabilized	6.1	UN1695	I	6.1, 3, 8.	2, B9, B14, B32, B74, N12, N32, N34, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	D	21, 40, 100
+	Chloroacetone (unstabilized)	Forbidden											
	Chloroacetonitrile	6.1	UN2668	II	6.1, 3	2, B9, B14, B32, B74, IB99, T20, TP2, TP38, TP45	None	227	244	Forbidden	Forbidden	A	12, 26, 40
	Chloroacetophenone (CN), liquid	6.1	UN1697	II	6.1	A3, IB2, N12, N32, N33, T11, TP2, TP13, TP27	None	202	243	Forbidden	60 L	D	12, 40
	Chloroacetophenone (CN), solid ..	6.1	UN1697	II	6.1	A3, IB8, IP2, IP4, N12, N32, N33, N34, T7, TP2, TP13	None	212	None	Forbidden	100 kg	D	12, 40
	Chloroacetyl chloride	6.1	UN1752	I	6.1, 8	2, A3, A6, A7, B3, B8, B9, B14, B32, B74, B77, N34, N43, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	D	40
	Chloroanilines, liquid	6.1	UN2019	II	6.1	IB2, T7, TP2	None	202	243	5 L	60 L	A	
	Chloroanilines, solid	6.1	UN2018	II	6.1	IB8, IP2, IP4, T7, TP2	None	212	242	25 kg	100 kg	A	
	Chloroanisidines	6.1	UN2233	III	6.1	IB8, IP3	153	213	240	100 kg	200 kg	A	
	Chlorobenzene	3	UN1134	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
	Chlorobenzol, see Chlorobenzene												
	Chlorobenzotrifluorides	3	UN2234	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	40
	Chlorobenzyl chlorides	6.1	UN2235	III	6.1	IB3, T4, TP1	153	203	241	60 L	220 L	A	
	Chlorobutanes	3	UN1127	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	
	Chlorocresols, liquid	6.1	UN2669	II	6.1	IB2, T7, TP2	None	202	243	5 L	60 L	A	12
	Chlorocresols, solid	6.1	UN2669	II	6.1	IB8, IP2, IP3, T7	None	212	242	25 kg	100 kg	A	12
	Chlorodifluorobromomethane or Refrigerant gas R 12B1.	2.2	UN1974		2.2	T50	306	304	314, 315	75 kg	150 kg	A	
	Chlorodifluoromethane and chloropentafluoroethane mix- ture or Refrigerant gas R 502 with fixed boiling point, with ap- proximately 49 percent chlorodifluoromethane.	2.2	UN1973		2.2	T50	306	304	314, 315	75 kg	150 kg	A	
	Chlorodifluoromethane or Refrig- erant gas R 22.	2.2	UN1018		2.2	T50	306	304	314, 315	75 kg	150 kg	A	
+	Chlorodinitrobenzenes	6.1	UN1577	II	6.1	IB8, IP2, IP4, T7, TP2	None	212	242	25 kg	100 kg	A	91
	2-Chloroethanal	6.1	UN2232	I	6.1	2, B9, B14, B32, B74, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	D	40
	Chloroform	6.1	UN1888	III	6.1	IB3, N36, T7, TP2	153	203	241	60 L	220 L	A	40
G	Chloroformates, toxic, corrosive, flammable, n.o.s..	6.1	UN2742	II	6.1, 8, 3.	5, IB1, T7, TP2	None	202	243	1 L	30 L	A	12, 13, 21, 25, 40, 100
G	Chloroformates, toxic, corrosive, n.o.s..	6.1	UN3277	II	6.1, 8	IB2, T8, TP2, TP13, TP28	None	202	243	1 L	30 L	A	12, 13, 25, 40
	Chloromethyl chloroformate	6.1	UN2745	II	6.1, 8	IB2, T7, TP2, TP13	None	202	243	1 L	30 L	A	12, 13, 21, 25, 40, 100

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym- bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age	
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Chloromethyl ethyl ether	3	UN2354	II	3, 6.1	IB2, T7, TP1, TP13	None ...	202	243	1 L	60 L	E	40
	Chloronitroanilines	6.1	UN2237	III	6.1	IB8, IP3	153	213	240	100 kg	200 kg	A	.....
+	Chloronitrobenzene, <i>ortho</i> , liquid	6.1	UN1578	II	6.1	IB2, T11, TP2, TP13, TP27	None ...	202	243	5 L	60 L	A	.....
+	Chloronitrobenzenes <i>meta</i> or <i>para</i> , solid.	6.1	UN1578	II	6.1	IB8, IP2, IP4, T7, TP2	None ...	212	242	25 kg	100 kg	A	.....
	Chloronitrotoluenes, liquid	6.1	UN2433	III	6.1	IB3, T4, TP1	153	203	241	60 L	220 L	A	.....
	Chloronitrotoluenes, solid	6.1	UN2433	III	6.1	IB8, IP3	153	213	240	100 kg	200 kg	A	.....
	Chloropentafluoroethane or Refrig- erant gas R 115.	2.2	UN1020	.....	2.2	T50	306	304	314, 315	75 kg	150 kg	A	.....
	Chlorophenolates, liquid or Phenolates, liquid.	8	UN2904	III	8	IB3	154	203	241	5 L	60 L	A	.....
	Chlorophenolates, solid or Phenolates, solid.	8	UN2905	III	8	IB8, IP3	154	213	240	25 kg	100 kg	A	.....
	Chlorophenols, liquid	6.1	UN2021	III	6.1	IB3, T4, TP1	153	203	241	60 L	220 L	A	.....
	Chlorophenols, solid	6.1	UN2020	III	6.1	IB8, IP3, T4, TP1	153	213	240	100 kg	200 kg	A	.....
	Chlorophenyltrichlorosilane	8	UN1753	II	8	A7, B2, B6, IB2, N34, T7, TP2	None ...	202	242	Forbidden	30 L	C	40
+	Chloropicrin	6.1	UN1580	I	6.1	2, B7, B9, B14, B32, B46, B74, T20, TP2, TP13, TP38, TP45	None ...	227	244	Forbidden	Forbidden	D	40
	Chloropicrin and methyl bromide mixtures.	2.3	UN1581	.....	2.3	2, B9, B14, T50	None ...	193	314, 315	Forbidden	Forbidden	D	25, 40
	Chloropicrin and methyl chloride mixtures.	2.3	UN1582	.....	2.3	2, T50	None ...	193	245	Forbidden	Forbidden	D	25, 40
	<i>Chloropicrin mixture, flammable (pressure not exceeding 14.7 psia at 115 degrees F flash point below 100 degrees F) see Toxic liquids, flammable, etc.</i>	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Chloropicrin mixtures, n.o.s.	6.1	UN1583	I	6.1	5	None ...	201	243	Forbidden	Forbidden	C	40
	.....	.....	.....	.....	.....	IB2	None ...	202	243	Forbidden	Forbidden	C	40
	.....	.....	.....	.....	.....	IB3	153	203	241	Forbidden	Forbidden	C	40
D	Chloropivaloyl chloride	6.1	NA9263	I	6.1, 8	2, B9, B14, B32, B74, T20, TP4, TP12, TP13, TP38, TP45	None ...	227	244	Forbidden	Forbidden	B	40
	Chloroplatinic acid, solid	8	UN2507	III	8	IB8, IP3	154	213	240	25 kg	100 kg	A	.....
	Chloroprene, stabilized	3	UN1991	I	3, 6.1	B57, T14, TP2, TP13	None ...	201	243	Forbidden	30 L	D	40
	<i>Chloroprene, uninhibited</i>	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	2-Chloropropane	3	UN2356	I	3	N36, T11, TP2, TP13	150	201	243	1 L	30 L	E	.....
	3-Chloropropanol-1	6.1	UN2849	III	6.1	IB3, T4, TP1	153	203	241	60 L	220 L	A	.....
	2-Chloropropene	3	UN2456	I	3	A3, N36, T11, TP2	150	201	243	1 L	30 L	E	.....
	2-Chloropropionic acid	8	UN2511	III	8	IB3, T4, TP2	154	203	241	5 L	60 L	A	8
	2-Chloropyridine	6.1	UN2822	II	6.1	IB2, T7, TP2	None ...	202	243	5 L	60 L	A	40
	Chlorosilanes, corrosive, flam- mable, n.o.s.	8	UN2986	II	8, 3 ...	IB2, T11, TP2, TP27	None ...	202	243	1 L	30 L	C	40
	Chlorosilanes, corrosive, n.o.s.	8	UN2987	II	8	B2, IB2, T14, TP2, TP27	154	202	242	1 L	30 L	C	40
	Chlorosilanes, flammable, corro- sive, n.o.s.	3	UN2985	II	3, 8 ...	IB1, T11, TP2, TP13, TP27	None ...	201	243	1 L	5 L	B	40
	Chlorosilanes, water-reactive, flammable, corrosive, n.o.s.	4.3	UN2988	I	4.3, 3, 8.	A2, T10, TP2, TP7, TP13	None ...	201	244	Forbidden	1 L	D	21, 28, 40, 49, 100 40
+	Chlorosulfonic acid (<i>with or with- out sulfur trioxide</i>).	8	UN1754	I	8, 6.1	2, A3, A6, A10, B9, B10, B14, B32, B74, T20, TP2, TP12, TP38, TP45	None ...	227	244	Forbidden	Forbidden	C	40
	Chlorotoluenes	3	UN2238	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	.....
	Chlorotoluidines liquid	6.1	UN2239	III	6.1	IB3, T7, TP1, TP28	153	203	241	60 L	220 L	A	.....
	Chlorotoluidines solid	6.1	UN2239	III	6.1	IB8, IP3, T4, TP1	153	213	240	100 kg	200 kg	A	.....
	Chlorotrifluoromethane and trifluoromethane azeotropic mixture or Refrigerant gas R 503 with approximately 60 per- cent chlorotrifluoromethane.	2.2	UN2599	.....	2.2 .....	.....	306	304	314, 315	75 kg	150 kg	A	.....
	Chlorotrifluoromethane or Refrig- erant gas R 13.	2.2	UN1022	.....	2.2 .....	.....	306	304	314, 315	75 kg	150 kg	A	.....
	Chromic acid solution	8	UN1755	II	8	B2, IB2, T8, TP2, TP12	154	202	242	1 L	30 L	C	40
	.....	.....	.....	.....	.....	IB3, T4, TP1, TP12	154	203	241	5 L	60 L	C	40
	<i>Chromic anhydride, see Chro- mium trioxide, anhydrous.</i>	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Chromic fluoride, solid	8	UN1756	II	8	IB8, IP2, IP4	154	212	240	15 kg	50 kg	A	26
	Chromic fluoride, solution	8	UN1757	II	8	B2, IB2, T7, TP2	154	202	242	1 L	30 L	A	.....
	.....	.....	.....	.....	.....	IB3, T4, TP1	154	203	241	5 L	60 L	A	.....
	Chromium nitrate	5.1	UN2720	III	5.1	A1, A29, IB8, IP3	152	213	240	25 kg	100 kg	A	.....

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym- bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age		
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)	
	Chromium oxychloride	8	UN1758	I	8	A3, A6, A7, B10, N34, T10, TP2, TP12	None ...	201	243	0.5 L	2.5 L	C	40, 66, 74, 89, 90	
	Chromium trioxide, anhydrous	5.1	UN1463	II	5.1, 8	IB8, IP4	None ...	212	242	5 kg	25 kg	A		
	Chromosulfuric acid	8	UN2240	I	8	A3, A6, A7, B4, B6, N34, T10, TP2, TP12, TP13	None ...	201	243	0.5 L	2.5 L	B	40, 66, 74, 89, 90	
	<i>Chromyl chloride, see Chromium oxychloride.</i>													
	<i>Cigar and cigarette lighters, charged with fuel, see Lighters for cigars, cigarettes, etc.</i>													
	<i>Coal briquettes, hot</i>	Forbidden												
	Coal gas, compressed	2.3	UN1023	.....	2.3, 2.1	3	None ...	302	314, 315	Forbidden	25 kg	D	40
	Coal tar distillates, flammable	3	UN1136	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B		
				III	3	B1, IB3, T4, TP1, TP29	150	203	242	60 L	220 L	A		
	<i>Coal tar dye, corrosive, liquid, n.o.s., see Dyes, liquid or solid, n.o.s. or Dye intermediates, liq- uid or solid, corrosive, n.o.s..</i>													
	Coating solution (<i>includes surface treatments or coatings used for industrial or other purposes such as vehicle undercoating, drum or barrel lining</i>)	3	UN1139	I	3	T11, TP1, TP8, TP27	150	201	243	1 L	30 L	E		
				II	3	IB2, T4, TP1, TP8	150	202	242	5 L	60 L	B		
				III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A		
	Cobalt naphthenates, powder	4.1	UN2001	III	4.1	A19, IB8, IP3	151	213	240	25 kg	100 kg	A		
	Cobalt resinate, precipitated	4.1	UN1318	III	4.1	A1, A19, IB6	151	213	240	25 kg	100 kg	A		
	<i>Coke, hot</i>	Forbidden												
	<i>Collodion, see Nitrocellulose etc ..</i>													
D G	Combustible liquid, n.o.s.	Combustible	NA1993	III	None ..	IB3,T1, T4, TP1	150	203	241	60 L	220 L	A		
G	Components, explosive train, n.o.s.	1.2B	UN0382	II	1.2B ...	101	None ...	62	None ...	Forbidden	Forbidden	11		
G	Components, explosive train, n.o.s.	1.4B	UN0383	II	1.4B ...	101	None ...	62	None ...	Forbidden	75 kg	06		
G	Components, explosive train, n.o.s.	1.4S	UN0384	II	1.4S ...	101	None ...	62	None ...	25 kg	100 kg	05		
G	Components, explosive train, n.o.s.	1.1B	UN0461	II	1.1B ...	101	None ...	62	None ...	Forbidden	Forbidden	11		
	<i>Composition B, see Hexolite, etc</i>													
D G	Compounds, cleaning liquid	8	NA1760	I	8	A7, B10, T14, TP2, TP9, TP27	None ...	201	243	0.5 L	2.5 L	B	40	
				II	8	B2, IB2, N37, T11, TP2, TP27	154	202	242	1 L	30 L	B	40	
				III	8	IB3, N37, T7, TP1, TP28	154	203	241	5 L	60 L	A	40	
D G	Compounds, cleaning liquid	3	NA1993	I	3	T11, TP1, TP9	150	201	243	1 L	30 L	E		
				II	3	IB2, T7, TP1, TP8, TP28	150	202	242	5 L	60 L	B		
				III	3	B1, B52, IB3, T4, TP1, TP29	150	203	242	60 L	220 L	A		
D G	Compounds, tree killing, liquid or Compounds, weed killing, liquid.	8	NA1760	I	8	A7, B10, T14, TP2, TP9, TP27	None ...	201	243	0.5 L	2.5 L	B	40	
				II	8	B2, IB2, N37, T11, TP2, TP27	154	202	242	1 L	30 L	B	40	
				III	8	IB3, N37, T7, TP1, TP28	154	203	241	5 L	60 L	A	40	
D G	Compounds, tree killing, liquid or Compounds, weed killing, liquid.	3	NA1993	I	3	T11, TP1, TP9	150	201	243	1 L	30 L	E		
				II	3	IB2, T7, TP1, TP8, TP28	150	202	242	5 L	60 L	B		
				III	3	B1, B52, IB3, T4, TP1, TP29	150	203	242	60 L	220 L	A		
D G	Compounds, tree killing, liquid or Compounds, weed killing, liquid.	6.1	NA2810	I	6.1	T14, TP2, TP13, TP27	None ...	201	243	1 L	30 L	B	40	
				II	6.1	IB2, T11, TP2, TP27	None ...	202	243	5 L	60 L	B	40	
				III	6.1	IB3, T7, TP1, TP28	153	203	241	60 L	220 L	A	40	
G	Compressed gas, flammable, n.o.s.	2.1	UN1954	.....	2.1		306	302, 305	314, 315	Forbidden	150 kg	D	40
G	Compressed gas, n.o.s.	2.2	UN1956	.....	2.2		306, 307	302, 305	314, 315	75 kg	150 kg	A	
G	Compressed gas, oxidizing, n.o.s.	2.2	UN3156	.....	2.2, 5.1		306	302	314, 315	75 kg	150 kg	D	
G I	Compressed gas, toxic, corrosive, n.o.s. <i>Inhalation Hazard Zone A.</i>	2.3	UN3304	2.3, 8		1	None ...	192	245	Forbidden	Forbidden	D	40
G I	Compressed gas, toxic, corrosive, n.o.s. <i>Inhalation Hazard Zone B.</i>	2.3	UN3304	2.3, 8		2	None ...	302, 305	314, 315	Forbidden	Forbidden	D	40
G I	Compressed gas, toxic, corrosive, n.o.s. <i>Inhalation Hazard Zone C.</i>	2.3	UN3304	2.3, 8		3	None ...	302, 305	314, 315	Forbidden	Forbidden	D	40
G I	Compressed gas, toxic, corrosive, n.o.s. <i>Inhalation Hazard Zone D.</i>	2.3	UN3304	2.3, 8		4	None ...	302, 305	314, 315	Forbidden	Forbidden	D	40

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym- bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age	
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
G I	Compressed gas, toxic, flam- mable, corrosive, n.o.s. <i>Inhala- tion Hazard Zone A.</i>	2.3	UN3305	.....	2.3, 2.1, 8.	1	None	192	245	Forbidden	Forbidden	D	17, 40
G I	Compressed gas, toxic, flam- mable, corrosive, n.o.s. <i>Inhala- tion Hazard Zone B.</i>	2.3	UN3305	.....	2.3, 2.1, 8.	2	None	302, 305	314, 315	Forbidden	Forbidden	D	17, 40
G I	Compressed gas, toxic, flam- mable, corrosive, n.o.s. <i>Inhala- tion Hazard Zone C.</i>	2.3	UN3305	.....	2.3, 2.1, 8.	3	None	302, 305	314, 315	Forbidden	Forbidden	D	17, 40
G I	Compressed gas, toxic, flam- mable, corrosive, n.o.s. <i>Inhala- tion Hazard Zone D.</i>	2.3	UN3305	.....	2.3, 2.1, 8.	4	None	302, 305	314, 315	Forbidden	Forbidden	D	17, 40
G	Compressed gas, toxic, flam- mable, n.o.s. <i>Inhalation hazard Zone A.</i>	2.3	UN1953	.....	2.3, 2.1	1	None	192	245	Forbidden	Forbidden	D	40
G	Compressed gas, toxic, flam- mable, n.o.s. <i>Inhalation hazard Zone B.</i>	2.3	UN1953	.....	2.3, 2.1	2, B9, B14	None	302, 305	314, 315	Forbidden	Forbidden	D	40
G	Compressed gas, toxic, flam- mable, n.o.s. <i>Inhalation Hazard Zone C.</i>	2.3	UN1953	.....	2.3, 2.1	3, B14	None	302, 305	314, 315	Forbidden	Forbidden	D	40
G	Compressed gas, toxic, flam- mable, n.o.s. <i>Inhalation Hazard Zone D.</i>	2.3	UN1953	.....	2.3, 2.1	4	None	302, 305	314, 315	Forbidden	Forbidden	D	40
G	Compressed gas, toxic, n.o.s. <i>In- halation Hazard Zone A.</i>	2.3	UN1955	.....	2.3	1	None	192	245	Forbidden	Forbidden	D	40
G	Compressed gas, toxic, n.o.s. <i>In- halation Hazard Zone B.</i>	2.3	UN1955	.....	2.3	2, B9, B14	None	302, 305	314, 315	Forbidden	Forbidden	D	40
G	Compressed gas, toxic, n.o.s. <i>In- halation Hazard Zone C.</i>	2.3	UN1955	.....	2.3	3, B14	None	302, 305	314, 315	Forbidden	Forbidden	D	40
G	Compressed gas, toxic, n.o.s. <i>In- halation Hazard Zone D.</i>	2.3	UN1955	.....	2.3	4	None	302, 305	314, 315	Forbidden	Forbidden	D	40
G I	Compressed gas, toxic, oxidizing, corrosive, n.o.s. <i>Inhalation Haz- ard Zone A.</i>	2.3	UN3306	.....	2.3, 5.1, 8.	1	None	192	244	Forbidden	Forbidden	D	40, 89, 90
G I	Compressed gas, toxic, oxidizing, corrosive, n.o.s. <i>Inhalation Haz- ard Zone B.</i>	2.3	UN3306	.....	2.3, 5.1, 8.	2	None	302, 305	314, 315	Forbidden	Forbidden	D	40, 89, 90
G I	Compressed gas, toxic, oxidizing, corrosive, n.o.s. <i>Inhalation Haz- ard Zone C.</i>	2.3	UN3306	.....	2.3, 5.1, 8.	3	None	302, 305	314, 315	Forbidden	Forbidden	D	40, 89, 90
G I	Compressed gas, toxic, oxidizing, corrosive, n.o.s. <i>Inhalation Haz- ard Zone D.</i>	2.3	UN3306	.....	2.3, 5.1, 8.	4	None	302, 305	314, 315	Forbidden	Forbidden	D	40, 89, 90
G	Compressed gas, toxic, oxidizing, n.o.s. <i>Inhalation Hazard Zone A.</i>	2.3	UN3303	.....	2.3, 5.1	1	None	192	245	Forbidden	Forbidden	D	40
G	Compressed gas, toxic, oxidizing, n.o.s. <i>Inhalation Hazard Zone B.</i>	2.3	UN3303	.....	2.3, 5.1	2	None	302, 305	314, 315	Forbidden	Forbidden	D	40
G	Compressed gas, toxic, oxidizing, n.o.s. <i>Inhalation Hazard Zone C.</i>	2.3	UN3303	.....	2.3, 5.1	3	None	302, 305	314, 315	Forbidden	Forbidden	D	40
G	Compressed gas, toxic, oxidizing, n.o.s. <i>Inhalation Hazard Zone D.</i>	2.3	UN3303	.....	2.3, 5.1	4	None	302, 305	314, 315	Forbidden	Forbidden	D	40
D	Consumer commodity	ORM-D		.....	None ..		156, 306	156, 306	None	30 kg gross	30 kg gross	A	.....
	Contrivances, water-activated, with burster, expelling charge or propelling charge.	1.2L	UN0248	II	1.2L ...	101	None	62	None	Forbidden	Forbidden	08	8E, 14E, 15E, 17E
	Contrivances, water-activated, with burster, expelling charge or propelling charge.	1.3L	UN0249	II	1.3L ...	101	None	62	None	Forbidden	Forbidden	08	8E, 14E, 15E, 17E
	Copper acetoarsenite	Forbidden	UN1585	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A	.....
	Copper acetylde	Forbidden											
	Copper amine azide	Forbidden											
	Copper arsenite	6.1	UN1586	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A	.....
	Copper based pesticides, liquid, flammable, toxic, flash point less than 23 degrees C.	3	UN2776	I	3, 6.1	T14, TP2, TP13, TP27	None	201	243	Forbidden	30 L	B	40
	.....			II	3, 6.1	IB2, T11, TP2, TP13, TP27	None	202	243	1 L	60 L	B	40
	Copper based pesticides, liquid, toxic.	6.1	UN3010	I	6.1	T14, TP2, TP13, TP27	None	201	243	1 L	30 L	B	40
	.....			II	6.1	IB2, T11, TP2, TP13, TP27	None	202	243	5 L	60 L	B	40
	.....			III	6.1	IB3, T7, TP2, TP28	153	203	241	60 L	220 L	A	40
	Copper based pesticides, liquid, toxic, flammable flash point not less than 23 degrees C.	6.1	UN3009	I	6.1, 3	T14, TP2, TP13, TP27	None	201	243	1 L	30 L	B	40
	.....			II	6.1, 3	IB2, T11, TP2, TP13, TP27	None	202	243	5 L	60 L	B	40
	.....			III	6.1, 3	B1, IB3, T7, TP2, TP28	153	203	242	60 L	220 L	A	40
	Copper based pesticides, solid, toxic.	6.1	UN2775	I	6.1	IB7, IP1	None	211	242	5 kg	50 kg	A	40

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym- bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age	
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other
A W	Copper chlorate	5.1	UN2721	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A	40
	Copper chloride	8	UN2802	III	6.1	IB8, IP3	153	213	240	100 kg	200 kg	A	40
	Copper cyanide	6.1	UN1587	II	5.1	A1, IB8, IP2, IP4	152	212	242	5 kg	25 kg	A	56, 58, 106
	Copper selenate, see Selenates or Selenites.												
	Copper selenite, see Selenates or Selenites.												
	Copper tetramine nitrate	Forbidden											
	Copra	4.2	UN1363	III	4.2	IB8, IP3, IP6	None	213	241	Forbidden	Forbidden	A	13, 19, 48, 119
	Cord, detonating, flexible	1.1D	UN0065	II	1.1D	102	63(a)	62	None	Forbidden	Forbidden	07	
	Cord, detonating, flexible	1.4D	UN0289	II	1.4D		None	62	None	Forbidden	75 kg	06	
	Cord detonating or Fuse deto- nating metal clad.	1.2D	UN0102	II	1.2D		None	62	None	Forbidden	Forbidden	07	
	Cord, detonating or Fuse, deto- nating metal clad.	1.1D	UN0290	II	1.1D		None	62	None	Forbidden	Forbidden	07	
	Cord, detonating, mild effect or Fuse, detonating, mild effect metal clad.	1.4D	UN0104	II	1.4D		None	62	None	Forbidden	75 kg	06	
	Cord, igniter	1.4G	UN0066	II	1.4G		None	62	None	Forbidden	75 kg	06	
	Cordeau detonant fuse, see Cord, detonating, etc.; Cord, deto- nating, flexible.												
	Corelite, see Powder, smokeless												
G	Corrosive liquid, acidic, inorganic, n.o.s..	8	UN3264	I	8	B10, T14, TP2, TP27	None	201	243	0.5 L	2.5 L	B	40
				II	8	B2, IB2, T11, TP2, TP27	154	202	242	1 L	30 L	B	40
				III	8	IB3, T7, TP1, TP28	154	203	241	5 L	60 L	A	40
G	Corrosive liquid, acidic, organic, n.o.s..	8	UN3265	I	8	B10, T14, TP2, TP27	None	201	243	0.5 L	2.5 L	B	40
				II	8	B2, IB2, T11, TP2, TP27	154	202	242	1 L	30 L	B	40
				III	8	IB3, T7, TP1, TP28	154	203	241	5 L	60 L	A	40
G	Corrosive liquid, basic, inorganic, n.o.s..	8	UN3266	I	8	B10, T14, TP2, TP27	None	201	243	0.5 L	2.5 L	B	40
				II	8	B2, IB2, T11, TP2, TP27	154	202	242	1 L	30 L	B	40
				III	8	IB3, T7, TP1, TP28	154	203	241	5 L	60 L	A	40
G	Corrosive liquid, basic, organic, n.o.s..	8	UN3267	I	8	B10, T14, TP2, TP27	None	201	243	0.5 L	2.5 L	B	40
				II	8	B2, IB2, T11, TP2, TP27	154	202	242	1 L	30 L	B	40
				III	8	IB3, T7, TP1, TP28	154	203	241	5 L	60 L	A	40
G	Corrosive liquid, self-heating, n.o.s..	8	UN3301	I	8, 4.2	B10	None	201	243	0.5 L	2.5 L	D	
				II	8, 4.2	B2, IB1	154	202	242	1 L	30 L	D	
G	Corrosive liquids, flammable, n.o.s..	8	UN2920	I	8, 3	B10, T14, TP2, TP27	None	201	243	0.5 L	2.5 L	C	25, 40
				II	8, 3	B2, IB2, T11, TP2, TP27	None	202	243	1 L	30 L	C	25, 40
G	Corrosive liquids, n.o.s.	8	UN1760	I	8	A7, B10, T14, TP2, TP27	None	201	243	0.5 L	2.5 L	B	40
				II	8	B2, IB2, T11, TP2, TP27	154	202	242	1 L	30 L	B	40
				III	8	IB3, T7, TP1, TP28	154	203	241	5 L	60 L	A	40
G	Corrosive liquids, oxidizing, n.o.s.	8	UN3093	I	8, 5.1	IB2	None	201	243	Forbidden	2.5 L	C	89
				II	8, 5.1		None	202	243	1 L	30 L	C	89
G	Corrosive liquids, toxic, n.o.s.	8	UN2922	I	8, 6.1	A7, B10, T14, TP2, TP13, TP27	None	201	243	0.5 L	2.5 L	B	40
				II	8, 6.1	B3, IB2, T7, TP2	None	202	243	1 L	30 L	B	40
				III	8, 6.1	IB3, T7, TP1, TP28	154	203	241	5 L	60 L	B	40
G	Corrosive liquids, water-reactive, n.o.s..	8	UN3094	I	8, 4.3		None	201	243	Forbidden	1 L	E	
				II	8, 4.3		None	202	243	1 L	5 L	E	
G	Corrosive solid, acidic, inorganic, n.o.s..	8	UN3260	I	8	IB7, IP1	None	211	242	1 kg	25 kg	B	
				II	8	IB8, IP2, IP4	154	212	240	15 kg	50 kg	B	
				III	8	IB8, IP3	154	213	240	25 kg	100 kg	A	
G	Corrosive solid, acidic, organic, n.o.s..	8	UN3261	I	8	IB7, IP1	None	211	242	1 kg	25 kg	B	
				II	8	IB8, IP2, IP4	154	212	240	15 kg	50 kg	B	
				III	8	IB8, IP3	154	213	240	25 kg	100 kg	A	
G	Corrosive solid, basic, inorganic, n.o.s..	8	UN3262	I	8	IB7, IP1	None	211	242	1 kg	25 kg	B	
				II	8	IB8, IP2, IP4	154	212	240	15 kg	50 kg	B	
				III	8	IB8, IP3	154	213	240	25 kg	100 kg	A	
G	Corrosive solid, basic, organic, n.o.s..	8	UN3263	I	8	IB7, IP1	None	211	242	1 kg	25 kg	B	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym- bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age	
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other
G	Corrosive solids, flammable, n.o.s.	8	UN2921		II 8 III 8 I 8, 4.1	IB8, IP2, IP4 IB8, IP3 IB6	154 154 None	212 213 211	240 240 242	15 kg 25 kg 1 kg	50 kg 100 kg 25 kg	B A B	12, 25
G	Corrosive solids, n.o.s.	8	UN1759		II 8, 4.1 I 8	IB8, IP2, IP4 IB7, IP1	None None	212 211	242 242	15 kg 1 kg	50 kg 25 kg	B B	12, 25
G	Corrosive solids, oxidizing, n.o.s.	8	UN3084		II 8 I 8, 5.1 II 8, 5.1	128, IB8, IP2, IP4 128, IB8, IP3 IB6, IP2	154 None None	213 211 212	240 242 242	25 kg 1 kg 15 kg	100 kg 25 kg 50 kg	A C C	
G	Corrosive solids, self-heating, n.o.s.	8	UN3095		I 8, 4.2	IB6, IP2	None	211	243	1 kg	25 kg	C	
G	Corrosive solids, toxic, n.o.s.	8	UN2923		II 8, 4.2 I 8, 6.1 II 8, 6.1	IB6, IP2 IB7 IB8, IP2, IP4	None None None	212 211 212	242 242 240	15 kg 1 kg 15 kg	50 kg 25 kg 50 kg	C B B	40 40
G	Corrosive solids, water-reactive, n.o.s.	8	UN3096		III 8, 6.1 I 8, 4.3	IB8, IP3 IB4, IP1	154 None	213 211	240 243	25 kg 1 kg	100 kg 25 kg	B D	40, 95
D W	Cotton	9	NA1365		II 8, 4.3 9	IB6, IP2 137, IB8, IP2, IP4, W41	None None	212 None	242 None	15 kg No limit	50 kg No limit	D A	
A W A I W	Cotton waste, oily	4.2	UN1364		III 4.2	IB8, IP6	None	213	None	Forbidden	Forbidden	A	54
	Cotton, wet	4.2	UN1365		III 4.2	IB8, IP6	None	204	241	Forbidden	Forbidden	A	
	Coumarin derivative pesticides, liquid, flammable, toxic, flash point less than 23 degrees C.	3	UN3024		I 3, 6.1	T14, TP2, TP13, TP27	None	201	243	Forbidden	30 L	B	40
	Coumarin derivative pesticides, liquid, toxic.	6.1	UN3026		II 3, 6.1 I 6.1 II 6.1 III 6.1	IB2, T11, TP2, TP13, TP27 T14, TP2, TP13, TP27 IB2, T11, TP2, TP27 IB3, T7, TP1, TP28	None None None 153	202 201 202 203	243 243 243 241	1 L 1 L 5 L 60 L	60 L 30 L 60 L 220 L	B B B A	40 40 40 40
	Coumarin derivative pesticides, liquid, toxic, flammable flash point not less than 23 degrees C.	6.1	UN3025		I 6.1, 3	T14, TP2, TP13, TP27	None	201	243	1 L	30 L	B	40
	Coumarin derivative pesticides, solid, toxic.	6.1	UN3027		II 6.1, 3 III 6.1, 3 I 6.1 II 6.1 III 6.1	IB2, T11, TP2, TP13, TP27 B1, IB3, T7, TP1, TP28 IB7, IP1, T14, TP2, TP27 IB8, IP2, IP4, T11, TP2, TP27 IB8, IP3, T7, TP1, TP28	None 153 None None 153	202 203 211 212 213	243 242 242 242 240	5 L 60 L 5 kg 25 kg 100 kg	50 kg 220 L 50 kg 100 kg 200 kg	A A A A A	40 40 40 40 40
	Cresols	6.1	UN2076		II 6.1, 8	IB8, IP2, IP4, T7, TP2	None	202	243	1 L	30 L	B	
	Cresylic acid	6.1	UN2022		II 6.1, 8	IB2, T7, TP2, TP13	None	202	243	1 L	30 L	B	
	Crotonaldehyde, stabilized	6.1	UN1143		I 6.1, 3	2, B9, B14, B32, B74, B77, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	B	40
	Crotonic acid liquid	8	UN2823		III 8	IB3, T4, TP1	154	203	241	5 L	60 L	A	12
	Crotonic acid, solid	8	UN2823		III 8	IB8, IP3	154	213	240	25 kg	100 kg	A	12
	Crotonylene	3	UN1144		I 3	T11, TP2	150	201	243	1 L	30 L	E	
	Cupriethylenediamine solution	8	UN1761		II 8, 6.1 III 8, 6.1	IB2, T7, TP2 IB3, T7, TP1, TP28	None 154	202 203	243 242	1 L 5 L	30 L 60 L	A A	95
	Cutters, cable, explosive	1.4S	UN0070		II 1.4S		None	62	None	25 kg	100 kg	05	
	Cyanide or cyanide mixtures, dry, see Cyanides, inorganic, solid, n.o.s.												
	Cyanide solutions, n.o.s.	6.1	UN1935		I 6.1 II 6.1 III 6.1	B37, T14, TP2, TP13, TP27 IB2, T11, TP2, TP13, TP27 IB3, T7, TP2, TP13, TP28	None None 153	201 202 203	243 243 241	1 L 5 L 60 L	30 L 60 L 220 L	B A A	40, 52 40, 52 40, 52
	Cyanides, inorganic, solid, n.o.s.	6.1	UN1588		I 6.1 II 6.1 III 6.1	IB7, IP1, N74, N75 IB8, IP2, IP4, N74, N75 IB8, IP3, N74, N75	None None 153	211 212 213	242 242 240	5 kg 25 kg 100 kg	50 kg 100 kg 200 kg	A A A	52 52 52
	Cyanogen	2.3	UN1026		2.3, 2.1	2	None	192	245	Forbidden	Forbidden	D	40
	Cyanogen bromide	6.1	UN1889		I 6.1, 8	A6, A8	None	211	242	1 kg	15 kg	D	40
	Cyanogen chloride, stabilized	2.3	UN1589		2.3, 8	1	None	192	245	Forbidden	Forbidden	D	40
	Cyanuric chloride	8	UN2670		II 8	IB8, IP2, IP4	None	212	240	15 kg	50 kg	A	12, 40
	Cyanuric triazide	Forbidden											
	Cyclobutane	2.1	UN2601		2.1		306	304	314, 315	Forbidden	150 kg	B	40
	Cyclobutyl chloroformate	6.1	UN2744		II 6.1, 8, 3.	IB1, T7, TP2, TP13	None	202	243	1 L	30 L	A	12, 13, 21, 25, 40, 100

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym- bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age	
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	1,5,9-Cyclododecatriene	6.1	UN2518	III	6.1	IB3, T4, TP1	153	203	241	60 L	220 L	A	40
	Cycloheptane	3	UN2241	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	40
	Cycloheptatriene	3	UN2603	II	3, 6.1	IB2, T7, TP1, TP13	None	202	243	1 L	60 L	E	40
	Cycloheptene	3	UN2242	II	3	B1, IB2, T4, TP1	150	202	242	5 L	60 L	B	.....
	Cyclohexane	3	UN1145	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	E	.....
	Cyclohexanone	3	UN1915	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	.....
	Cyclohexene	3	UN2256	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	E	.....
	Cyclohexenylnitrilchlorosilane	8	UN1762	II	8	A7, B2, IB2, N34, T7, TP2, TP13	None	202	242	Forbidden	30 L	C	40
	Cyclohexyl acetate	3	UN2243	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	.....
	Cyclohexyl isocyanate	6.1	UN2488	I	6.1, 3	2, B9, B14, B32, B74, B77, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	D	40
	Cyclohexyl mercaptan	3	UN3054	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	40, 95
	Cyclohexylamine	8	UN2357	II	8, 3	IB2, T7, TP1	None	202	243	1 L	30 L	A	40
	Cyclohexyltrichlorosilane	8	UN1763	II	8	A7, B2, IB2, N34, T7, TP2, TP13	None	202	242	Forbidden	30 L	C	40
	Cyclonite and cyclotetramethylenetetranitramine mixtures, wetted or desensitized see RDX and HMX mixtures, wetted or desensitized etc.												
	Cyclonite and HMX mixtures, wetted or desensitized see RDX and HMX mixtures, wetted or desensitized etc.												
	Cyclonite and octogen mixtures, wetted or desensitized see RDX and HMX mixtures, wetted or desensitized etc.												
	Cyclonite, see Cyclotrimethylenetrinitramine, etc.												
	Cyclooctadiene phosphines, see 9-Phosphabicyclononanes.												
	Cyclooctadienes	3	UN2520	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	.....
	Cyclooctatetraene	3	UN2358	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	.....
	Cyclopentane	3	UN1146	II	3	IB2, T7, TP1	150	202	242	5 L	60 L	E	.....
	Cyclopentane, methyl, see Methylcyclopentane.												
	Cyclopentanol	3	UN2244	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	.....
	Cyclopentanone	3	UN2245	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	.....
	Cyclopentene	3	UN2246	II	3	IB2, IP8, T7, TP2	150	202	242	5 L	60 L	E	.....
	Cyclopropane	2.1	UN1027	.....	2.1	T50	306	304	314, 315	Forbidden	150 kg	E	40
	Cyclotetramethylene tetranitramine (dry or unphlegmatized) (HMX).	Forbidden											
	Cyclotetramethylenetetranitramine, desensitized or Octogen, desensitized or HMX, desensitized.	1.1D	UN0484	II	1.1D		None	62	None	Forbidden	Forbidden	10	.....
	Cyclotetramethylenetetranitramine, wetted or HMX, wetted or Octogen, wetted with not less than 15 percent water, by mass.	1.1D	UN0226	II	1.1D		None	62	None	Forbidden	Forbidden	10	.....
	Cyclotrimethylenetrinitramine and cyclotetramethylenetetranitramine mixtures, wetted or desensitized see RDX and HMX mixtures, wetted or desensitized etc.												
	Cyclotrimethylenetrinitramine and octogen, mixtures, wetted or desensitized see RDX and HMX mixtures, wetted or desensitized etc.												
	Cyclotrimethylenetrinitramine and HMX mixtures, wetted or desensitized see RDX and HMX mixtures, wetted or desensitized etc.												
	Cyclotrimethylenetrinitramine, desensitized or Cyclonite, desensitized or Hexogen, desensitized or RDX, desensitized.	1.1D	UN0483	II	1.1D		None	62	None	Forbidden	Forbidden	10	.....
	Cyclotrimethylenetrinitramine, wetted or Cyclonite, wetted or Hexogen, wetted or RDX, wetted with not less than 15 percent water by mass.	1.1D	UN0072	II	1.1D		None	62	None	Forbidden	Forbidden	10	.....
	Cymenes	3	UN2046	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	.....
	Dangerous Goods in Machinery or Dangerous Goods in Apparatus.	9	UN3363	.....	.....	136	None	222	None	No limit	No limit	A	.....

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym- bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age	
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	<i>Dicycloheptadiene, see</i> Bicyclo [2,2,1] hepta-2,5-diene, stabilized.												
	Dicyclohexylamine	8	UN2565	III	8	IB3, T4, TP1	154	203	241	5 L	60 L	A	
	Dicyclohexylammonium nitrite	4.1	UN2687	III	4.1	IB8, IP3	151	213	240	25 kg	100 kg	A	48
	Dicyclopentadiene	3	UN2048	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
	Didymium nitrate	5.1	UN1465	III	5.1	A1, IB8, IP3	152	213	240	25 kg	100 kg	A	
D	Diesel fuel	3	NA1993	III	None	B1, IB3, T4, TP1, TP29	150	203	242	60 L	220 L	A	
I	Diesel fuel	3	UN1202	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
	<i>Diethanol nitrosamine dinitrate (dry).</i>	Forbidden											
	Diethoxymethane	3	UN2373	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	E	
	3,3-Diethoxypropene	3	UN2374	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	
	Diethyl carbonate	3	UN2366	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
	<i>Diethyl cellosolve, see</i> Ethylene glycol diethyl ether.												
	Diethyl ether or Ethyl ether	3	UN1155	I	3	T11, TP2	150	201	243	1 L	30 L	E	40
	Diethyl ketone	3	UN1156	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	
	<i>Diethyl peroxydicarbonate, with more than 27 percent in solution.</i>	Forbidden											
	Diethyl sulfate	6.1	UN1594	II	6.1	IB2, T7, TP2	None	202	243	5 L	60 L	C	
	Diethyl sulfide	3	UN2375	II	3	IB2, T7, TP1, TP13	None	202	243	5 L	60 L	E	
	Diethylamine	3	UN1154	II	3, 8	IB2, N34, T7, TP1	None	202	243	1 L	5 L	E	40
	2-Diethylaminoethanol	8	UN2686	II	8, 3	B2, IB2, T7, TP2	None	202	243	1 L	30 L	A	
	Diethylaminopropylamine	3	UN2684	III	3, 8	B1, IB3, T4, TP1	150	203	242	5 L	60 L	A	
+	N, N-Diethylaniline	6.1	UN2432	III	6.1	IB3, T4, TP1	153	203	241	60 L	220 L	A	
	Diethylbenzene	3	UN2049	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
	Diethyldichlorosilane	8	UN1767	II	8, 3	A7, B6, IB2, N34, T7, TP2, TP13	None	202	243	Forbidden	30 L	C	40
	<i>Diethylene glycol dinitrate</i>	Forbidden											
	Diethyleneglycol dinitrate, desensitized with not less than 25 percent non-volatile water-insoluble phlegmatizer, by mass.	1.1D	UN0075	II	1.1D		None	62	None	Forbidden	Forbidden	13	21E
	Diethylenetriamine	8	UN2079	II	8	B2, IB2, T7, TP2	154	202	242	1 L	30 L	A	40
	N,N-Diethylethylenediamine	8	UN2685	II	8, 3	IB2, T7, TP2	None	202	243	1 L	30 L	A	
	<i>Diethylgold bromide</i>	Forbidden											
	Diethylthiophosphoryl chloride	8	UN2751	II	8	B2, IB2, T7, TP2	154	202	242	1 L	39 L	A	40
	Diethylzinc	4.2	UN1366	I	4.2, 4.3	B11, T21, TP2, TP7	None	181	244	Forbidden	Forbidden	D	18
	<i>Difluorochloroethanes, see</i> 1-Chloro-1,1-difluoroethanes.												
	1,1-Difluoroethane or Refrigerant gas R 152a.	2.1	UN1030		2.1	T50	306	304	314, 315	Forbidden	150 kg	B	40
	1,1-Difluoroethylene or Refrigerant gas R 1132a.	2.1	UN1959		2.1		306	304	None	Forbidden	150 kg	E	40
	Difluoromethane or Refrigerant gas R 32.	2.1	UN3252		2.1	T50	306	302	314, 315	Forbidden	150 kg	D	40
	Difluorophosphoric acid, anhydrous.	8	UN1768	II	8	A6, A7, B2, IB2, N5, N34, T8, TP2, TP12	None	202	242	1 L	30 L	A	40
	2,3-Dihydropyran	3	UN2376	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	
	<i>1,8-Dihydroxy-2,4,5,7-tetranitroanthraquinone (chrysamminic acid).</i>	Forbidden											
	<i>Diiodoacetylene</i>	Forbidden											
	Diisobutyl ketone	3	UN1157	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
	Diisobutylamine	3	UN2361	III	3, 8	B1, IB3, T4, TP1	150	203	242	5 L	60 L	A	
	Diisobutylene, isomeric compounds.	3	UN2050	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	
	Diisooctyl acid phosphate	8	UN1902	III	8	IB3, T4, TP1	154	203	241	5 L	60 L	A	
	Diisopropyl ether	3	UN1159	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	E	40
	Diisopropylamine	3	UN1158	II	3, 8	IB2, T7, TP1	None	202	243	1 L	5 L	B	
	<i>Diisopropylbenzene hydroperoxide, with more than 72 percent in solution.</i>	Forbidden											
	Diketene, stabilized	6.1	UN2521	I	6.1, 3	2, B9, B14, B32, B74, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	D	40, 49
	1,2-Dimethoxyethane	3	UN2252	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	
	1,1-Dimethoxyethane	3	UN2377	II	3	IB2, T7, TP1	150	202	242	5 L	60 L	B	
	Dimethyl carbonate	3	UN1161	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	
	<i>Dimethyl chlorothiophosphate, see</i> Dimethyl thiophosphoryl chloride.												
	<i>2,5-Dimethyl-2,5-dihydroperoxy hexane, with more than 82 percent with water.</i>	Forbidden											
	Dimethyl disulfide	3	UN2381	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	40
	Dimethyl ether	2.1	UN1033		2.1	T50	306	304	314, 315	Forbidden	150 kg	B	40
	Dimethyl-N-propylamine	3	UN2266	II	3, 8	IB2, T7, TP2, TP13	None	202	243	1 L	5 L	B	40

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Sym- bols	Hazardous materials descriptions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age	
							Excep- tions	Non-bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only	Loca- tion	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Dimethyl sulfate	6.1	UN1595	I	6.1, 8	2, B9, B14, B32, B74, B77, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	D	40
	Dimethyl sulfide	3	UN1164	II	3	IB1, IP8, T7, TP2	None	202	242	5 L	60 L	E	40
	Dimethyl thiophosphoryl chloride	6.1	UN2267	II	6.1, 8	IB2, T7, TP2	None	202	243	1 L	30 L	B	25
	Dimethylamine, anhydrous	2.1	UN1032	.....	2.1	T50	None	304	314, 315	Forbidden	150 kg	D	40
	Dimethylamine solution	3	UN1160	II	3, 8	IB2, T7, TP1	None	202	243	1 L	5 L	B	.....
	2-Dimethylaminoacetonitrile	3	UN2378	II	3, 6.1	IB2, T7, TP1	None	202	243	1 L	60 L	A	26, 40
	2-Dimethylaminoethanol	8	UN2051	II	8, 3	B2, IB2, T7, TP2	154	202	243	1 L	30 L	A	.....
	2-Dimethylaminoethyl acrylate	6.1	UN3302	II	6.1	IB2, T7, TP2	None	202	243	5 L	60 L	D	25
	2-Dimethylaminoethyl methacrylate	6.1	UN2522	II	6.1	IB2, T7, TP2	None	202	243	5 L	60 L	B	40
	N,N-Dimethylaniline	6.1	UN2253	II	6.1	IB1, T7, TP2	None	202	243	5 L	60 L	A	.....
	2,3-Dimethylbutane	3	UN2457	II	3	IB2, T7, TP1	150	202	242	5 L	60 L	E	.....
	1,3-Dimethylbutylamine	3	UN2379	II	3, 8	IB2, T7, TP1	None	202	243	1 L	5 L	B	.....
	Dimethylcarbamoyl chloride	8	UN2262	II	8	B2, IB2, T7, TP2	154	202	242	1 L	30 L	A	40
	Dimethylcyclohexanes	3	UN2263	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	.....
	Dimethylcyclohexylamine	8	UN2264	II	8, 3	B2, IB2, T7, TP2	154	202	243	1 L	30 L	A	40
	Dimethyldichlorosilane	3	UN1162	II	3, 8	B77, IB2, T7, TP2, TP13	None	202	243	Forbidden	Forbidden	B	40
	Dimethyldioxyisilane	3	UN2380	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	.....
	Dimethyldioxanes	3	UN2707	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B	.....
	.....	.....	.....	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	.....
	N,N-Dimethylformamide	3	UN2265	III	3	B1, IB3, T2, TP2	150	203	242	60 L	220 L	A	.....
	Dimethylhexane dihydroperoxide (dry)	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Dimethylhydrazine, symmetrical	6.1	UN2382	I	6.1, 3	2, A7, B9, B14, B32, B74, B77, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	D	40
	Dimethylhydrazine, unsymmetrical	6.1	UN1163	I	6.1, 3, 8	2, B7, B9, B14, B32, B74, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	D	21, 38, 40, 100
	2,2-Dimethylpropane	2.1	UN2044	.....	2.1	.....	306	304	314, 315	Forbidden	150 kg	E	40
	Dimethylzinc	4.2	UN1370	I	4.2, 4.3	B11, B16, T21, TP2, TP7	None	181	244	Forbidden	Forbidden	D	18
	Dinitro-o-cresol, solid	6.1	UN1598	II	6.1	IB8, IP2, IP4, T7, TP2	None	212	242	25 kg	100 kg	A	.....
	Dinitro-o-cresol, solution	6.1	UN1598	II	6.1	IB2, IP2, IP4, T7, TP2	None	202	243	5 L	60 L	A	.....
	1,3-Dinitro-5,5-dimethyl hydantoin	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Dinitro-7,8-dimethylglycoluril (dry)	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1,3-Dinitro-4,5-dinitrosobenzene	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1,4-Dinitro-1,1,4,4-tetramethylbutanetetranitrate (dry)	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	2,4-Dinitro-1,3,5-trimethylbenzene	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Dinitroanilines	6.1	UN1596	II	6.1	IB8, IP2, IP4, T7, TP2	None	212	242	25 kg	100 kg	A	91
	Dinitrobenzenes, liquid	6.1	UN1597	II	6.1	11, IB2, T7, TP2	None	202	243	5 L	60 L	A	91
	Dinitrobenzenes, solid	6.1	UN1597	II	6.1	11, IB8, IP2, IP4	None	212	242	25 kg	100 kg	A	91
	Dinitrochlorobenzene, see Chlorodinitrobenzene .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1,2-Dinitroethane	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1,1-Dinitroethane (dry)	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Dinitrogen tetroxide	2.3	UN1067	.....	2.3, 5.1, 8	1, B7, B14, B45, B46, B61, B66, B67, B77, T50, TP21	None	336	314	Forbidden	Forbidden	D	40, 89, 90
	Dinitroglycoluril or Dingu	1.1D	UN0489	II	1.1D	.....	None	62	None	Forbidden	Forbidden	10	.....
	Dinitromethane	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Dinitrophenol, dry or wetted with less than 15 percent water, by mass	1.1D	UN0076	II	1.1D, 6.1	.....	None	62	None	Forbidden	Forbidden	10	5E
	Dinitrophenol solutions	6.1	UN1599	II	6.1	IB2, T7, TP2	None	202	243	5 L	60 L	A	36
	.....	.....	.....	III	6.1	IB3, T4, TP1	153	203	241	60 L	220 L	A	36
	Dinitrophenol, wetted with not less than 15 percent water, by mass	4.1	UN1320	I	4.1, 6.1	23, A8, A19, A20, N41	None	211	None	1 kg	15 kg	E	28, 36
	Dinitrophenolates alkali metals, dry or wetted with less than 15 percent water, by mass	1.3C	UN0077	II	1.3C, 6.1	.....	None	62	None	Forbidden	Forbidden	10	5E
	Dinitrophenolates, wetted with not less than 15 percent water, by mass	4.1	UN1321	I	4.1, 6.1	23, A8, A19, A20, N41	None	211	None	1 kg	15 kg	E	28, 36
	Dinitropropylene glycol	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Dinitroresorcinol, dry or wetted with less than 15 percent water, by mass	1.1D	UN0078	II	1.1D	.....	None	62	None	Forbidden	Forbidden	10	5E
	2,4-Dinitroresorcinol (heavy metal salts of) (dry)	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	4,6-Dinitroresorcinol (heavy metal salts of) (dry)	Forbidden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Dinitroresorcinol, wetted with not less than 15 percent water, by mass	4.1	UN1322	I	4.1	23, A8, A19, A20, N41	None	211	None	1 kg	15 kg	E	28, 36